

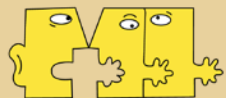
Sharing Forum on Disability Awareness 'Supporting Students with Disabilities: the University's Obligations and Experiences'

# EXPERIENCE IN SUPPORTING THE LEARNING OF STUDENTS WITH HEARING IMPAIRMENT

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Centre for Sign Linguistics and Deaf Studies

Centre for Sign Linguistics and Deaf Studies,  
Department of Linguistics and Modern Languages,  
Chinese University of Hong Kong  
6 March 2015

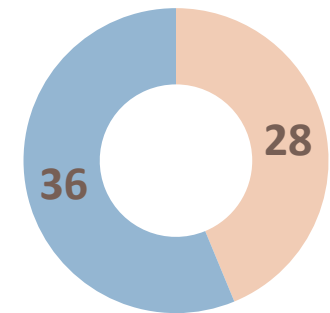
# Centre for Sign Linguistics and Deaf Studies (CSLDS)

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## Staff in CSLDS

- D/hh Staff
- Hearing Staff



Total:  
64



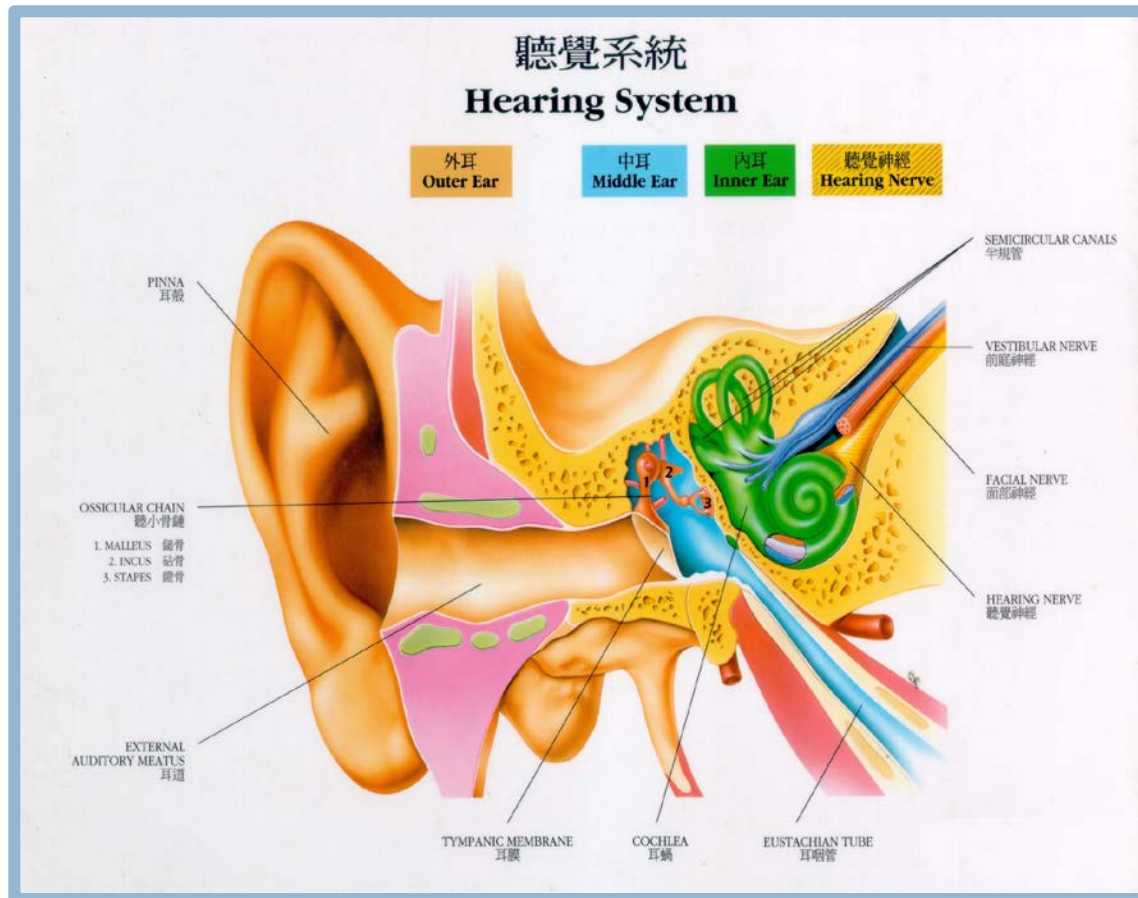
Department of  
Linguistics and Modern Languages  
語言學及現代語言系

# Outline

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- 1. A quick glance at hearing impairment**
- 2. Educational support for students with hearing impairment**
  - ▣ Experience at CUHK**
  - ▣ International practices for reference**

