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**The Effects of PMI schooling and other socio/psycholinguistic factors on the  
production of Mandarin consonants by Hong Kong Cantonese speakers**

**LO PUI KA JOAN**

**STUDENT NO.: 18426573**

**A Dissertation Submitted in Partial Fulfillment  
of the Requirements of the  
MASTER OF ARTS IN LANGUAGE STUDIES**

**HONG KONG BAPIST UNIVERSITY**

**JULY 2020**

HONG KONG BAPIST UNIVERSITY


JULY 2020

We hereby recommend that the Dissertation by Ms. LO Pui Ka Joan, entitled ‘The effects of PMI schooling and other socio/psycholinguistic factors on the production of Mandarin consonants by Hong Kong Cantonese speakers’ be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Language Studies.



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Dr. Janice Wong  
Principal Supervisor



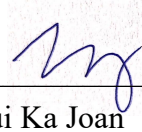
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Dr. Winnie Chor  
Second Reader

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I also wish to note that the entire dissertation is my own work and was carried out by myself.



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Lo Pui Ka Joan

M.A. in Language Studies  
Hong Kong Baptist University

Date: 14 July 2020

## Abstract

The current study aims to explore how PMI instruction and other psycholinguistic and sociolinguistic factors that might affect the production of Mandarin consonants by Cantonese speakers in Hong Kong. A total of 63 participants were invited to participate in a Mandarin consonant production test in which they had to pronounce words starting with these three pairs of Mandarin consonants /ts/-/tʂ/, /ts<sup>h</sup>/-/tʂ<sup>h</sup>/ and /s/-/ʂ/. 6 participants were invited to a post-experiment interview. Results of the Mandarin production tests showed that secondary school students who had completed PMI instruction had the highest Mandarin production score. However, no significance could be found between the use of PMI instruction and the production of Mandarin consonants by Cantonese speakers in Hong Kong. Results of the interview showed that age, length of exposure to Mandarin, instrumental motivation were the factors that led to a higher accuracy in Mandarin production whilst a lack of motivation, low social acceptance towards Mandarin, high social distance towards mainland China and political factors are the factors that led to a lower accuracy in Mandarin production. To improve Cantonese speakers' Mandarin consonant production accuracy, the government should introduce Mandarin to the curriculum starting from kindergartens and improve the image of Mandarin among Hong Kong people.

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## Chapter 1 Introduction

### 1. Introduction

After the handover of Hong Kong to China in 1997, Hong Kong government adopted a ‘biliterate and trilingual’ policy which aims to develop citizens’ ability to be biliterate in written Chinese and English as well as trilingual in spoken Cantonese, English and Mandarin (Wang & Kirkpatrick, 2013). Since then, the medium of instruction (MOI) in teaching Chinese in primary schools started to change from using the mother tongue Cantonese to Mandarin (Putonghua) as the medium of instruction (PMI) for teaching Chinese subject to nurture biliterate and trilingual students. It is believed that PMI teaching could enhance students’ written Chinese and spoken Mandarin as the expression in spoken and written Mandarin are the same. Therefore, more and more primary school has adopted PMI teaching since 1997. Twenty-three years has passed and yet the effectiveness of ‘biliterate and trilingual’ policy is being doubted.

In 2019, 71.7% of primary schools adopted PMI teaching in Hong Kong (Legislative Council Panel on Education, 2016). Most schools applied a mix-model of PMI instruction, using Cantonese to teach Chinese in junior forms and start using PMI instructions from primary two or primary four. Therefore, it is expected that more and more students would be capable of speaking fluent Mandarin after attending the PMI schools. According to the Snapshot of the Hong Kong Population in 2016, the proportion

of population in Hong Kong who could speak Mandarin increased from 41.2% to 50.6%. It has been 23 years after the handover of Hong Kong. However, only half of the Hong Kong population could speak Mandarin (Census and Statistics Department, 2016). Among those who were biliterate and trilingual, they were high-skilled workers in the working population or people aged 6 to 24 who were studying full time in educational institutions. Therefore, the increase in the level of Mandarin may be due to the PMI education policy.

Nonetheless, despite the implementation of the biliterate and trilingual policy, Hong Kong people are reluctant to speak in Mandarin even when they are able to speak the language (Wong, 2015). For learners who are keen on Mandarin learning, they lack the language environment to practice spoken Mandarin (Leung, 2017). In 2016, 96.7 % of Hong Kong people used Cantonese as the usual spoken language and only half of the population used English as another spoken language (Census and Statistics Department, 2016).

The only opportunities for students to speak in Mandarin were during Mandarin lessons or Chinese lessons. Even during Chinese or Mandarin lesson, students often switched from Mandarin to Cantonese when they were not confident enough to speak in Mandarin or did not know the words in Mandarin (Wang & Kirkpatrick, 2013). As the

major MOI in other subjects were mostly Cantonese, students tended to code switch to use Cantonese even in English lessons. At home, almost no students spoke in Mandarin with their parents. Therefore, Hong Kong students lacked the opportunities to talk in Mandarin to refine their spoken Mandarin.

The opportunities for university graduates to use Mandarin were even fewer as they did not have to use Mandarin for communication at work. Only people working in the service and economic industries could get in touch with the customers from mainland China so that people in these industries may possess higher level of Mandarin (Leung, 2017). Normally, university graduates working in other industries forgot all the Mandarin they had learnt in primary and secondary school and could not speak fluent Mandarin anymore due to a lack of opportunities to use the language.

Apart from a lack of practices, Hongkongers changed their attitudes towards Mandarin owing to political and identity issues. Although Mandarin is gaining its popularity due to the reintegration with China, many pro-Cantonese citizens opposed the use of Mandarin prevalently in Hong Kong (Wong, 2015). Many people frightened that Cantonese would be replaced by Mandarin completely and threatened the status of Cantonese. Additionally, Mandarin was often regarded as a barbarian language and even

being called as ‘the language of Jina’, while Cantonese is considered as the authentic Chinese civilization and is superior than Mandarin (Wong, 2015).

Moreover, after the umbrella movement in 2014 and the anti-extradition bill protests, many locals in Hong Kong refused to learn or use Mandarin as they had dispute towards the Chinese government. According to the Public Opinion Programme conducted by Hong Kong University, after the umbrella movement in 2014, the percentage of people thinking that they are Hongkongers soared from 34.8% to 42.3% and the figure further raised to 52.9% during the anti-extradition bill protest in 2019. While the percentage of people thinking that they are Chinese greatly decreased from 21.8% to 10.8% in 2019. Therefore, this identity issue further reinforced the status of Cantonese and fewer people are willing to learn or speak in Mandarin (HKU POP, 2019).

Despite of these factors which are unfavourable for Mandarin learning in Hong Kong, Mandarin is in fact easy for Cantonese speakers to learn. Cantonese and Mandarin are alike in the vocabulary, grammar and orthography (Li, 2019). Nevertheless, the tone system and syllable sounds are much more complex in Cantonese than in Mandarin. There are 9 tones in Cantonese whereas there are only 4 tones in Mandarin. In addition, more than 1600 tonal syllables are present in Cantonese, which is more than that of Mandarin.

Moreover, no difficult phoneme can be found in the Mandarin, making it easier for Cantonese native speakers to learn (Li, 2019).

Although it is easy for native Cantonese speakers to learn Mandarin, it is hard for Hong Kong Cantonese speakers to master this language. For Hong Kong native Cantonese speakers who are able to speak mandarin, they may not be able to speak it fluently, and the production is strongly influenced by the Cantonese accent. Li (2019) stated that mistakes made by L2 speakers in Mandarin were often made in the tonal system or the place of articulation. There are 11 Mandarin consonants which cannot be found in Cantonese, which includes: alveolar /ts/, /ts<sup>h</sup>/, /s/, palatal-alveolar /tʃ/, /tʃ<sup>h</sup>/, /ʃ/, /ɟ/ and palatal /tɕ/, /tɕ<sup>h</sup>/, /ɕ/. Therefore, mistakes are often made in the pronunciation of these sounds. Cantonese speakers may have some confusion in the initial sounds in Mandarin and make interlingual errors (Ho, 1999). Cantonese speakers often confused the place of articulation on the consonants of Mandarin /ts/ vs /tʃ/, /ts<sup>h</sup>/ vs /tʃ<sup>h</sup>/, /s/ vs /ʃ/ (Zhang, Samuel, & Liu, 2012).

Therefore, this research only focuses on the mistakes made by the confusion on the above six consonants and aims to explore the effects of PMI schooling and other psycholinguistics factors which affect the production the above six Mandarin consonants. The participants are targeted at the universities' graduates who were born before the

handover of Hong Kong, so that they did not have much proper trainings in Mandarin.

The other two groups of participants would be secondary school students who had PMI trainings and without PMI trainings so as to see if PMI trainings had an effect on the level of Mandarin of native Cantonese speakers in Hong Kong.

## **Chapter 2 Literature Review**

### **2. Literature Review**

In this chapter, the historical background of Mandarin teaching in Hong Kong would be introduced, so as to account for the implementation of PMI schooling in Hong Kong and explore other psycholinguistic factors which affects the learning of Mandarin in Hong Kong. Although Mandarin is a second or even third language to native Cantonese speakers in Hong Kong, there are a lot of similarities in both languages. A contrast analysis can highlight the differences in the systems of the two languages to account for the mistakes that made by Hong Kong native Cantonese speakers.

#### **2.1 Historical background of promoting Mandarin as the medium of instruction in Hong Kong**

Before the handover of Hong Kong to China in 1997, Mandarin served almost no status because the official language in colonial Hong Kong was English (Kan & Adamson, 2010). Mandarin was only learnt as an optional or extra-curricular subject (Wang & Kirkpatrick, 2019). However, after the handover, Hong Kong planned to establish a closer relationship with mainland China. As Mandarin is the national language of China, the first chief executive, Mr Tung Chee Hwa, proposed the policy of achieving ‘biliteracy and trilingualism’ for Hong Kong students to become more competitive by exhibiting a

high level of spoken English, Mandarin and Cantonese (Gao, Leung, & Trent, 2010; Tam, 2011; Wang & Kirkpatrick, 2019).

