

## Mandarin initials ('zh', 'ch', 'sh' vs. 'z', 'c', 's')



(Image generated by OpenArt)

**Topic:** AI & corpus-aided instruction on Mandarin ‘zh’, ‘ch’, ‘sh’ vs. ‘z’, ‘c’, ‘s’

**Target students:** Secondary school students (S5)

**Duration:** 70 minutes (double lesson)

**Prior knowledge:**

Before the lesson, students have learned:

- (1) Mandarin Pinyin
- (2) some terminologies (e.g., initials, finals, tones)

**Teaching aids and materials:**

- (1) PowerPoint
- (2) Online videos  
<https://www.youtube.com/watch?v=s9d-ECirfXY>  
[https://www.bilibili.com/video/BV1S54y1z7Lf/?spm\\_id\\_from=333.788.recommen](https://www.bilibili.com/video/BV1S54y1z7Lf/?spm_id_from=333.788.recommen)  
[d more video.1](#)
- (3) Corpus  
[Spoken Corpus of Hong Kong Learners of Mandarin](#)  
[https://corpus.eduhk.hk/pth\\_learner\\_corpus/](https://corpus.eduhk.hk/pth_learner_corpus/)
- (4) Copilot: <https://copilot.microsoft.com/>
- (5) NaturalReader: <https://www.naturalreaders.com/>
- (6) Worksheets

**Learning objectives:**

After the lesson, students are able to:

- (1) use conversational AI tools to learn articulatory knowledge of Mandarin ‘zh’, ‘ch’, ‘sh’ vs. ‘z’, ‘c’, ‘s’
- (2) self-identify their own features for Mandarin ‘zh’, ‘ch’, ‘sh’ vs. ‘z’, ‘c’, ‘s’
- (3) use conversational AI tools to receive feedback on Mandarin ‘zh’, ‘ch’, ‘sh’ vs. ‘z’, ‘c’, ‘s’
- (4) use text-to-speech AI tools to generate samples

**Procedures:**

**Stage I: Warm up (9 minutes)**

**Purpose:**

- (1) Spark students’ interests in the topic
- (2) Build up the context for the whole lesson
- (3) Activate prior knowledge

**Step 1 (4 mins)**

Teacher (T) plays two video clips (1:12-1:25; 2:03-2:36) where a Northerner and a Southerner have a challenge to say Mandarin sentences containing ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ twice correctly and asks students (Ss) to identify the speakers’ pronunciation errors.



<https://www.youtube.com/watch?v=s9d-ECirfXY>

*Target sentences:*

1. 去吃(chi1)自(zi4)助(zhu4)餐(can1)。
2. 十(shi2)四(si4)世(shi4)纪的出(chu1)租(zu1)车(che1)司(si1)机。

### Step 2 (3 mins)

T asks Ss to say the sentences to self-identify whether they can pronounce the sentences correctly.

*Target sentences:*

1. 去吃(chi1)自(zi4)助(zhu4)餐(can1)。
2. 十(shi2)四(si4)世(shi4)纪的出(chu1)租(zu1)车(che1)司(si1)机。

### Step 3 (2 mins)

T emphasises the importance of distinguishing between 'zh', 'ch', 'sh' and 'z', 'c', 's'. Confusion 'zh', 'ch', 'sh' and 'z', 'c', 's' may cause miscommunication. T then introduces confusion 'zh', 'ch', 'sh' and 'z', 'c', 's' is a common Mandarin feature of Hong Kong Cantonese speaker.

## Stage II: Corpus & AI-aided teaching (32 minutes)

### Purpose:

- (1) Raise Ss' awareness on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's'
- (2) Introduce Ss common features of Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' using corpus data
- (3) Ask Ss to self-reflect and self-identify their own features on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's'

### Step 1 (5 mins)

T uses corpus data by Hong Kong Cantonese speakers in the [Spoken Corpus of Hong Kong Learners of Mandarin](#) (e.g., Speaker 8), plays the speakers' recordings in the corpus, and asks Ss to identify the Mandarin initial errors before showing them the annotations for initial features.