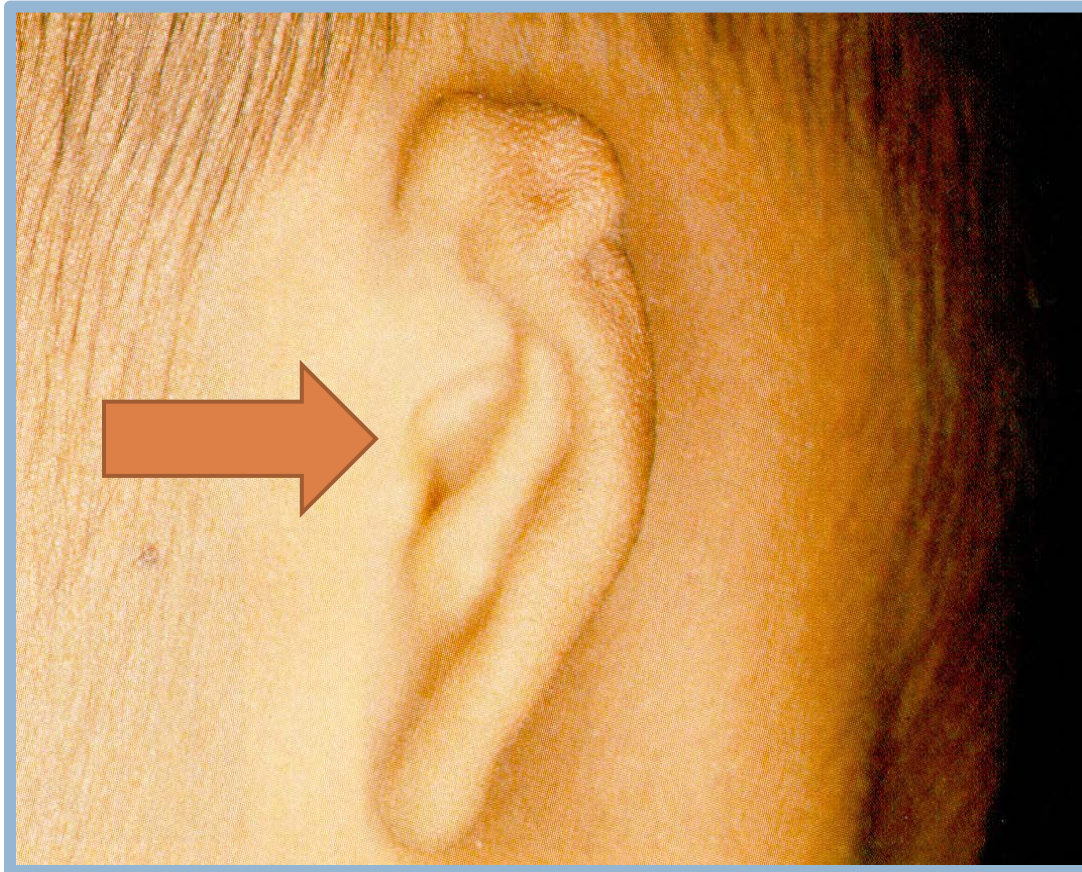
# Hearing Impairment



# Problems with the Outer Ear

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## □ Atresia ( 外耳道閉鎖 )