In response to the ‘biliterate and trilingual’ policy, Mandarin was thus promoted as a discrete subject and became part of the official curriculum in 2000 (Gao et al., 2010; Tam, 2011). However, the effectiveness of promoting Mandarin was low as Mandarin was taught for one lesson with 40 minutes per week only in schools (Li, 2009; Wang & Kirkpatrick, 2019). Moreover, Mandarin only served symbolic functions in Hong Kong such as in the official ceremonies and the national festive events (Li, 2019). In view of the limited functions of Mandarin in Hong Kong, starting from 1999, Mandarin was promoted as the medium of instruction (MOI) in teaching Chinese subjects in primary schools in aid with the subject Mandarin (Gao et al., 2010; Tam, 2011).

## **2.2 The benefits of PMI schooling in enhancing students’ level of Mandarin**

Compared to the past, after the adoption of PMI schooling, students had a lot more exposure to the listening and speaking of Mandarin during lessons compared to the past (Wang & Kirkpatrick, 2019). Most of the primary schools in Hong Kong allocated nine 40-minute periods or even more Chinese lessons per week, which occupied one-third of school hours (Li, 2009; Wang & Kirkpatrick, 2019). In this way, students could have



more immersion in cultivating listening and speaking in Mandarin (Tam, 2012; Wang & Kirkpatrick, 2012).

In schools which had not adopted PMI in teaching Chinese, students only had exposure to Mandarin during Mandarin lessons once a week. Therefore, they had fewer opportunities to use the language, resulting in weaker production of Mandarin (Wang & Kirkpatrick, 2012).

By adopting PMI teaching, teachers taught students *pinyin* and the pronunciation of Mandarin consonants and vowels during Mandarin lessons and students could use Mandarin in discussions or answering questions during Chinese lessons (Tam, 2012). When teachers were engaged in the discussion with students, students' mispronunciation could be corrected (Tam, 2011). With a closer link established with mainland China, the implementation of PMI facilitated native Cantonese-speaking students to speak Mandarin when they discussed and communicated with the mainland students outside classrooms (Wang & Kirkpatrick, 2012). This also provided a Mandarin-rich environment for students to immerse in.

On the other hand, past researches (e.g., (Wang & Kirkpatrick, 2012, 2019) also indicated that higher form students were capable of code-switching from Cantonese to

Mandarin during discussions when PMI schooling was adopted. Therefore, it showed that PMI instruction could help in the acquisition in listening and speaking of Mandarin.

Facing the change in MOI in teaching Chinese, teachers from the Mandarin and Chinese sessions collaborated together to foster students' pronunciation and overall proficiency in Mandarin and written Chinese (Wang & Kirkpatrick, 2015). To facilitate the effectiveness of PMI teaching, primary schools received funding from the Hong Kong government to promote PMI teaching (Legislative Council Panel on Education, 2016). Teacher trainings and exchange programmes with mainland China were provided to the teachers. Furthermore, workshops and lesson observations were organized for Chinese and Mandarin teachers in Hong Kong so teachers could learn from the schools in mainland China in promoting PMI teaching. Teachers' Mandarin proficiency could be further enhanced to provide higher teaching quality (Legislative Council Panel on Education, 2016).

Under PMI teaching, schools offered a series of measures to foster students' Mandarin proficiency. If students' Mandarin competence was not sufficient, extra learning classes would be provided for them. Besides, schools offered different activities like Mandarin story-telling competition and Mandarin-only weeks to raise students'

motivation in learning and encouraged discussions using Mandarin (Kwo, 1989; Wang & Kirkpatrick, 2013).

### **2.3 The drawbacks of PMI schooling in enhancing students' Mandarin level**

Although the implementation of PMI schooling provided students with more exposure to Mandarin, students' proficiency in Mandarin still could not be enhanced. Wang and Kirkpatrick (2012) found that most Mandarin lessons in Hong Kong primary schools were transmissive. Students learnt by listening and thinking rather than interacting with their teachers and classmates. Moreover, teachers and students' interactions were obstructed by the inadequate proficiency in Mandarin in both teachers and students (Tam, 2012). Therefore, the time for discussion in Mandarin was very inadequate, leading to lower proficiency in Mandarin production.

In addition, students may not fully understand the instructions and explanations in Mandarin, so they remained silent or refused to be engaged in discussion to avoid making embarrassing L2 errors when they could not present their ideas effectively (Huang, 2011). It was also found that students only used Mandarin to finish Mandarin reciting exercises that were dull and ineffective to facilitate the learning since students may confuse the use of *pinyin* with English (Huang, 2011; Wang & Kirkpatrick, 2012). Students also code-switched to Cantonese when they encountered some difficulties to speak in Mandarin,

and they did not speak Mandarin outside classrooms, so the actual time for Mandarin usage may be minimal (Wang & Kirkpatrick, 2012). Despite the fact that one-third of Chinese learning was conducted in Mandarin, there was a lack of environmental context and the ambient environment that favoured the development of Mandarin because Cantonese was still used as a dominant language in the Hong Kong community (Gao et al., 2010; Wang & Kirkpatrick, 2012).

Some students gradually lost their interests in learning Mandarin and Chinese if they did not exhibit a high proficiency in Mandarin (Tam, 2011; Wang & Kirkpatrick, 2012). Students only answered in simple sentences and became more reluctant to speak in Mandarin as they could not acquire the correct pronunciation and found it hard to achieve a good result in both Mandarin and Chinese subjects (Tam, 2011). With low confidence and self-esteem, students were unable to be engaged in Chinese lessons and speak fluent Mandarin.

Aside from the exposure and interests in Mandarin, teachers' proficiency in Mandarin and their beliefs were crucial in determining the success of the policy. Facing the change of MOI, a lot of teachers may not have the experience in teaching in PMI (Tam, 2011). Most teachers who were not native in Mandarin were under huge pressure to attend retraining programmes or workshops to enhance their level of Mandarin

proficiency and to learn new teaching pedagogies (Gao et al., 2010; Tam, 2011). Teachers may no longer be qualified to teach Chinese if their Mandarin level could not meet the requirement of the government (Wang & Kirkpatrick, 2019).

Even for teachers who had already met the language requirement in teaching Chinese in Mandarin, they made mistakes on the pronunciation sometimes, and this affected their self-efficacy in teaching in Mandarin (Tam, 2011, 2012). When students learnt the pronunciation of Mandarin from teachers, they may acquire the incorrect pronunciations as well.

Lastly, the trilingual model differed from schools to schools. Mandarin may not be used consistently in teaching and assessing students across the curriculum in different schools. Hence, the effectiveness of PMI may vary in different schools (Gao et al., 2010; Li, 2009; Wang & Kirkpatrick, 2019). Furthermore, the supply of high-quality teaching materials in Mandarin were inadequate. This hindered the implementation of PMI teaching and thereby failed to enhance students' Mandarin proficiency.

#### **2.4 Sociolinguistic and Psycholinguistic factors in enhancing the accuracy of speaking Mandarin consonants**

Apart from the PMI language policy imposed by the government, age, gender, motivation, social acceptance and distance and willingness to communicate in L2 are some of the psycholinguistic factors which affect second language learning (Dörnyei &

Skehan, 2003; Leather & James, 1996; Yule, 2017; Zhou, 2012). For the age factor, Yule (2017) stated that the critical period to learn a language is before puberty. Therefore, the earlier the students learn Mandarin, the better they can acquire the second language. Therefore, it is believed that students who study in PMI schools can learn Mandarin better.

Gender can be another factor which affects Mandarin learning. Leather and James (1996) stated that female learners favoured a more prestige accent than male in L1 acquisition. They had a stronger orientation towards prestige speeches and tended to carry this feature over the learning of other languages. Females produced consistently better pronunciation than males in past experiments (Leather & James, 1996). Therefore, the perception of female towards a more prestige accent is a crucial psycholinguistic factor towards the acquisition of Mandarin. It is expected that females would have better pronunciation than males in the experiments.

Social distance and social acceptance refer to the learner's attitude towards the society and culture of the people whose language is concerned (Leather & James, 1996). In other words, speakers are more willing to communicate in that L2 if it is more socially acceptable and is more related to their own language. With the handover of Hong Kong to China, the connection between the two regions became stronger and more prevalent. Mandarin entered Hong Kong through trading, tourism, TV programmes and through the

native Mandarin speakers living, working or studying in Hong Kong (Humphreys & Spratt, 2008; Leung, 2017). More people in Hong Kong accepted Mandarin learning as a new trend as the connection with mainland China has become stronger nowadays.

Motivational factors can be divided into two major categories, instrumental motivation and integrative motivation. Instrumental motivation refers to the learning of L2 to achieve some certain goals whereas integrative motivation refers to the learning of L2 for social purposes, learners learn L2 because of the cultures and attitude associated with the language (Dörnyei & Skehan, 2003; Yule, 2017; Yu, Chau, Kan, & Leung, 2016).

A lot of people , especially for those who worked in the tourism and service industries, learnt Mandarin instrumentally as they needed to establish contact with the business partners or customers mainland as Mandarin has become a world language owing to the growth of China (Davidson & Lai, 2007; Humphreys & Spratt, 2008; Leung, 2007). Mandarin has gained its importance after the handover of Hong Kong, and parents thought that it would be another world language which enabled their children to become elite trilinguals (Davidson & Lai, 2007). Therefore, they had a positive attitude towards Mandarin and that would affect students' motivation in learning Mandarin and their Mandarin level. Students, in addition, thought that they might be able to get a better job

by learning Mandarin. They exhibited instrumental motivation that helped them to improve the proficiency level in Mandarin (Wang & Kirkpatrick, 2013).

Only few learners had integrative motivation towards Mandarin learning as many native Hong Kong people did not want the use of Mandarin to spread into education and the government (Davidson & Lai, 2007). However, some learners had integrative motivation towards Mandarin as they were interested in understanding some television and radio broadcasts conducted in Mandarin (Leung, 2017).