#### Marking Scheme of Reading Task 1

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 佳 | 牢 | 垮 | 勢 | 稀 | 恆 |
| 翁 | 爾 | 吼 | 憂 | 哲 | 氧 |
| 帥 | 徐 | 謊 | 罩 | 蹲 | 卓 |
| 軒 | 狼 | 阻 | 瀉 | 矯 | 吝 |
| 淙 | 胚 | 恩 | 凶 | 屏 | 慘 |
| 寺 | 竣 | 宰 | 獄 | 罰 | 綴 |
| 淹 | 倍 | 勃 | 喚 |   |   |

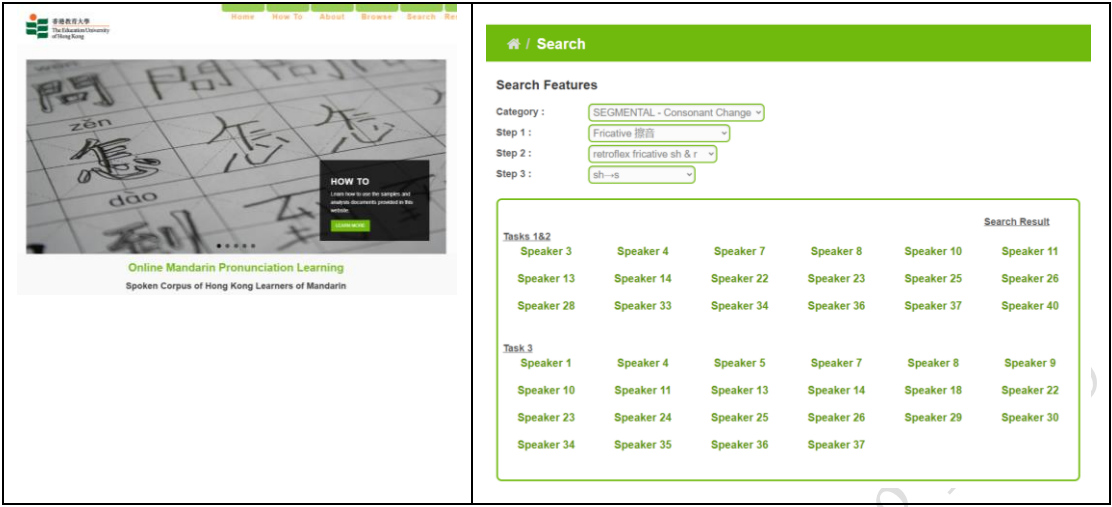
#### Marking Scheme of Reading Task 2

|     |     |     |      |      |     |
|-----|-----|-----|------|------|-----|
| 不用  | 包括  | 徘徊  | 狹窄   | 狹窄   | 狹窄  |
| 反省  | 踐踏  | 踐踏  | 汛期   | 轉臉   | 瓦房  |
| 瓦房  | 兒歌  | 耕耘  | 炎熱   | 沉著   | 沉著  |
| 提防  | 提防  | 圓圈兒 | 謙讓   | 謙讓   | 遵守  |
| 挑戰  | 舒服  | 電影兒 | 性質   | 研究   | 等於  |
| 農村  | 農村  | 概念  | 分水嶺  | 分水嶺  | 分水嶺 |
| 視網膜 | 視網膜 | 視網膜 | 海市蜃樓 | 海市蜃樓 |     |

### Step 2 (7 mins)

T demonstrates how to use the 'Browse' and 'Search' functions of the corpus, how to show annotations, and how to identify the speaker data in the corpus with

features on Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’.



**Step 3 (5 mins)**

Ss do hands-on search in the [Spoken Corpus of Hong Kong Learners of Mandarin](#) and finish Task 1 (Worksheet 1).

**Worksheet I**

**Hands-on corpus search task**

Please complete the task following the steps below:

1. Use the ‘Browse’ function of the corpus [Spoken Corpus of Hong Kong Learners of Mandarin](#), select two speakers, and evaluate whether these two speakers have errors in Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’.
2. Listen carefully to the recordings of the speakers that you selected.
3. Determine whether the speaker has any errors in Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’. If yes, write down the mispronounced words.
4. Self-identify whether you can pronounce these words correctly.

| Speakers | Whether the speaker has any errors in Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ | Mispronounced words in Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ | Whether you can pronounce these words correctly |
|----------|--|---|---|
| e.g., 08 | ✓  | 守 (sou3)  | ×   |
|          |  |   |   |
|          |  |   |   |

**Step 4 (5 mins)**

T demonstrates how to use conversational AI tools (e.g., Copilot) to learn articulatory knowledge of Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’.

**Prompt:** 請告訴我普通話拼音“zh”发音技巧以及需要注意的問題

 **Copilot**

✓ 正在為你生成答案...