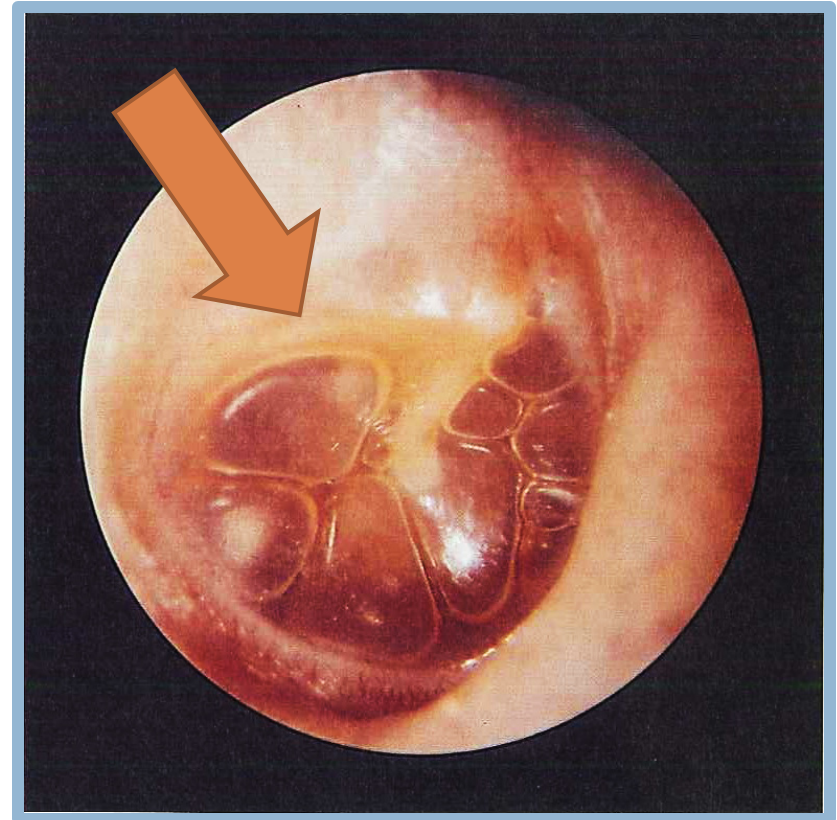
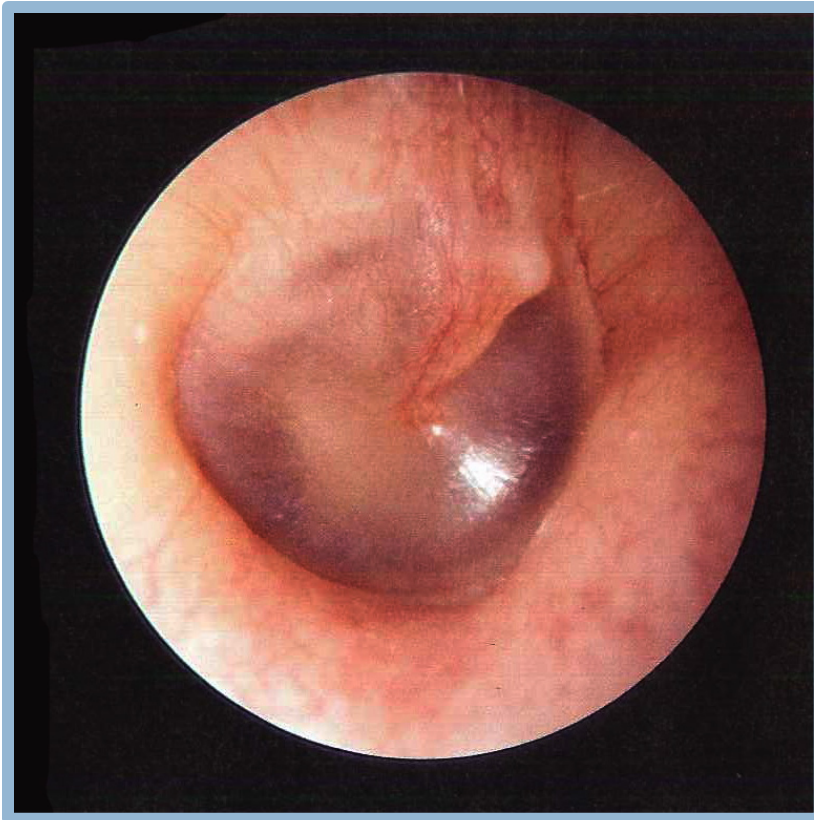


Picture adapted from Hawke & McCombe (1995) *Diseases of the Ear*. Canada: Manticore Communication Inc.