Zhou (2012) found that the willingness to communicate in an L2 is an important factor to facilitate L2 learning. With more opportunities to speak in the L2, learners will have more confidence to speak in the L2 and therefore higher proficiency level can be achieved (Zhou, 2012).

## **2.5 Sociolinguistic and Psycholinguistic factors which hinders the accuracy of speaking Mandarin consonants**

As mentioned in the previous section, social acceptance and distance are some crucial factors affecting second language learning in Mandarin. Despite the handover of Hong Kong to China, a lot of native Cantonese speakers in Hong Kong felt threatened and considered Mandarin as an intrusive language (Wong, 2015). There was a huge social distance between Hong Kong and mainland China as Hong Kong has long been renowned as the British colony and an international city. English and Cantonese are more



prevalently used in Hong Kong, while the use of Mandarin was only limited to government ceremonies and official use (Wang & Kirkpatrick, 2013). Mandarin was not favoured in Hong Kong in general.

The inhibition of the learning of Mandarin was due to the legal status of Cantonese, cultural and language crisis and political reasons (Shao, 2016). Cantonese speakers in Hong Kong considered Cantonese a language with higher prestige than Mandarin. Cantonese was used in ancient China (Shao, 2016). Thus, people in Hong Kong regarded Cantonese as representing ‘authentic Chinese civilization’ whilst Mandarin was instead a “barbarian language” and even a “linguistic bastard” as it only came to use in the Qing dynasty (Wong, 2015). Pro-Cantonese speakers believed that Cantonese reserved the literacy standard of the final consonants and the tonal categories of the Tang dynasty and that Mandarin speakers were speaking an impure language (Wong, 2015). With such a strong sense of prestige regarding the status of Cantonese in Hong Kong, it may hinder Mandarin learning among Hong Kong students.

Apart from the higher prestige of Cantonese than Mandarin in Hong Kong, there was language and cultural crisis between Cantonese and Mandarin, which hindered the learning of Mandarin. The language or cultural crisis frame suggested that a local culture or language was under an alarming threat (Fishman, 2001, as cited in Shao, 2016). Many

Hongkongers thought that the application of PMI teaching brought a threat to the eradication of Cantonese or to the Hong Kong culture (Shao, 2016). Cantonese is the language of solidarity and intimacy (Whelpton, 1999). Therefore, many people in Hong Kong protected against their mother tongue from Mandarin invasion (Wong, 2015). Moreover, as Mandarin is a marker of the Chinese identity and that Hong Kong citizens valued their identities as Hongkongers more than Chinese, they avoided learning Mandarin to protect their culture (Whelpton, 1999). In view of this, the environment of Mandarin learning in Hong Kong became inadequate, and even businessmen and new immigrants who are proficient in Mandarin changed their language use to Cantonese (Leung, 2017).

Political reasons could be the most influential factor that hinders Mandarin learning in Hong Kong. The introduction of Mandarin learning and PMI teaching raised suspicions among locals in Hong Kong that the Communist Party was taking some colonisating measures in Hong Kong (Shao, 2016). The mass media described that the implementation of PMI as a political strategy for the Chinese government to tighten their control over Hong Kong (Shao, 2016). The Communist Party was seen as a dictator and wanted to unify the language use to kill Cantonese (Shao, 2016). This accounts for the negative attitude of Hong Kong people towards Mandarin.

Other than the reasons stated above, a generally negative attitude towards Mandarin affects the motivation of learning. Mandarin was considered a language of lower status because people may associate Mandarin with mainland immigrants and locals in Hong Kong exhibited a resistance to be identified with them. Hong Kong people tended to regard themselves as more open and westernized (Davidson & Lai, 2007). Moreover, the impolite behaviours of the mainland tourists, mainland pregnant women giving birth in Hong Kong and the surging local property price all made Hong Kong residents built a negatively biased belief towards people from mainland China, hence Mandarin (Shao, 2016). In this way, Hong Kong local people did not want to master Mandarin or even use Mandarin.

## **2.6 Similarities and Differences of Mandarin and Cantonese consonants**

Both Mandarin and Cantonese are Chinese languages which share similar morphology and syntax. The significant difference is in the phonological characteristics (Ho, 2015). Moreover, there are similarities in the tonal systems and the realization of aspiration in some initial consonants in Mandarin and Cantonese (Yue, 2015). In view of this, the phonological similarities and differences of consonants in Mandarin and Cantonese are discussed in this section.

Consonants could be mainly classified by the place of articulation, manner of articulation and voicing (Roach, 1991, as cited in Chan & Li, 2000). In Mandarin, there are 25 consonants while Cantonese has only 19 consonants. The following tables, based on previous research studies, show the consonants of Mandarin and Cantonese (Chan & Li, 2000; Cheng, 1973; Lo, 2000; Wan, 2016).

**Table A: Place and Manner of articulations of Mandarin consonants**

| Place of Articulation<br>Manner of<br>Articulation | Bilabial          | Labio-dental | Dental              | Retroflex           | Palatal             | Velar             |
|--|-------------------|--------------|---------------------|---------------------|---------------------|-------------------|
| Plosive  | p, p <sup>h</sup> |              | t, t <sup>h</sup>   |                     |                     | k, k <sup>h</sup> |
| Fricative  |                   | f            | s                   | ʂ/ʐ                 | ç                   | x                 |
| Affricate  |                   |              | ts, ts <sup>h</sup> | tʂ, tʂ <sup>h</sup> | tç, tç <sup>h</sup> |                   |
| Nasal  | m                 |              | n                   |                     |                     | ŋ                 |
| Liquid   |                   |              | l                   | ɭ                   |                     |                   |
| Glide  | w                 |              |                     |                     | j/q                 | w                 |

**Table B: Place and Manner of articulations of Cantonese consonants**

| Place of<br>Articulation<br>Manner of<br>Articulation | Bilabial | Labio-<br>dental | Dental | Alveolar | Palatal | Velar  | Labio-<br>velar                  | glottal |
|---|----------|------------------|--------|----------|---------|--------|----------------------------------|---------|
| Plosive   | p<br>b   |                  |        | t<br>d   |         | k<br>g | k <sup>w</sup><br>g <sup>w</sup> |         |
| Fricative   |          | f                |        | s        |         |        |                                  | h       |
| Affricate   |          |                  |        | ts       |         |        |                                  |         |

|                |   |  |  |    |   |   |  |  |
|----------------|---|--|--|----|---|---|--|--|
|                |   |  |  | tz |   |   |  |  |
| Nasal          | m |  |  | n  |   | ŋ |  |  |
| Lateral liquid |   |  |  | l  |   |   |  |  |
| Glide          | w |  |  |    | j |   |  |  |

From Tables A and B, it can be seen that both Mandarin and Cantonese share similar bilabial, labio-dental and velar consonants. There are 11 consonants which are present in Mandarin but absent in Cantonese. These include the dental /ts/, /ts<sup>h</sup>/, /s/ (z-, /c-/ , /s-/ in Mandarin), retroflex /tʂ/, /tʂ<sup>h</sup>/, /ʂ/, /ʐ/ (zh-, ch-, sh-, r- in Mandarin) and alveolar-palatal /tɕ/, /tɕ<sup>h</sup>/, /ç/ (j-, q-, x- in Mandarin) (Li, 2019). Retroflex sibilants are also distinctive in Mandarin, making them harder for native Cantonese speakers to pronounce accurately (Cheng, 1973).

## 2.7 The common mistakes made in the production of Mandarin consonants

Wan (2016) found that mistakes were mostly made in the place of articulation followed by the manner of articulation and aspiration during the production of Mandarin consonants. Mistakes could be most commonly found in the production of Mandarin dental and retroflex pairs: /ts/ ; /ts<sup>h</sup>/and /s/ and retroflex sibilants /tʂ/; /tʂ<sup>h</sup>/and /ʂ/ as they only differ in one feature (Wan, 2016; Zhang et al., 2012).

The pairs include 1) the unaspirated dental affricate /ts/ and unaspirated retroflex affricate /tʂ/, 2) the aspirated dental affricate /ts<sup>h</sup>/ and aspirated retroflex affricate /tʂ<sup>h</sup>/,

and 3) the dental fricative /s/ and the retroflex fricative /ʂ/ (Wan, 2016; Zhang et al., 2012). These six sounds cannot be found in Cantonese. When Cantonese speakers produced these consonants word-initially, they always confused the place of articulation (Li, 2019; Lo, 2000). These sounds which were commonly mispronounced were often mapped with the speakers' L1, meaning that native Cantonese speakers may produce Mandarin retroflex as dental or palatal sibilants (Hao, 2012).

This present research only focuses on the mistakes made by the confusion on the dental and retroflex consonant pairs, i.e., /ts-/tʂ/, /ts<sup>h</sup>-/tʂ<sup>h</sup>/, and /s-/ʂ/. This study, in addition, aims to explore the effects of PMI schooling and other psycholinguistics factors which affect the production the above six Mandarin consonants. The following research questions will be answered:

1. Which group of participants, secondary school students who had completed PMI schooling (Group PS), secondary school students who had not completed PMI schooling (Group NPS) and university graduates who had little formal Mandarin training (Group UG), obtain the highest accuracy in the production of Mandarin consonant /ts-/tʂ/, /ts<sup>h</sup>-/tʂ<sup>h</sup>/ and /s-/ʂ/?
2. Are there any differences in the Mandarin consonant production accuracy between the two genders?

3. Which consonant(s) do the participants have the greatest problems with?
4. What are the psycholinguistic factors which i) enhance or ii) hinder the participants to speak Mandarin more accurately?

## Chapter 3 Methodology

### 3. Methodology

This study used a mixed-methods design to explore the effect of how PMI schooling and other psycholinguistic factors affect the production of Mandarin consonants by native Cantonese speakers in Hong Kong. For the collection of quantitative data, participants were invited to record a list of vocabulary items with the Mandarin consonants /ts/, /tʂ/, /tsʰ/, /tʂʰ/, /s/ and /ʂ/ and the accuracy scores were then calculated. For the qualitative part, a total of six participants, three with high and three with low accuracy in the production test, were invited for an interview after the analysis of the test results to explore the underlying psycholinguistic factors which promote or hinder Mandarin learning of native Cantonese speakers in Hong Kong.