發音普通話拼音中的“zh”時，有幾個關鍵技巧和注意事項：

**發音技巧**

1. **舌尖位置**：將舌尖輕輕翹起，抵住上齒齦後部。這個位置在硬腭的前部，形成一個小坡<sup>1</sup>。
2. **氣流控制**：發音時，讓氣流從舌尖和齒齦之間的縫隙中擠出，產生摩擦音<sup>2</sup>。
3. **唇部形狀**：唇部應該微微收攏，但不要過於用力。這樣可以避免發音過於靠前或靠後<sup>1</sup>。

**注意事項**

1. **避免平翹舌不分**：確保舌尖翹起，不要將“zh”發成“z”<sup>1</sup>。
2. **發音位置準確**：不要將舌尖放得太靠前或太靠後，應該在硬腭前部的隆起部位<sup>1</sup>。
3. **氣流強度**：保持適中的氣流，不要過強或過弱，以確保發音清晰<sup>2</sup>。

希望這些技巧對你有幫助！如果有其他問題，隨時告訴我哦。😊

<sup>1</sup>: 知乎 <sup>2</sup>: 百度知道

了解詳細信息 [1 zhuanlan.zhihu.com](#) [2 zhidao.baidu.com](#) [3 zhuanlan.zhihu.com](#) [+2 更多](#)

## Step 5 (5 minutes)

Ss then give prompts to the conversational AI tools for articulatory knowledge of Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ and summarize the key differences between Mandarin ‘zh’ and ‘z’, ‘ch’ and ‘c’, ‘sh’ and ‘s’ (Worksheet II).

### Worksheet II

#### Articulatory knowledge learning

Please give prompts to Copilot and learn articulatory knowledge of Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’.

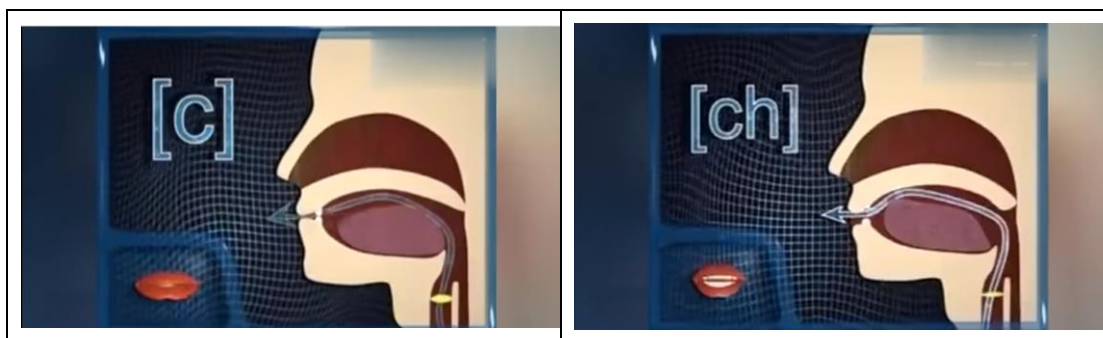
**Prompt:** 請告訴我普通話拼音“zh”發音技巧以及需要註意的問題

| Sounds | Pronunciation tips from Copilot |
|--------|---------------------------------|
| zh     | 舌尖輕輕翹起<br>上齒齦後部<br>唇部微微收攏       |
| z      |                                 |
| ch     |                                 |
| c      |                                 |
| sh     |                                 |
| s      |                                 |
|        |                                 |

## Step 6 (5 minutes)

T gives explicit instructions and play a video clip (1:12-1:41) on how to pronounce Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’.





[https://www.bilibili.com/video/BV1S54y1z7Lf/?spm\\_id\\_from=333.788.recommend\\_more\\_video.1](https://www.bilibili.com/video/BV1S54y1z7Lf/?spm_id_from=333.788.recommend_more_video.1)

### Stage III: Practice & Feedback (29 minutes)

#### Purpose:

- (1) Use AI tools to generate Mandarin native speaker samples
- (2) Provide Ss opportunities to apply their learned knowledge in a real context
- (3) Provide Ss with chances to practice Mandarin pronunciation
- (4) Use conversational AI tools to receive feedback

#### Step 1 (4 mins)

Ss work in pairs, read the paragraph used in the [Spoken Corpus of Hong Kong Learners of Mandarin](#), and evaluate their partner's pronunciation on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' (Worksheet III).

#### Worksheet III

##### Production task & Peer feedback

Please read the paragraph below:

1. Work in pairs.
2. Listen to your partner's pronunciation of the paragraph below.
3. Fill in the check list and give feedback on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' to your partner.