# Problems with the Middle Ear

6

## □ Serious Otitis Media ( 中耳積水 )

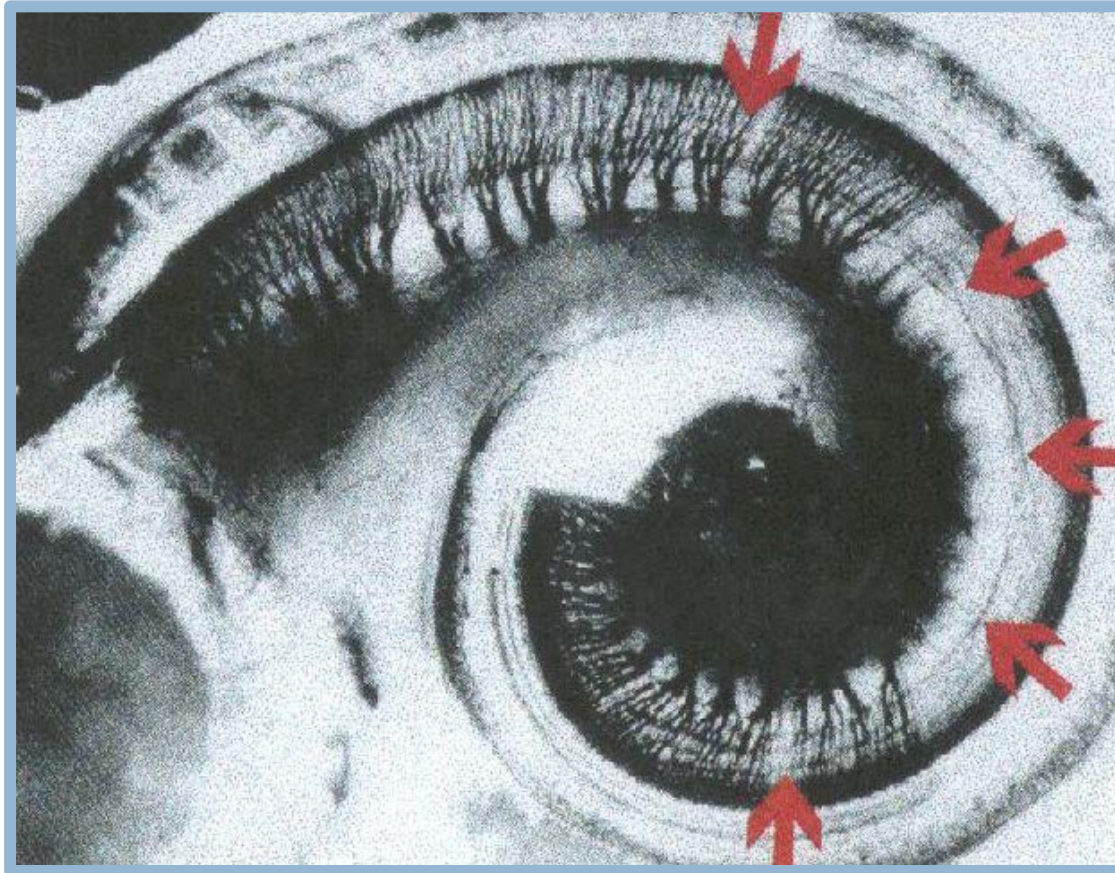


Picture adapted from Hawke & McCombe (1995) *Diseases of the Ear*. Canada: Manticore Communication Inc.

# Problems with the Inner Ear

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## □ Noise Induced Hearing Loss ( 噪音性聽力損失 )



Picture adapted from Hawke & McCombe (1995) *Diseases of the Ear*. Canada: Manticore Communication Inc.

# Hearing Assessment: Pure Tone Audiometry

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## □ Testing frequencies 測試頻率：

250Hz



500Hz



1000Hz



2000Hz



4000Hz



8000Hz



Earphone  
(聽筒)



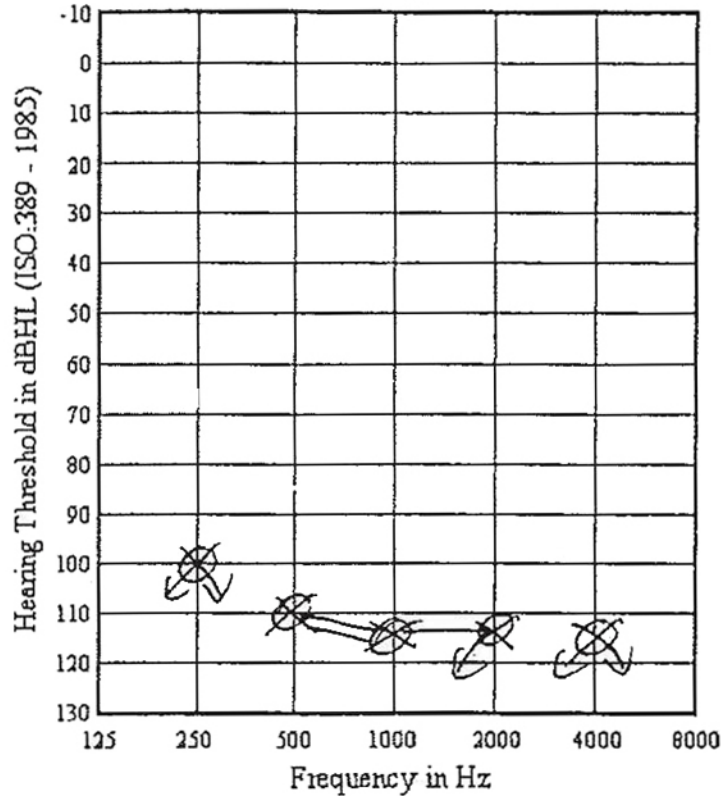
Bone Vibrator  
(骨導振動器)



Audiometer  
(聽力檢查儀)



## Audiogram



Keys:

Air conduction:

×

○

⊗

●

Bone conduction:

>

<

⌊

⌋

Sound Field:

S

No response:

⊗ ● < ⌊ § ⊗ ⊗ > ⌋

Audiometer: GSI 61

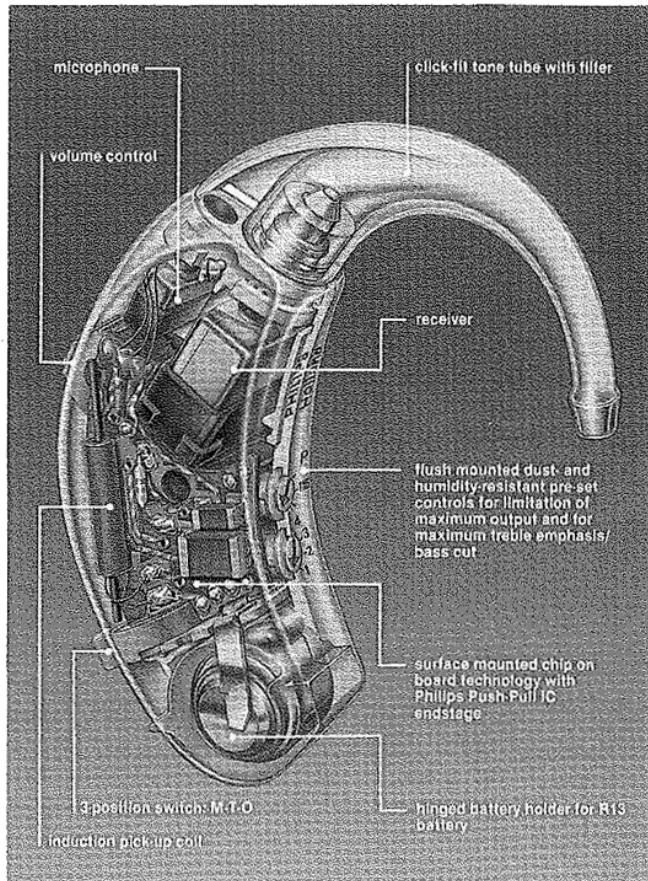
Remarks:

### Test Findings:

1. Fairly reliable results were obtained via Play Audiometry, suggesting bilateral profound hearing impairment.
2. Tympanometric findings are within normal limits bilaterally.
3. Speech reception improves with amplification and speechreading.
4. Expressive speech is defective.