#### 3.1 Participants

By the use of convenience sampling, a total of 63 participants were invited to participate in this study. These participants were either the researcher's friends, the researcher's students or friends of the researcher's students. The participants were divided into three different subcategories, namely secondary school students who had completed PMI schooling (Group PS) (N=22), secondary school students who had not completed PMI schooling (i.e. Cantonese was used as the medium of instruction) (Group NPS)



(N=20) and university graduates who had little formal Mandarin training (i.e. Cantonese was used as the medium of instruction and Mandarin was taught in primary or secondary school only and with only 1 lesson per week) (Group UG) (N=22).

Secondary school students' participants were born in or after 2000 after the handover of Hong Kong. Mandarin became much more important after that, and PMI schooling became more prevalently adopted. All of them took Mandarin examinations in their own school before. These two groups of students had learnt Mandarin since kindergarten even without the adoption of PMI teaching at schools. The university graduates were born between 1990 and 1995 where Mandarin was relatively less important. Thus, this group of participants only received formal trainings in Mandarin in their primary school and did not take any Mandarin examinations in their own school.

A total of six participants, one with high accuracy (more than 90%) and one with low accuracy (less than 60%) in the production test from each group were invited to a 15-minute interview upon their approval to find out the psycholinguistic factors which affect their Mandarin production.

### **3.2 Stimuli and Materials**

Participants were invited to produce a set of vocabulary items with the Mandarin consonantal onsets which were confused by native Cantonese speakers as stated in the

past research (Wan, 2016; Zhang et al., 2012). A survey of the extant literature revealed that there were 11 consonants found which were commonly mispronounced by native Cantonese speakers. However, this study limited the number of consonants to be tested to be only six i.e. /ts/-/tʂ/, /ts<sup>h</sup>/-/tʂ<sup>h</sup>/ and /s/-/ʂ/ (Wan, 2016; Zhang et al., 2012). All the vocabulary items were with two syllables, with one syllable containing the target consonants. A total of 12 pairs of minimal word pairs in which the target syllable differed only in initial consonants were included. Other factors such as the tone (all target syllables were in Tone 1) and the vowel in each minimal pair of words were the same. During the test, only the list of vocabulary without the provision of pinyin was given to the participants so as to test their awareness to differentiate the three groups of consonants: /ts/-/tʂ/, /ts<sup>h</sup>/-/tʂ<sup>h</sup>/ and /s/-/ʂ/ during the production of the vocabulary in Mandarin. To avoid list-reading intonation, participants were instructed to read with naturally. All the productions were recorded by using a digital recorder on phone.

The following list of words with the target syllable which are of the same tone were tested:

| Tone                              | Vocabulary to be tested                              |
|-----------------------------------|--|
| /ts/-/tʂ/ for pinyin ‘z’ and ‘zh’ | 姿勢 zī shì    知識 zhī shí<br>栽花 zāi huā    摘花 zhāi huā |

|   |   |
|---|---|
|   | 宗旨 zōng zhǐ 中止 zhōng zhǐ<br>糟了 zāo le 招了 zhāo le  |
| /ts <sup>h</sup> /-/tʂ <sup>h</sup> / for pinyin ‘c’ and ‘ch’ | 粗布 cū bù 初步 chū bù<br>擦錯 cā cuò 差錯 chā cuò<br>村長 cūn zhǎng 春天 chūn tiān<br>粗長 cū zhǎng 出場 chū chǎng |
| /s/-/ʃ/ for pinyin ‘s’ and ‘sh’                               | 搜集 sōu jí 收集 shōu jí<br>商業 shāng yè 桑葉 sāng yè<br>山頂 shān dǐng 三頂 sān dǐng<br>私自 sī zì 獅子 shī zǐ    |

The scores of the accuracy were calculated by comparing the production of vocabulary with the production of the Mandarin native speakers’ production acoustically in Praat. Then, the percentage of correct production were calculated in excel.

After the quantitative analysis, an interview was conducted to determine the psycholinguistic factors which help or hinder the participants to develop Mandarin speaking skills. The questions in the interview were about the duration, motivation, attitude and learning style of Mandarin learning. Details of the interview questions could be referred to Appendix 2.

### 3.3 Procedures

Before collecting the data, a pilot test was conducted. The consent forms were sent to two native Cantonese speakers to check if they could understand the instructions as stated in the form. After their confirmation, consent forms were distributed to 70 participants, among whom 64 responded. The recordings were recorded in a quiet environment with the respondents' recording device on phone as face to face recording could not be carried out during class suspension. Participants then sent their recordings to the researcher after recording. The return rate is 90%.

Before the analysis, two female native Beijing Mandarin speakers who were 20 and 24 years old respectively, were invited to produce the initial consonants /ts/, /tʂ/, /ts'/, /tʂ'/, /s/ and /ʂ/ and the vocabulary as listed in the table in the consent form. In each minimal pair, the only difference was in the place of articulation. Therefore, the accuracy of the production could be measured by comparing the format, F2 and F3 of the participants' production with the native speakers' production in the consonants in Praat to calculate the percentage of accurate production.

In addition, the recordings from the 64 participants were sent to the two native Mandarin speakers for judgement. The two native Mandarin speakers determined the accuracy and identified the mistakes made in the place or manner of articulation so that they could be further analysed. The two native Mandarin speakers listened to all the

recordings twice and agreed with each other's judgement. The results analysed by the native speakers were also in line with the analysis in Praat. Therefore, the intra-rater reliability and inter-rater reliability in determining the production accuracy could be achieved. By comparing scores of the accuracy of the three groups of participants, RQ1 could be answered.

For each pairs of consonants, there were eight vocabulary items to be tested. Each correct pronounced consonant would be rewarded for 1 mark. For each group of consonants, the maximum and minimum scores were 8 and 0 marks respectively. As there were three pairs of consonants, the total mark of this test was 24. The number of correct items from each participant were calculated and converted to 100% for easier comparisons.

After the scores of their level of accuracy were calculated, they were analysed in the IBM Statistical Product and Service Solutions (SPSS) software to determine the correlation between PMI schooling and the level of accuracy in Mandarin production. Then, the participants with high and low accuracy in the production of Mandarin in each group were invited for a 15-minute interview so that the underlying psycholinguistic factors which foster or hinder their Mandarin learning could be explored.

## **Chapter 4 Results and Discussions (Quantitative Part)**

This chapter illustrates the results of the quantitative analysis by listing the descriptive statistics of the Mandarin production scores of different groups and the correlations between PMI instructions or gender and Mandarin production. The underlying reasons which explain the results of the quantitative analysis will also be presented.

### **4.1 Descriptive statistics and the relationship between PMI teaching and accuracy of Mandarin production**

In the Mandarin production test on the target consonants, there were 64 participants in total. Out of the 64 participants, 22 were secondary school students who had completed PMI schooling (Group PS here after), 20 were secondary school students who had not completed PMI schooling from (Group NPS here after) and 22 were university graduates who had little formal Mandarin training (Group UG here after).

Table 1 below shows the results of the Mandarin production test. The mean score of all three groups (N=64) was 73.43 (SD = .182). For Group PS, the mean was 77.65 (SD = .206). The mean score of Group NPS was 73.53 (SD= .164) while that of Group UG was 69.12 (SD= .167). Compared with the general mean (N=64), Group PS had the highest mean score, followed by Group NPS while the score of Group UG was the lowest.

**Table 1****Scores of Mandarin Production Test regarding PMI teaching groups**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 73.43 | .182                  | 64 | 100.00  | 37.50   |
| Group PS         | 77.65 | .206                  | 22 | 100.00  | 37.50   |
| Group NPS        | 73.53 | .164                  | 20 | 100.00  | 50.00   |
| Group UG         | 69.12 | .167                  | 22 | 100.00  | 50.00   |

Table 2 below shows the results of the production score of /ts-/tʂ/. The mean score of all three groups (N=64) was 75.98 (SD= .224). For Group PS, the mean score was 78.41(SD= .219). The mean score of Group NPS was 77.50 (SD= .242) while the mean score of Group UG was 72.16 (SD= .211). Compared with the overall mean scores, the mean score of Group PS in production of /ts-/tʂ/ was the highest, followed by Group NPS and Group UG.

**Table 2****Scores of consonants' production(/ts-/tʂ/) regarding PMI teaching groups**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 75.98 | .224                  | 64 | 100.00  | 25.00   |
| Group PS         | 78.41 | .219                  | 22 | 100.00  | 37.50   |
| Group NPS        | 77.50 | .242                  | 20 | 100.00  | 25.00   |
| Group UG         | 72.16 | .211                  | 22 | 100.00  | 37.50   |

Table 3 below shows the results of the production score of /ts<sup>h</sup>-/tʂ<sup>h</sup>/. The mean score of all three groups (N=64) was 69.53 (SD= .229). For Group PS, the mean score was 75.57 (SD= .233). The mean score of Group NPS was 73.12 (SD= .206) while the mean

of Group UG was 60.23 (SD= .220). Compared with the general mean, the mean score of Group PS in production of /ts<sup>h</sup>/-/tʂ<sup>h</sup>/ was the highest, followed by Group NPS and Group UG.

**Table 3**

**Scores of consonants' production(/ts<sup>h</sup>/-/tʂ<sup>h</sup>/) regarding PMI teaching groups**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 69.53 | .229                  | 64 | 100.00  | 25.00   |
| Group PS         | 75.57 | .233                  | 22 | 100.00  | 25.00   |
| Group NPS        | 73.12 | .206                  | 20 | 100.00  | 50.00   |
| Group UG         | 60.23 | .220                  | 22 | 100.00  | 37.50   |

Table 4 below shows the results of the consonants' production score for /s/-/ʂ/. The mean score of all three groups (N=64) was 74.02 (SD= .215). For Group PS, the mean score was 78.98 (SD= .220). The mean score of Group NPS was 67.50 (SD= .207) while the mean score of Group UG was 75.00 (SD= .208). Compared with the general mean, the mean score of Group PS in production of /s/-/ʂ/ was the highest, followed by Group UG and Group NPS.