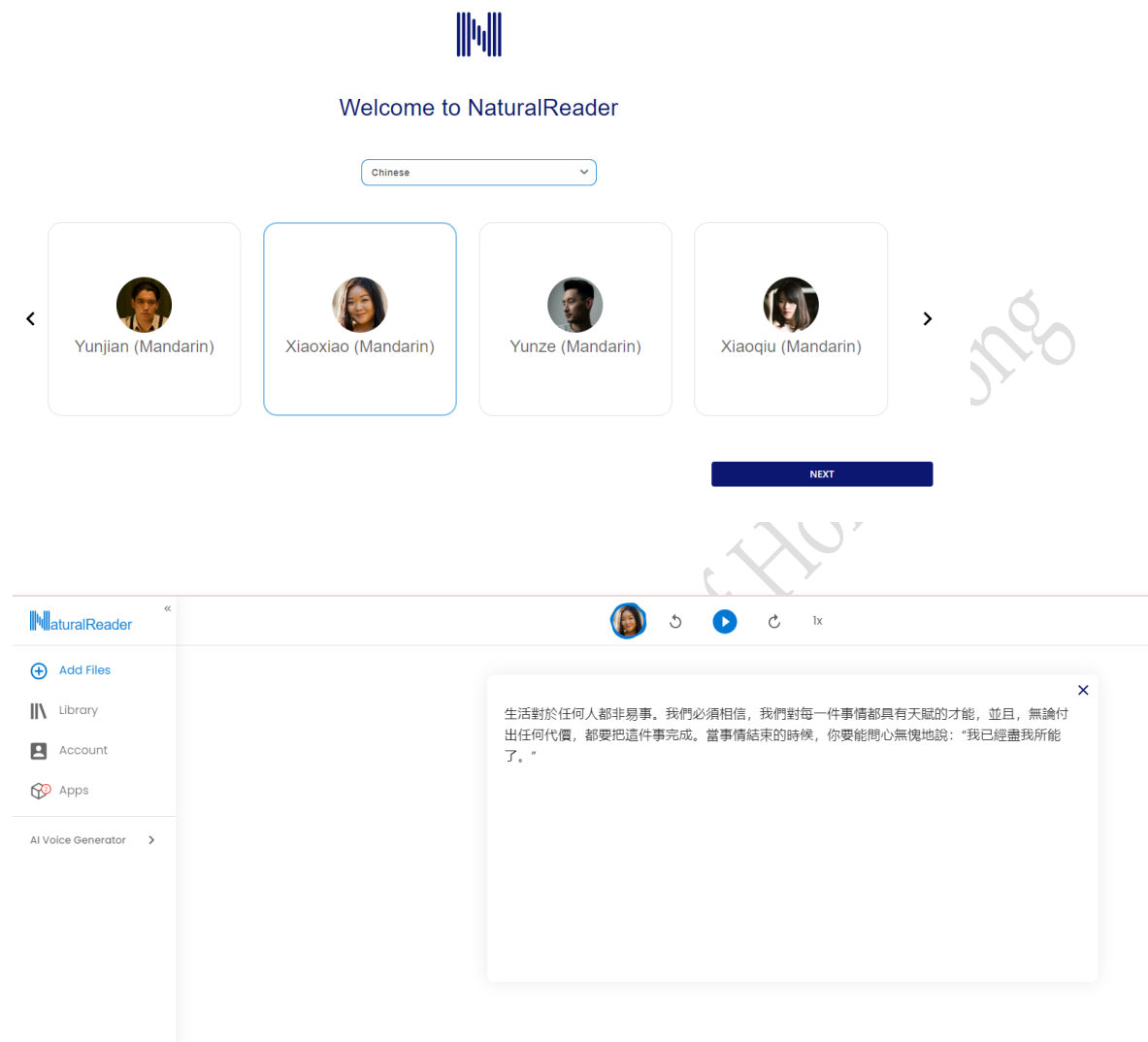
生活對於任何人都非易事。我們必須相信，我們對每一件事情都具有天賦的才能，並且，無論付出任何代價，都要把這件事完成。當事情結束的時候，你要能問心無愧地說：“我已經盡我所能了。”

| NO | List the mispronounced words in Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' | Pinyin | Your partner's pronunciation |
|----|--|--------|------------------------------|
| 1  | 生  | sheng1 | seng1                        |
| 2  |  |        |                              |
| 3  |  |        |                              |
| 4  |  |        |                              |
| 5  |  |        |                              |

#### Step 2 (8 mins)

T introduces a text-to-speech tool 'NaturalReader', a platform where users can generate sample recordings using different voices and accents from native

speakers. T demonstrates how to generate a sample for the paragraph in Worksheet III and plays the sample recording to Ss.



Ss then select voices and generate their own samples.