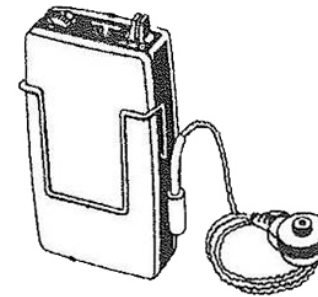
# Types of Hearing Aids

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BTE enlarged, showing basic components.

**A** 耳後式



**B** 袋裝式



**C**

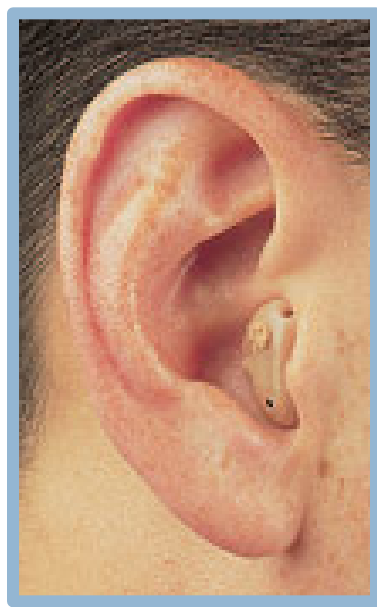
Figure 43.3. Examples of: (A) behind-the-ear (BTE), (B) body-worn (BW), and (C) eyeglass (EG) hearing aids (BTE drawing courtesy of Philips Hearing Instruments, Mahwah, NJ)