**Table 4**

**Scores of consonants' production(/s/-/ʂ/) regarding PMI teaching groups**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 74.02 | .215                  | 64 | 100.00  | 37.50   |
| Group PS         | 78.98 | .220                  | 22 | 100.00  | 37.50   |
| Group NPS        | 67.50 | .207                  | 20 | 100.00  | 37.50   |
| Group UG         | 75.00 | .208                  | 22 | 100.00  | 37.50   |



Table 5 below indicates the correlation between different groups and Mandarin production using Spearman's rho. The correlation between different groups and Mandarin production was -.195 without any significance, meaning that the adoption of PMI teaching and Mandarin production was not correlated. In other words, the level of Mandarin production was not shown to be determined by the adoption of PMI teaching.

**Table 5**

**Correlations between different groups and accuracy of Mandarin production**

|        |                 | Mandarin<br>production |
|--------|-----------------|------------------------|
| Groups | Correlation     | -.195                  |
|        | Coefficient     |                        |
|        | Sig. (2-tailed) | .122                   |
|        | N               | 64                     |

A one-way between-subject ANOVA was conducted to determine whether the mean Mandarin production scores of Group PS, Group NPS or Group UG would have significant difference. Table 6 below illustrates the results of RQ1. There was no significance in the difference between teaching instruction medium ( $F=1.212$ ,  $p>.05$ ) on the Mandarin production in consonants of native Cantonese speakers in Hong Kong. Therefore, the null hypothesis was accepted in RQ1, suggesting that the completion of PMI schooling could not enhance students' accuracy in Mandarin production.

Post hoc comparison using the Scheffe's test revealed that the mean score of the three groups did not any have significant difference with one another. By comparing the mean

scores, Group PS (M=77.65) had the highest Mandarin consonant production score among the three groups, followed by Group NPS (M=73.53) and Group UG(M=69.12).

**Table 6**

**ANOVA test of Mandarin production regarding different groups**

|                | Sum of Squares | df | Mean Square | F     | Sig. |
|----------------|----------------|----|-------------|-------|------|
| Between Groups | 800.401        | 2  | 400.201     | 1.212 | .305 |
| Within Groups  | 20134.271      | 61 | 330.070     |       |      |
| Total          | 20934.672      | 63 |             |       |      |

**Post Hoc Test**

**Multiple Comparisons**

Dependent Variable: Mandarin Production Score

Scheffe

| (I) Groups | (J) Groups | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |             |
|------------|------------|-----------------------|------------|------|-------------------------|-------------|
|            |            |                       |            |      | Lower Bound             | Upper Bound |
| Group PS   | Group NPS  | 4.120                 | 5.613      | .765 | -9.964                  | 18.204      |
|            | Group UG   | 8.529                 | 5.478      | .305 | -5.216                  | 22.273      |
| Group NPS  | Group PS   | -4.120                | 5.613      | .765 | -18.204                 | 9.964       |
|            | Group UG   | 4.409                 | 5.613      | .736 | -9.675                  | 18.493      |
| Group UG   | Group PS   | -8.529                | 5.478      | .305 | -22.273                 | 5.216       |
|            | Group NPS  | -4.409                | 5.613      | .736 | -18.493                 | 9.675       |

\*. The mean difference is significant at the 0.05 level.

### Mandarin Production score

Scheffe<sup>a,b</sup>

| Groups    | N  | Mean of the subset for alpha = 0.05 |
|-----------|----|-------------------------------------|
| Group PS  | 22 | 77.65                               |
| Group NPS | 20 | 73.53                               |
| Group UG  | 22 | 69.12                               |
| Sig.      |    | .316                                |

#### 4.2 Descriptive statistics and the relationship between gender and accuracy of Mandarin production

Table 7 below indicates the correlation between different gender and different groups using Spearman's rho. The correlation between different groups and Mandarin production was -.038 without any significance, meaning that the two factors: adoption of PMI teaching and gender were not correlated. Gender difference would be investigated in the later explanations.

**Table 7**

#### Correlations between gender and different groups

|        |                 | Groups |
|--------|-----------------|--------|
| Gender | Correlation     | -.038  |
|        | Coefficient     |        |
|        | Sig. (2-tailed) | .767   |
|        | N               | 64     |

Out of the 64 participants, 30 were male and 34 were female. Table 8 below shows the results of the Mandarin production test. The mean score of all two groups (N=64) was 73.43 (SD = .182). For male, the mean was 70.13 (SD = .172). Mean score of female was

76.34 (SD= .188). Compared with the general mean (N=64), female participants had a higher mean score whereas the mean score of male participants was lower.

**Table 8**

**Scores of Mandarin Production Test regarding two genders**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 73.43 | .182                  | 64 | 100     | 37.50   |
| Male             | 70.13 | .172                  | 30 | 100     | 37.50   |
| Female           | 76.34 | .188                  | 34 | 100     | 45.83   |

Table 9 below shows the results of the production score for /ts-/tʂ/ regarding different gender. The mean score of all three groups (N=64) was 75.98 (SD= .224). For male, the mean score was 74.16 (SD= .207). The mean score of females was 77.57 (SD= .240). Compared with the general mean, the mean score of females was higher than that of male in the production of /ts-/tʂ/.

**Table 9**

**Scores of consonants' production(/ts-/tʂ/) regarding two genders**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 75.98 | .224                  | 64 | 100.00  | 25.00   |
| Male             | 74.16 | .207                  | 30 | 100     | 25.00   |
| Female           | 77.57 | .240                  | 34 | 100     | 37.50   |

Table 10 below shows the results of the consonants' production score for /ts<sup>h</sup>-/tʂ<sup>h</sup>/ regarding two genders. The mean score of all three groups (N=64) was 69.53 (SD= .229). The mean score was 65.42 for male (SD= .229) while the mean score was 73.16 for

female (SD= .226). Compared with the general mean, the mean score of females was higher than male in the production of /ts<sup>h</sup>/-/tʂ<sup>h</sup>/.

**Table 10**

**Scores of consonants' production(/ts<sup>h</sup>/-/tʂ<sup>h</sup>/) regarding two genders**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 69.53 | .229                  | 64 | 100.00  | 25.00   |
| Male             | 65.42 | .229                  | 30 | 100     | 25.00   |
| Female           | 73.16 | .226                  | 34 | 100     | 37.50   |

Table 11 below shows the results of the consonants' production score for /s/-/ʂ/. The mean score of all three groups (N=64) was 74.02 (SD= .215). For male, the mean score was 70.83 (SD= .198) while the mean score was 76.84 for female (SD= .228). Compared with the general mean, the mean score of females was higher than male in the production of /s/-/ʂ/.

**Table 11**

**Scores of consonants' production(/s/-/ʂ/) regarding two genders**

|                  | Mean  | Standard<br>Deviation | N  | Maximum | Minimum |
|------------------|-------|-----------------------|----|---------|---------|
| All participants | 74.02 | .215                  | 64 | 100.00  | 37.50   |
| Male             | 70.83 | .198                  | 30 | 100     | 37.50   |
| Female           | 76.84 | .228                  | 34 | 100     | 37.50   |

With reference to Tables 9, 10 and 11, both male and female performed the best for /ts/-/tʂ/ production, followed by the production of /s/-/ʂ/ and /ts<sup>h</sup>/-/tʂ<sup>h</sup>/.

Table 12 below shows the error confusion table of the participants. There were 256

recordings for each sound for each participant. For all participants, they performed the worst in pronouncing /ts<sup>h</sup>/, only 60.2% could pronounce it without reading it as /tʂ<sup>h</sup>/. Among all six consonants, the highest accuracy was the pronunciation of /ts/: 79.3% of the words were pronounced accurately. However, the overall accuracy of the six consonants was not high as none of the accuracy passed 80%. This finding answered RQ3 that /ts<sup>h</sup>/ was the consonant that the participants had the greatest problem with.

**Table 12**  
**Error confusion table**

| Target production consonants | Production Response |              |                    |                    |              |              |
|------------------------------|---------------------|--------------|--------------------|--------------------|--------------|--------------|
|                              | /ts/                | /tʂ/         | /ts <sup>h</sup> / | /tʂ <sup>h</sup> / | /s/          | /ʂ/          |
| /ts/                         | 203<br>79.3%        | 53<br>20.7%  |                    |                    |              |              |
| /tʂ/                         | 68<br>26.6%         | 188<br>73.4% |                    |                    |              |              |
| /ts <sup>h</sup> /           |                     |              | 154<br>60.2%       | 102<br>39.8%       |              |              |
| /tʂ <sup>h</sup> /           |                     |              | 55<br>21.5%        | 201<br>78.5%       |              |              |
| /s/                          |                     |              |                    |                    | 195<br>76.2% | 61<br>23.8%  |
| /ʂ/                          |                     |              |                    |                    | 75<br>29.3%  | 181<br>70.7% |
| Percentage pronounced        | 271<br>52.9%        | 241<br>47.1% | 209<br>40.8%       | 303<br>59.2%       | 270<br>52.7% | 242<br>47.3% |

Table 13 below indicates the correlation between the two genders and Mandarin production using Spearman’s rho. The correlation between the two genders and Mandarin

production was .171 without any significance, meaning that gender and Mandarin production was not correlated. Therefore, the null hypothesis of RQ2 was accepted that no correlation could be found between the adoption of gender and the level of Mandarin production.

**Table 13**  
**Correlations between gender and accuracy of Mandarin production**

|        |                 | Mandarin<br>production |
|--------|-----------------|------------------------|
| Gender | Correlation     | .171                   |
|        | Coefficient     |                        |
|        | Sig. (2-tailed) | .176                   |
|        | N               | 64                     |

Independent sample t-test was conducted to determine whether male or female had higher Mandarin production scores. Table 14 below illustrates the results of RQ2. There was no significant difference between the two genders on the Mandarin production of the target consonants. Therefore, null hypothesis of RQ2 was accepted and that no correlation could be found between the adoption of gender and the level of Mandarin production. Gender difference might not be a significant factor affecting Mandarin acquisition among second language learners.