### Step 3 (8 minutes)

T demonstrates how to receive feedback on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' from conversational AI tools (using the paragraph in Worksheet III). T also provides Ss with possible prompts. (Note: T should remind Ss that the feedback from conversational AI tools is not 100% correct. Ss should double check the accuracy.)

**Prompt:** 請幫我糾正我下面句子的普通話聲母發音錯誤。+ your speech



✓ 正在為你生成答案...

當然可以！以下是一些常見的聲母發音錯誤及其糾正方法：

#### 句子糾正

1. 生活對於任何人都非易事：

- “生”：確保發音時舌尖抵住上齒齦，發出清晰的“sh”音。
- “活”：注意“h”的發音，舌根要抬起，氣流從舌根和軟腭之間流出。

2. 我們必須相信：

- “我”：發“w”音時，嘴唇要圓而不閉合。
- “們”：發“m”音時，雙唇閉合，氣流從鼻腔流出。

3. 我們對每一件事情都具有天賦的才能：

- “對”：發“d”音時，舌尖抵住上齒齦，然後迅速放開。
- “每”：發“m”音時，雙唇閉合，氣流從鼻腔流出。
- “事”：發“sh”音時，舌尖抵住上齒齦，氣流從舌尖和齒齦之間流出。

4. 並且，無論付出任何代價，都要把這件事完成：

- “並”：發“b”音時，雙唇閉合，然後迅速放開。
- “且”：發“q”音時，舌面抵住硬腭前部，氣流從舌面和硬腭之間流出。
- “無”：發“w”音時，嘴唇要圓而不閉合。
- “代”：發“d”音時，舌尖抵住上齒齦，然後迅速放開。

#### Step 4 (7 minutes)

Ss try to receive personal feedback on Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ from conversational AI tools.

T then invites 3 Ss to share the feedback that they receive.

#### Step 5 (2 minutes)

T recaps the content in this lesson and then assigns after-class activity to Ss.

#### After-class activity

1. Describe the topic ‘難忘的旅行’.
2. Receive feedback on Mandarin ‘zh’, ‘ch’, ‘sh’, ‘z’, ‘c’, ‘s’ from Copilot.
3. Generate a sample using ‘NaturalReader’.

**Sample answer:** 有一次，我和幾個好朋友決定去探索一個遙遠而神秘的地方。我們選擇了去雲南，一個以其美麗的自然風景和多元文化而聞名的地方。我們穿越了壯麗的高山，穿過蜿蜒的小徑，來到了一個古老而寧靜的村莊。這裏的人們熱情友好，他們與我們分享了他們的故事和傳統文化。

## Worksheet I

### Hands-on corpus search task

Please complete the task following the steps below:

1. Use the 'Browse' function of the corpus [Spoken Corpus of Hong Kong Learners of Mandarin](#), select two speakers, and evaluate whether these two speakers have errors in Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's'.
2. Listen carefully to the recordings of the speakers that you selected.
3. Determine whether the speaker has any errors in Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's'. If yes, write down the mispronounced words.
4. Self-identify whether you can pronounce these words correctly.

| Speakers | Whether the speaker has any errors in Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' | Mispronounced words in Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' | Whether you can pronounce these words correctly |
|----------|--|---|---|
| e.g., 08 | √  | 守 (sou3)  | ×   |
|          |  |   |   |
|          |  |   |   |

## Worksheet II

### Articulatory knowledge learning

Please give prompts to Copilot and learn articulatory knowledge of Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's'.

**Prompt:** 請告訴我普通話拼音“zh”发音技巧以及需要註意的問題

| Sounds | Pronunciation tips from Copilot |
|--------|---------------------------------|
| zh     | 舌尖輕輕翹起<br>上齒齦後部<br>唇部微微收攏       |
| z      |                                 |
| ch     |                                 |
| c      |                                 |
| sh     |                                 |
| s      |                                 |
|        |                                 |

### Worksheet III

#### Production task & Peer feedback

Please read the paragraph below:

1. Work in pairs.
2. Listen to your partner's pronunciation of the paragraph below.
3. Fill in the check list and give feedback on Mandarin 'zh', 'ch', 'sh', 'z', 'c', 's' to your partner.

生活對於任何人都非易事。我們必須相信，我們對每一件事情都具有天賦的才能，並且，無論付出任何代價，都要把這件事完成。當事情結束的時候，你要能問心無愧地說：“我已經盡我所能了。”

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|----|--|--------|------------------------------|
| 1  | 生  | sheng1 | seng1                        |
| 2  |  |        |                              |
| 3  |  |        |                              |
| 4  |  |        |                              |
| 5  |  |        |                              |