# Types of Hearing Aids

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耳内式



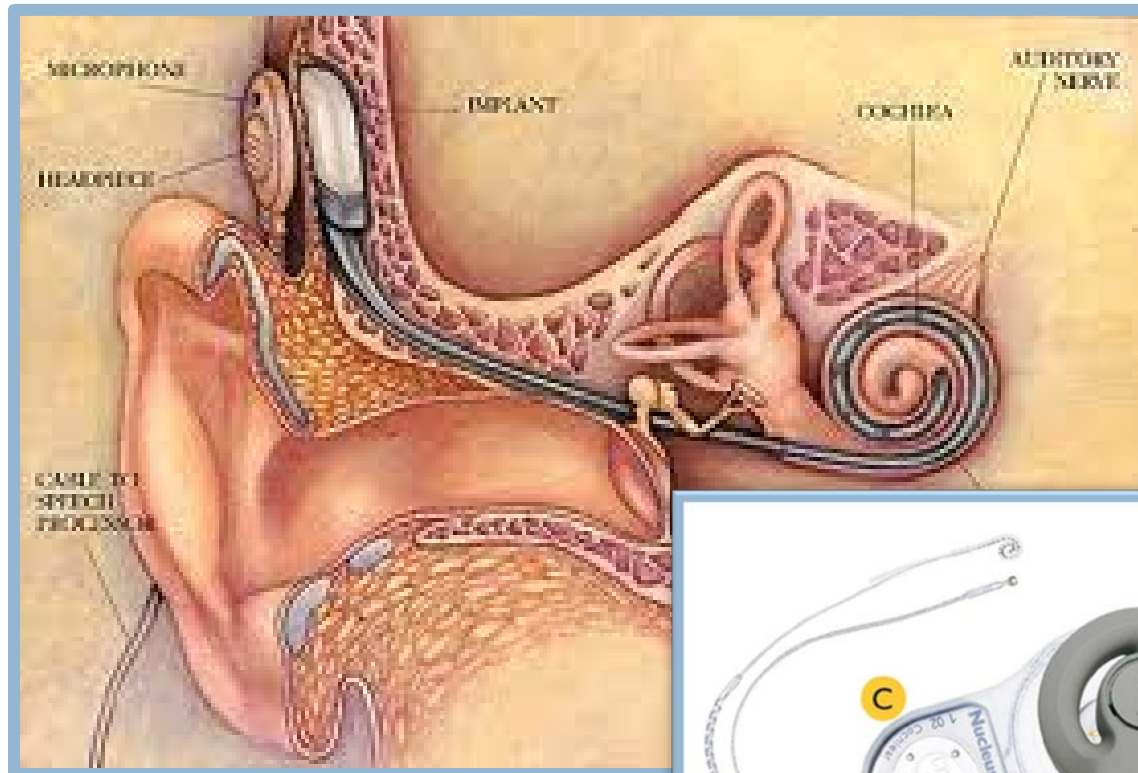
耳道式



全耳道式

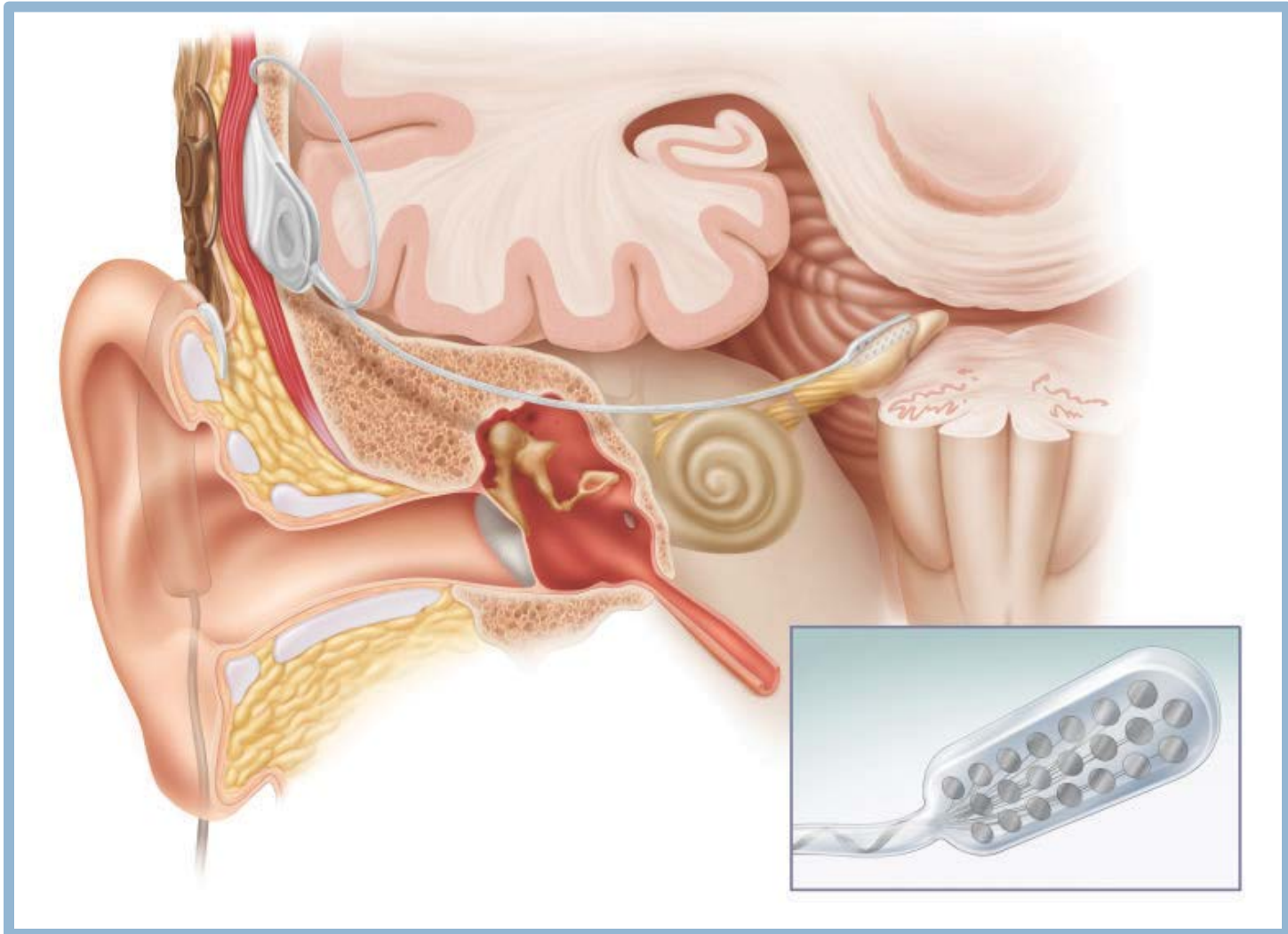
# Cochlear Implant

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# Auditory Brainstem Implant

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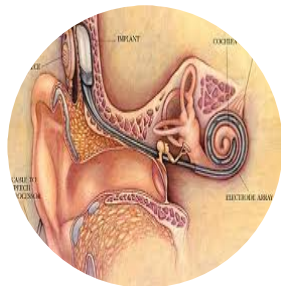