**Table 14****Independent sample t-test**

|                           |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |                 |                       |                         |       |
|---------------------------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------|-------|
|                           |                             | F                                       | Sig. | t                            | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval |       |
|                           |                             |   |      |                              |        |                 |                 |                       | Lower                   | Upper |
| Mandarin Production Score | Equal variances assumed     | 1.035                                   | .313 | -1.369                       | -1.376 | 62              | -6.206          | 4.535                 | -15.271                 | 2.859 |
|                           | Equal variances not assumed |   |      |                              |        | 61.906          | -6.206          | 4.510                 | -15.221                 | 2.809 |

**4.3 Discussion**

This section discusses and explores the underlying reasons which explain the results of RQ1, RQ2 and RQ3, giving suggestions and explanations on the Mandarin consonant production results with respect to PMI instructions or the two genders.

**4.3.1 The group which had the highest accuracy**

RQ1 stated, 'Which group of participants, secondary school students who had completed PMI schooling (Group PS), secondary school students who had not completed



PMI schooling (Group NPS) and university graduates who had little formal Mandarin training (Group UG), obtain the highest accuracy in the production of Mandarin consonant /ts/-/tʂ/, /ts<sup>h</sup>/-/tʂ<sup>h</sup>/ and /s/-/ʂ/?' Although the differences in Mandarin production scores among different groups were not significant, the average score of Group PS was the highest, followed by Group NPS and group UG.

Although it seemed difficult to compare the three groups directly as the participants are of different ages, the comparison of Group UG to another two groups is to determine whether the university graduates who had only one Mandarin lesson per week and were studied in less Mandarin favoured environment would have lower accuracy in Mandarin production owing to less exposure to Mandarin. The purpose of comparing Group PS and Group NPS is that, participants in both groups are secondary school students who are still developing their second language proficiency. As learning a second language is a developmental process which involve different stages, production scores of the three groups did not show any significant difference. Still, there was a tendency that Group PS and Group NPS were performing better than Group UG, and was expected that they might be more proficient as time goes by.

Another speculation of the null results may be simply due to the small sample size. Still, students who received PMI education has the highest average score among three

groups, showing a tendency that more exposure to Mandarin at school helped students obtain higher Mandarin pronunciation accuracy. The new restricted standard on teachers' Mandarin qualification may also be a contributing factor. These students might also have higher instrumental motivation in Mandarin learning.

The average length of exposure to Mandarin at school for students in Group PS was at least 40 minutes per day, as Mandarin was used as the teaching medium for two subjects: the Chinese language and Mandarin. Students in Group PS, in addition, were engaged in more opportunities in discussions and raising questions in Mandarin (Tam, 2012; Wang & Kirkpatrick, 2012). With more opportunities to speak and use Mandarin, students who studied in PMI schools would have higher accuracy in Mandarin production.

Both Group NPS and Group UG were both exposed to Mandarin for an hour per week in Mandarin lessons. Yet, the main goal of Mandarin learning between Group NPS and Group UG was different. Students from Group NPS were tested for the production and pinyin in Mandarin examination, while participants in Group UG did not need to attend Mandarin examination when they were in primary school. This suggests that both teachers and students in Group NPS would spend more time on practicing the production of Mandarin sounds so as to fulfill the examination requirement. However, participants in Group UG only had one Mandarin lesson without extra trainings for examination.

The second reason explaining the difference in accuracy between groups is that teachers' qualification in Mandarin has been enhanced since the handover (Kou & Cheung, 2018). Teachers of Group UG students were mostly from the Education University of Hong Kong (EdU) and Mandarin qualifications of teachers varied. Starting from 2000 onwards, more language teachers has been trained in different universities in Hong Kong with higher Mandarin qualification (Kou & Cheung, 2018). Moreover, in equipping teachers with the new language teaching medium, Mandarin, they are required to join an immersion programme in Mainland China to enhance their Mandarin proficiency. In addition, teachers need to attain level 2B (80% correct) in the Putonghua Shuiping Ceshi (PSC) examination in order to graduate from the degree of Chinese language teaching programme (Kou & Cheung, 2018; Wang & Kirkpatrick, 2015). Therefore, teachers of students from Group PS and NPS had more trainings in teaching Mandarin compared to teachers who taught Group UG. If the teachers have a higher proficiency in Mandarin production, students are likely to acquire more accurate pronunciation from their Mandarin teachers.

Compared to participants in Group UG, students from Group PS and Group NPS may had higher instrumental motivation to learn Mandarin. After the handover of Hong Kong to China, the status of Mandarin had become higher as China would become a major

trading country in the world under globalization (Gao et al., 2010; Kirkpatrick & Chau, 2008). There was an increased number of parents thinking that learning of Mandarin could probably help their children in future studies or broaden their career prospects as their children could be competent in working with or doing business with people in Mainland China (Kirkpatrick & Chau, 2008; Wang & Kirkpatrick, 2013). Students in Group PS and NPS were thus encouraged to learn Mandarin for better job opportunities.

#### **4.3.2 No correlation between PMI teaching and accuracy in Mandarin production**

As an extension to RQ 1, the correlation between PMI teaching and Mandarin production was being investigated. As no correlation can be found between different groups using different language teaching curriculum and Mandarin production, null hypothesis would be accepted and the results showed that PMI schooling cannot enhance student's accuracy in Mandarin consonant production.

Although the mean score of Group PS was the highest among the three groups, the difference between groups was not huge. From the statistical analysis, it also seemed to show that the medium of instructions in teaching had no correlation with the Mandarin consonant production accuracy. This finding is in line with the past research studies (e.g., Evans, 2013; Gao et al., 2010; Huang, 2011; Tam, 2011) which showed that PMI instruction did not directly enhance students' Mandarin accuracy. Undoubtedly, using

PMI as the teaching medium allows more exposure to Mandarin for students. Yet, if students are reluctant to speak in Mandarin and the school does not have enough support for students, PMI teaching still cannot help them to enhance Mandarin production accuracy.

From the results of the interview (which will be elaborated in detail in Ch. 5), 5 out of 6 participants commented that they did not like Mandarin and did not approve of the use of PMI instruction at school. Even when Mandarin was used as the teaching medium of Chinese in most of the primary schools in Hong Kong, with such low interest and the strong sense of disapproval for Mandarin, students simply avoided speaking Mandarin especially when it was outside classroom settings (Huang, 2011; Tam, 2011; Wang & Kirkpatrick, 2012). Students also found pinyin difficult and often code-switched to Cantonese when they encountered challenging pronunciations like the retroflex (Gao et al., 2010; Huang, 2011; Wang & Kirkpatrick, 2012). This may explain why participants made mistakes in the Mandarin consonant test in this study.

Aside from the reluctance in speaking Mandarin, schools may not be able to provide enough support for students and parents in the implementation of PMI as a teaching medium. Until now, there is not a united standard of the implementation of PMI teaching (Wang & Kirkpatrick, 2013). The effectiveness of PMI teaching varies from schools to

schools. Moreover, schools may not be able to provide support for students who are weak in Mandarin because of the tight teaching schedule and large class size (Tam, 2011; Wang & Kirkpatrick, 2012). Besides, the Mandarin level of Hong Kong parents is often low. They cannot support the school in aiding their children to learn Mandarin without hiring a Mandarin teacher for their children (Li, 2009; Wang & Kirkpatrick, 2013). Sometimes, parents may mispronounce Mandarin consonants and their children may mimic the mispronounced forms from their parents.

Additionally, there were still a lot of teachers who taught Chinese under PMI instruction were not native in Mandarin. Most of them had to attempt for the PSC examinations for a few times in order to attain level 2B (Kou & Cheung, 2018). As a result, before attaining level 2B in Mandarin, teachers' pronunciation on Mandarin consonants may not be accurate. Students who learnt Mandarin just from school teachers may have higher chances of mispronunciation if their teachers were not engaged in further trainings in Mandarin production. Therefore, without comprehensive measures in supporting the implementation of PMI instructions for schools, PMI instruction may not be effective in enhancing the accuracy in Mandarin consonants.

### **4.3.3 No correlation between gender and accuracy in Mandarin production**

RQ2 suggested, ‘Are there any differences in the Mandarin consonant production accuracy between the two genders?’ Since no correlation can be found between gender and Mandarin production, null hypothesis will be accepted and that gender is not correlated to the accuracy in Mandarin consonant production.

Female and male participants learnt Mandarin differently as they stated in the interview and the overall Mandarin production score of female was higher than that of male by 6.34 marks out of 100 marks. The perception of the usefulness of Mandarin and ways of learning between female and male were different. Male participants from the interview tended to have a more laidback learning style and they stressed on the communicative ability of Mandarin rather than the accuracy. On the contrary, female participants from the interview learnt Mandarin through more systematic means and they focused on both communicative ability and accuracy of Mandarin production. This might explain the reason why the general scores of female participants were higher than that of male.

However, one has to be cautious when interpreting the data, as no correlation could be found between gender and Mandarin consonant production accuracy. The interviewees could only represent views from their own perspectives. There may also be some males

who learn systematically or some females who do not pay attention to the pronunciation accuracy. More research in this area has to be conducted to confirm the results.

#### **4.3.4 Most common mistakes made in the production of Mandarin consonants**

RQ 3 asked ‘Which consonant(s) do the participants have the greatest problems with?’

From Tables 2 to 4 and Table 12, the production of /ts<sup>h</sup>-/tɕ<sup>h</sup>/ sounds were the most challenging for all the participants. Most participants mispronounced /ts<sup>h</sup>/ as /tɕ<sup>h</sup>/.

However, the production of /s/-/ʃ/ pair was the worst for participants in Group NPS.

the most common mistake was found in the place of articulation. Most participants mispronounced the words starting with /ts<sup>h</sup>/ as /tɕ<sup>h</sup>/, changing a dental sound into a retroflex. While participants in Group NPS often pronounced /ʃ/ as /s/. Zhang et. al (2012) found that the differentiation of two pairs of consonants: /ts/-/tɕ/ and /ts<sup>h</sup>-/tɕ<sup>h</sup>/ was the weakest among native Guangzhou Cantonese speakers who speak fluent Mandarin. Yet, the present findings were somehow different from Zhang et.al (2012) as the participants in this study were native Hong Kong Cantonese speakers who had high variations in their Mandarin production ability.