# Communication Barrier Remains

Technology still **CANNOT** bring  
**NORMAL HEARING** to d/hh children



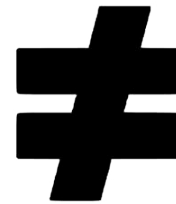
Hearing Aids



Cochlear  
Implants



Auditory Brainstem  
Implants



**Normal  
Hearing**

# Major Difficulties for Students with Hearing Impairment

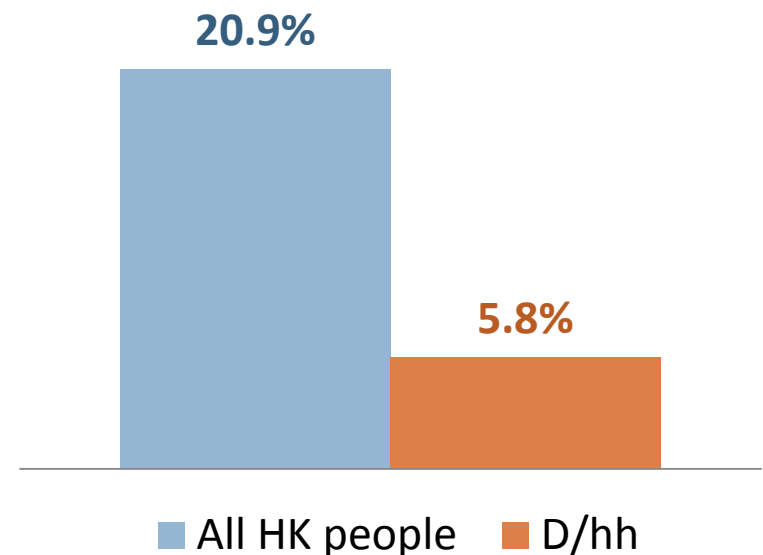
15

- **Incomplete access to information**
  - Effects of hearing technology varies
  - Restricted speech perception ability
  - Limited information got from lip-reading
  - Unable to follow class discussion
  - Insufficient visual clues in class
  - Lack sign language support

# Post-Secondary Education Opportunities in Hong Kong

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- **92,000 Deaf/hard-of-hearing (D/hh) individuals in Hong Kong (Census and Statistics Department of Hong Kong, 2008)**
- **Lower chance of receiving post-secondary education in Hong Kong**
  - **D/hh: 5.8%**
  - **All HK people: 20.9%**



(Census and Statistics Department, 2008)



# Special Education Needs of Students with Hearing Impairment

- **Access of information through means the students consider as effective at the specific communication situation**
  - ▣ written language
  - ▣ spoken language (with suitable aid for hearing)
  - ▣ signed language (mostly through sign interpretation)
- **Respect of their identity or the identification they chose**
  - ▣ hard-of-hearing/ hearing impaired
  - ▣ deaf

# Educational Support for Students with Hearing Impairment

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## □ Sign Interpretation

- For all classes, group project discussion, assemblies, student activities, etc.
- Research staff at CSLDS are providing the sign interpretation



An interpreter interpreting the lecture content to the two deaf students.



The two signing deaf students and their hearing classmate are doing a presentation in class.

# Educational Support for Students with Hearing Impairment

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## □ Note Taking

- Taking notes of teachers' and students' speech in lecture
- Staff assigned by the Department are providing the service

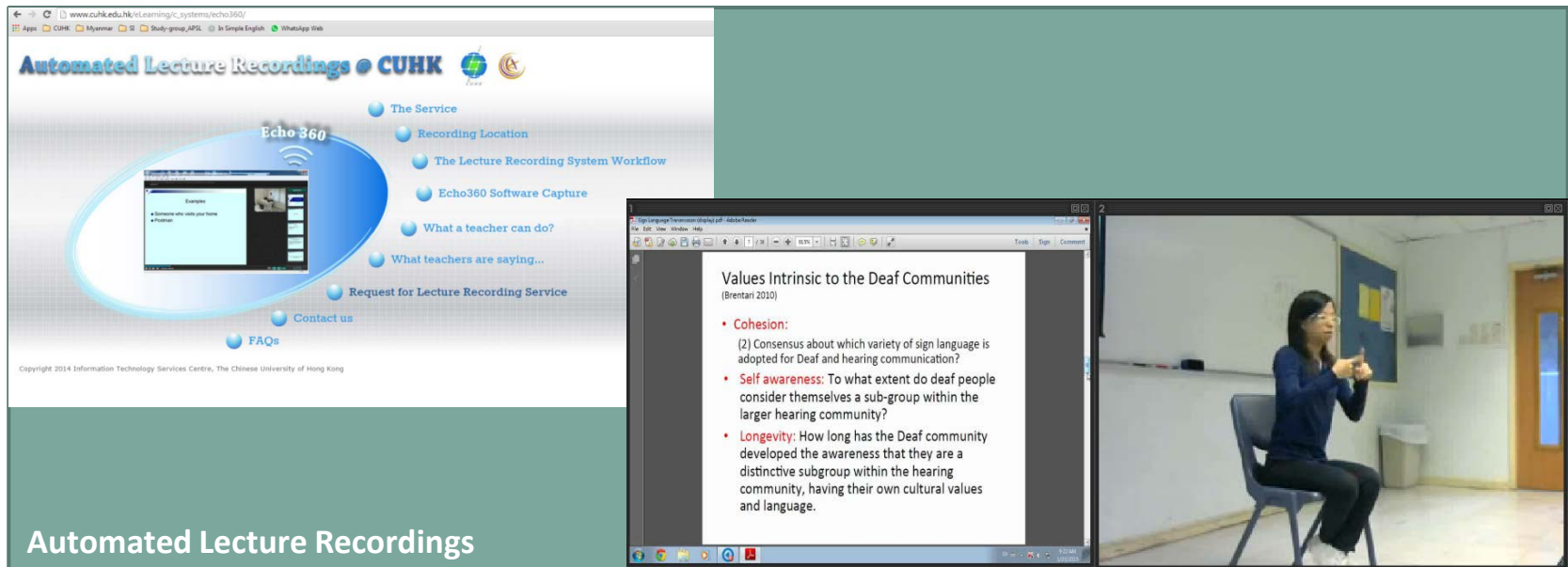
The image displays three screenshots of Microsoft Word documents containing handwritten notes. The first document on the left discusses the phonetic relationship between '牙' (yá) and '訃' (fù) in the context of '命伯牙揮琴謝知音' (Ming Boya plays the qin to thank his知音). It notes that '牙' is recorded as '列士' and '訃' as '警世通言', and compares '知音' and '非知音'. It lists characteristics of '名臣' (famous officials) such as '特徵—敢言, 忠心, 造福百姓' and asks questions about their significance and modern examples. The second document in the middle is titled 'Setp 1' and lists phonetic pairs: 'i y u', 'e ø o', and 'ε a ɔ'. It then moves to 'Step 2: suspicious pairs' and 'Phonetically similar' pairs, providing examples like 'a. i-y y-u' and 'b. e-ø ø-o'. It also notes 'e.g a: front vowels [-back], central and back [+back]' and 'u and o: high and low vowels too far away'. 'Step 3' discusses 'distributional pattern'. The third document on the right discusses the sentence 'the customer in the corner will order the drinks before the meal, but in order to do so before the meal, he will first need a wine list'. It analyzes the sentence structure with tree diagrams for 'order the drinks before the meal' and 'in order to do so before the meal, he will first need a wine list', comparing different options for constituent structure.

Samples of notes

# Educational Support for Students with Hearing Impairment

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- Automated Lecture Recordings
  - ▣ Screen capture of the lecturer's presentation materials and sign interpretation synchronized
  - ▣ The video is made accessible for the deaf students through Blackboard



The image displays a composite of three elements related to the automated lecture recording service. On the left is a screenshot of the website 'Automated Lecture Recordings CUHK', which features a navigation menu with items like 'The Service', 'Recording Location', 'The Lecture Recording System Workflow', 'Echo360 Software Capture', 'What a teacher can do?', 'What teachers are saying...', 'Request for Lecture Recording Service', 'Contact us', and 'FAQs'. A central graphic shows a laptop with a presentation slide titled 'Examples' and a speaker icon. Below the website screenshot is the text 'Automated Lecture Recordings'. In the middle is a screenshot of a presentation slide titled 'Values Intrinsic to the Deaf Communities (Brentari 2010)'. The slide lists three values: 'Cohesion: (2) Consensus about which variety of sign language is adopted for Deaf and hearing communication?', 'Self awareness: To what extent do deaf people consider themselves a sub-group within the larger hearing community?', and 'Longevity: How long has the Deaf community developed the awareness that they are a distinctive subgroup within the hearing community, having their own cultural values and language.' On the right is a video recording of a sign interpreter sitting in a blue chair, gesturing with her hands to interpret the content of the presentation slide.

# Educational Support for Students with Hearing Impairment

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## □ Challenges

### ▣ Sign Interpretation

#### ■ Lectures

- Distance from the projection screen, lecturer and the interpreters to provide better access of information in class

#### ■ Group discussions or other activities like debate

- Seating arrangement for interpreters during group discussions
- Speed of message delivery and turn-takings

### ▣ Note-taking

#### ■ Identifying suitable note-takers

- Medium of instructions of the lectures
- Quality of the notes

# Educational Support for Students with Hearing Impairment

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- **Personal Counseling**
  - ▣ **Regular meetings with the deaf students to review the support services**
  - ▣ **Learning consultation**
  - ▣ **Emotional support**

# Experience in Supporting Non-Signing Students with Hearing Impairment

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- **MA in Linguistics with a specialization in Sign Linguistics**
- **4 hearing impaired students since 2010**
  - ▣ **Support services for Deaf students required**

# Support Services Provided

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- **FM system – Enhancement of speech perception**
  - ▣ **A transmitter and a receiver are loaned to the student free-of-charge**
  - ▣ **Especially good for those with better hearing ability**



**Transmitter**



**Receiver**





# Support Services Provided

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- **Note-taking Service:**
  - ▣ **Student helpers are trained to use “C-Print” for:**
    - **Real-time note-taking: type out what is said during the lectures on computer – as a clue to Deaf students**
    - **Post-lecture editing: further edits the notes and then sends to the Deaf students**
    - **Video recording: video-take the lectures and then compile the video clips and subtitles for the students**

# International Practices

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- **With reference to the services provided at the National Technical Institute for the Deaf (NTID), Rochester Institute of Technology (RIT), US**

# List of Services at RIT

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- <http://www.ntid.rit.edu/support-services>
- **Access and Support Services**
  - Sign interpreting services
  - Note-taking services
  - Real-time captioning services (C-Print)
  - Personal FM systems
- **Educational Support Services**
  - Tutoring
  - Academic advising
  - Personal and career counseling

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# Thank You!