Participants had difficulties in differentiating pairs of consonants and sibilants especially for /ts<sup>h</sup>-/tɕ<sup>h</sup>/ and /s/-/ʃ/. /tɕ/, /tɕ<sup>h</sup>/ and /ʃ/ are absent in Cantonese (Zhang et al,2012). However, even though the other three consonants, /ts/, /ts<sup>h</sup>/ and /s/, are present



in Cantonese, they are pronounced differently in the two sibling languages (Bauer & Benedict, 1997). Therefore, Cantonese speakers often confuse these three consonant pairs by assimilating /ts/-/tʂ/ into /ts/, /tsʰ/-/tʂʰ/ into /tsʰ/ and /s/-/ʂ/ into /s/ (Zhang et al, 2012). However, from Table 12, the percentage of mispronunciation of /tsʰ/ as /tʂʰ/ was higher than that of pronouncing /tʂʰ/ as /tsʰ/. It is speculated that some participants may not be able to differentiate dental and retroflex and that participants may thought that retroflex sounds more like Mandarin more than dental sounds as retroflex are absent in Cantonese. Therefore, they produced either retroflex or dental consonants randomly.

## **Chapter 5 Results and Discussions (Qualitative Part)**

This chapter presents the results of the interview which explores the psycholinguistic and sociolinguistic factors that foster or hinder Mandarin learning among different groups of participants and provides elaborations on how these factors interfere Mandarin production.

### **5.1 Results from the interview**

The following results of the interview can be used to explore the psycholinguistic and sociolinguistic factors that foster or hinder Mandarin learning among different groups of participants, with a view to answering RQ4.

A total of six participants from the three groups of participants (two from each group) which were of high accuracy (scores more than 90%) and of low accuracy (less than 60%) in Mandarin production were interviewed to explore the underlying factors which fostered or inhibited their Mandarin learning. The following results would be reported according to four psycholinguistic and sociolinguistic factors (age, length of exposure to Mandarin, motivation and political factors) which may affect Mandarin learning of the participants.

### **5.2 Factors that enhance Mandarin Production**

This section summarizes and explains the factors which enhance Mandarin

production. These factors include age, length of exposure to Mandarin and the presence of instrumental motivation, which answers RQ4.

### **5.2.1 Age and length of exposure to Mandarin**

#### **Findings from the participants who are of high accuracy in Mandarin production**

For participants which were of high accuracy from all three groups in the Mandarin production test, all of them started learning Mandarin from kindergarten until junior secondary school. They had at least one Mandarin lesson per week at school. Besides, Mandarin was included in their school examination. Aside from formal trainings, all three participants in the high accuracy group spent time in watching Mandarin dramas and listening to Mandarin songs. They intended to immerse themselves in a Mandarin speaking environment so that they could acquire Mandarin naturally and continuously. Although all three interviewees stopped having formal trainings in Mandarin, they still encountered Mandarin in daily lives now. Generally, they had longer exposure to Mandarin than the group of participants with low accuracy in the production test.

The participant who was from the PMI teaching group (Group PS) had two Mandarin lessons per week, and she was exposed to Mandarin in Chinese lessons every day as well as one Mandarin lesson per week. Although she did not have any other Mandarin trainings outside school, she had opportunities to speak in Mandarin every day during Chinese or

Mandarin lessons. A longer exposure to the target language appears to be a contributing factor that leads to higher Mandarin production accuracy.

The participant who was from non-PMI teaching group (Group NPS) who had high accuracy in Mandarin production stated that her mother was a native Beijing Mandarin Speaker, so her mother and, she had relatively longer exposure to the language apart from having Mandarin lessons at school because her mother and some of her relatives often spoke with her in Mandarin. Moreover, if she mispronounced some of the words, her relatives would correct her. Therefore, she could have Mandarin exposure every day. It could be deduced that with longer exposure to Mandarin and with the aid of native speaker to correct the learners' mispronunciation can lead to higher Mandarin production accuracy.

For the university graduate from Group UG, her parents encouraged her to learn Mandarin in addition to taking the Mandarin lessons she took at school. Her parents hired a Mandarin teacher from Beijing to teach her Mandarin for a year when she was in primary four so as to attend the Putonghua Shuiping Ceshi (PSC). In addition, her primary and secondary school also focused on language learning. They hired some good Mandarin teachers to facilitate Mandarin production among students. In addition, she studied in an intensive course in Hong Kong Baptist University for the PSC examination for a month

to further improve her Mandarin production. In this case, parental and schools' attitude are vital on how the learners learn the target language. Therefore, parental and schools' influence, as well as extra trainings in the target language could be a factor contributing to high Mandarin production accuracy.

Among all three learners, all of them started learning Mandarin in an earlier period in kindergarten and had continuous exposure to Mandarin. Yet, interviewees from both Group NPS and Group UG had exposure to Mandarin outside school, they either communicated with their parents or tutors in Mandarin. Longer and continuous exposure to Mandarin, extra trainings and the aid of native speakers' correction facilitate Mandarin learning.

#### **Findings from the participants who are of low accuracy in Mandarin production**

For the participants who had lower accuracy in Mandarin, they had all learnt Mandarin starting from primary one to secondary three in Mandarin lessons offered by the school. Apart from the formal trainings from school, the participants from Group NPS and Group UG did not attend other courses to learn Mandarin. Only the participant from Group PS had joined a Mandarin course from a learning centre during primary four to primary six. Unlike the participants who were of high accuracy in Mandarin production, all three participants who were of low accuracy did not have any exposure to Mandarin

after they had stopped learning and using Mandarin in secondary three. The use of Mandarin was only limited to travelling in Mandarin-speaking regions for all three participants.

### **How age of learning enhances Mandarin production**

The earlier the participants had exposure to Mandarin, the higher the tendency to gain a higher accuracy in the target Mandarin consonant production. For all three participants who were of high proficiency in Mandarin, they started learning Mandarin in kindergarten. As suggested in Yule (2017), there is a critical period in language learning. It is hard for individuals to acquire a second or third language as fluent as the native speakers do after the critical period, which is after puberty.

Learners showed a sudden and remarkable decline in second language production around puberty at around age 15, and there would be a gradual decline in the acquisition of a language with increasing age. Age posed a steady effect on second language acquisition. The older the learners were, the less native they could be in the production of that second language (Birdsong, 2006; Moyer, 2004). In addition, Moyer (2004) found that no participants could reach native level in the second language if they learn it after age of 15.

Flege (1995) suggested a Speech Learning Model (SLM) on second language

acquisition. Age affected second language production because of the maturation of first language phonological system with increasing age. During speech development of the second language, children picked up the features of the target language more quickly and efficiently if these features are similar to their first language. Younger learners were more likely to pick up the specification in a second language than mature learners do. Mature learners had already developed a set of phonological system in their first language, it was hard for them to discern phonetic difference between their first and second language. When mature learners encounter similar consonants or allophones, they may fail to distinguish and pronounce them correctly.

From the interviews, all interviewees who were of higher Mandarin production scores started learning Mandarin at the age of 3. At that age, learners' first language is not yet matured. While participants who were of lower Mandarin production scores began Mandarin learning at the age of 6, in which a child had already picked up most of the features in their first language phonological system. Therefore, SLM may account for the worst performance in Mandarin production of participants from Group UG.

### **How length of exposure to Mandarin enhances Mandarin learning**

For Cantonese participants who had a high accuracy in the Mandarin tests, they had longer and continuous time of exposure to Mandarin than those who had lower accuracy.

It is all too apparent that with longer length of exposure to Mandarin, students are able to immerse into a Mandarin-rich language environment. They would be able to prepare themselves to learn and speak Mandarin both physically and mentally (Song, 2013; Wang & Kirkpatrick, 2013).

Having PMI as the teaching medium provides students with longer exposure to Mandarin and allows students to have more time to engage in listening and speaking skills in Mandarin. Moreover, in order to speak a language more fluently, it is important for the learners to manipulate the language more frequently. Therefore, with more exposure such as joining Mandarin speech festivals and story competitions, watching Mandarin dramas and chatting with Mainland students using Mandarin in conversations allow learners to enhance their Mandarin speaking ability. The underlying reason is that, learners have to listen to and produce Mandarin during these activities. Any mispronunciation can be corrected by teachers, peers or even by learners themselves if they compare their pronunciation with standard Mandarin pronunciation.

Apart from the length of exposure, continuous exposure to a second language is also vital for learners. Participants who had higher accuracy in producing the target Mandarin consonants still had certain exposure to Mandarin even after primary school graduation. Nonetheless, the interviewee from Group PS who had a low accuracy in the production



test stated that he won a lot of awards in Mandarin speaking competitions when he was studying in primary school. He learnt Chinese by using Mandarin, and joined Mandarin interest class every week. After he stopped learning Mandarin three years ago, his ability to speak in Mandarin seemed declining and he could not pronounce a lot of words in Mandarin as he did when he was in primary school.

Reasons accounting for this phenomenon are that second language ability would be lost when the learners move to another language community, or no longer speak that language (Cohen, 1975). Cohen (1975) further suggested that the process of forgetting a language is even faster than acquiring it as shown in his experiments. After the learners were removed from second language contact for a period of time, they all showed second language regression. Attrition occurs when learners use the language insufficiently or the language use becomes limited or another language is more dominant due to environmental changes (Bot & Weltens, 1991; Olshtain, 1989).

When the length of exposure is short or even completely absent, it is likely that learners would experience second language attrition (Welten,1989). Moreover, the language that is most commonly spoken in Hong Kong is Cantonese, followed by English. The dominance of Cantonese and English affects the frequency of speaking Mandarin among its learners. Therefore, it is likely that learners lost their exposure to

Mandarin if they seldom encounter it in studies or at work.

## **5.2.2 Instrumental Motivation in Mandarin learning**

### **Findings from the participants who are of high accuracy in Mandarin production**

Participants who were of high accuracy showed instrumental motivation towards Mandarin learning. All of them thought that speaking fluent Mandarin can aid them in job hunting. The interviewee from Group NPS suggested that speaking fluent Mandarin enabled her to work in the aviation industry as a flight attendant. The interviewee from Group UG proposed that she needed to attend the PSC exam to obtain a professional qualification in Mandarin teaching. Moreover, as she was a kindergarten teacher, she had to communicate with mainland parents sometimes. She learnt Mandarin instrumentally to fulfil her occupational needs.

Both interviewees from Group PS and Group NPS stated that learning Mandarin was vital nowadays since Mandarin was spoken by a large population in the world and it was another lingual franca besides English. With the growth of China's economy, the status of Mandarin has been recognized worldwide. Foreigners often associate Mandarin instead of Cantonese as a Chinese language. As a result, many of them learn Mandarin in order to become business partners with China. In order to be more competitive in the future, speaking fluent Mandarin can definitely give them the advantage for their future

studies or career development.

The interviewees' parents, in addition, motivated the interviewees to learn Mandarin instrumentally. All of them suggested that their parents had a positive attitude towards Mandarin as parents thought that mastering more languages can symbolize their future success. Speaking fluent Mandarin enabled their children to become more international in future. In this circumstance, all three interviewees tried to fulfil their parents' expectations and learnt Mandarin instrumentally.

#### **Findings from the participants who are of low accuracy in Mandarin production**

All three participants who had low scores in the tests had neither instrumental motivation nor integrative motivation towards Mandarin learning. All of them stated that they did not need to use Mandarin at school or at work, and they thought that Cantonese and English were far more important than Mandarin in Hong Kong. Therefore, they lacked the instrumental motivation to learn Mandarin. However, they thought that people who had occupational needs may still have to learn Mandarin to establish business networks with the mainlanders. In that way, learning Mandarin may have an advantage since the mainlanders may feel more intimate to communicate with people who are able to speak Mandarin.'

#### **How instrumental motivation enhances Mandarin learning**

All interviewees who were of higher accuracy in Mandarin production demonstrated instrumental motivation in Mandarin learning. Mandarin learning helps people with different occupations to communicate with the mainlanders. For instance, careers in governmental organisations, service and aviation industries require proficiency in Cantonese, English and Mandarin. Therefore, learners are instrumentally motivated by their parents and themselves to achieve higher proficiency to have a broader career path (Gao et al., 2010; Wang & Kirkpatrick, 2013).

If learners are more instrumentally motivated, they will spend more time as they have to meet the requirement of certain occupations. Moreover, the more proficient interviewee in Group UG stated that a lot of universities require students to pass the PSC examination as the graduation requirement. To be able to graduate according to the study schedule, many university students have to spend more time on practicing Mandarin production. Thus, their Mandarin production may be more accurate.

Although Mandarin cannot replace the status of Cantonese and English in Hong Kong, the international status of Mandarin is rising globally as China plays a major role in trading recently (Davidson & Lai, 2007). Speaking fluent Mandarin enables individuals to establish closer links with Mainland China for their studies and work (Davidson & Lai, 2007; Humphreys & Spratt, 2008; Leung, 2007). Not only do Hong Kong people learn

Mandarin nowadays, a lot of foreigners can speak Mandarin as well. To become more competitive globally, individuals learnt Mandarin.

### **5.3 Factors that hinder Mandarin Production**

This section summarizes and explains the factors which hinder Mandarin production. These factors include a lack of motivation, huge social distance towards China and Mandarin and political factors are the factors that lead to a lower accuracy in Mandarin production, which answers RQ4.

#### **5.3.1 A lack of motivation**

##### **No instrumental motivation**

Unlike the participants who had high accuracy in Mandarin production, all three participants who had low scores in the tests reported having almost no motivation to learn Mandarin as they did not have to use Mandarin in their future career and show no interest in Mandarin. They suggested that Mandarin was only limited to travelling purposes.

As Mandarin remains a less dominant language in Hong Kong, most respondents thought that learning English was much more important than learning Mandarin in job seeking as Hong Kong is an international city. They thus lacked instrumental motivation in learning Mandarin. Besides, although Mandarin was being tested at school, it did not matter in the subject selection in the Hong Kong Diploma of Secondary Education

Examination (HKDSE) curriculum or students' chances of getting into the universities.

This decreases the instrumental motivation of students to learn Mandarin.

Additionally, respondents thought that Mandarin speakers can understand Cantonese.

They do not have the need to speak Mandarin fluently for communication at work or during studies. Therefore, they did not have any instrumental motivation towards Mandarin as they did not have to use Mandarin for communication.

### **Disliking Mandarin**

Although all three participants who were of higher accuracy only exhibited instrumental motivation towards Mandarin, they did not exhibit any integrative motivation in Mandarin learning. Both participants from Group PS and Group NPS did not like Mandarin at all. Owing to the Chinese history that Mandarin came from the north (i.e., Mainland China), they thought Mandarin was barbaric. They gave recognition to Cantonese more than Mandarin. For example, participant in Group PS stated,

*'Mandarin is just a vulgar language. It sounds impolite and noisy. It was spoken by people in the Northern China, Mandarin is an intrusion to Cantonese.'*

The culture and history relevant to Mandarin were not appealing to these participants.

### **Easiness of learning Mandarin**

For participants who were of low accuracy, those from Group NPS had no interests towards Mandarin, while participants from Group PS and Group UG thought that

Mandarin sounded unpleasant and they had no motivation to learn Mandarin. The interviewee from Group UG further commented on Mandarin,

*“I hate Mandarin. Mandarin consists of a lot of ‘Erhua’, making it so hard to learn and unpleasant to hear.”*

‘Erhua’ is the pronunciation of ‘er’ after rhotacization of syllable finals which can be found in standard Mandarin. The presence of ‘Erhua’ is specific to Mandarin and is commonly spoken in Beijing Mandarin. When ‘er’ was added to a vocabulary item, non-native speakers may be confused with the whole word and mistook what the speakers said in general. Learners found it difficult to produce the sound and Mandarin was said to be unpleasant for them to hear.

As the participants did not like Mandarin, they lacked integrative motivation to engage themselves in a Mandarin-rich environment or to seek opportunities to speak the language. Therefore, this hinders Mandarin learning.

### **5.3.2 Social Distance towards China and Mandarin**

#### **Speaking of Mandarin is acceptable as a communicative means**

Among the six participants, five of them did not like Mandarin as they related Mandarin to Mainland China. Only the interviewee of high accuracy from Group UG considered Mandarin simply a means of communication and should be separated from one’s nationality. She thought that the learning of Mandarin was acceptable as the

language itself was socially acceptable worldwide. Not relating a language to a nation or its culture, she was able to speak Mandarin fluently. Therefore, speaking Mandarin was deemed acceptable by her as she avoided putting emotions into it and to treat it as a means of communication as proposed by the participant from Group UG,

*'A language has nothing to deal with nationality as people from the United Kingdom can also speak fluent Mandarin. Personally, I don't like people from China, but Mandarin should be treated separately as a language which is just a means of communication.'*

### **Avoid being identified with Mainland tourists**

Among the five participants who did not like Mandarin, they related Mandarin with Mainland China. Two participants who had high accuracy in the test from Group PS and NPS suggested that speaking Mandarin is not socially acceptable in Hong Kong. Scaring that people may mistreat them as mainlanders and discriminate them, they avoid speaking Mandarin outside of school because the major language in Hong Kong is Cantonese.

After the handover of Hong Kong, there has been more connections between Mainland China and Hong Kong. Yet, the increased connections weakened the relationship between Mainlanders and Hongkongers. Since the 21<sup>st</sup> century, more mainland visitors have visited Hong Kong through Individual Travelling Scheme. A lot of mainland tourists had been seen as uneducated, uncivilized and rude. Being identified with them made the participants feel shameful. Therefore, they limited their use of Mandarin.



Moreover, the problem of over-tourism, overbuying Hong Kong milk powder and grey good traders had sparked a backlash among Hongkongers as they did not feel respected by the mainlanders (Shao, 2016; Wassler, Schuckert, Hung & Petrick, 2018). Therefore, many participants in this study did not like speaking in Mandarin just to avoid associating with these mainland tourists. This also explained why many Hong Kong people were unwilling to learn Mandarin or speak it fluently (Davidson & Lai, 2007; Shao, 2016; Wassler et al., 2018).

### **Unwillingness to communicate in Mandarin**

All the participants who were in the higher accuracy group were confident when people communicate in Mandarin with them. Yet, participants who were from Group PS and Group NPS were not willing to speak in Mandarin outside school or in the Hong Kong community as they associated Mandarin with the impolite mainland people in Hong Kong. They did not want to give others a bad perception; therefore, they only spoke Mandarin when they were requested to.

For the participants in the lower accuracy group, they were all having low confidence in speaking Mandarin. All of them said that because of their poor Mandarin production, they were being mocked at, and that was embarrassing. Therefore, they avoid speaking Mandarin to 'save face'. In Chinese society, 'face' is very important, losing face may hurt

one's self-esteem or affecting others' impression. Fearing that they would not be respected by others, many learners avoid speaking in Mandarin when they lacked confidence.

Besides, when they spoke Mandarin as a tourist, native Mandarin speakers may not be able to understand them. This circumstance made the learners feel frustrated and lower the confidence for learners to speak in Mandarin. On the other hand, participants lost their memories on the knowledge of pinyin and Mandarin production as they did not have any opportunities to speak in Mandarin after the examination. To avoid misunderstanding and embarrassment, they avoided speaking Mandarin. Under a lack of practice, Hongkongers who are unwilling to speak in Mandarin may result in a lower accuracy in Mandarin production (Tam, 2011).

Furthermore, peer influence widened the social distance and lowered the social acceptance of Mandarin in Hong Kong. Interviewees from Group PS and Group NPS were both studying in secondary school. They thought that if they spoke Mandarin often, they would lose connections with their friends, as Cantonese distinguished Hongkongers from Mainlanders. They suggested that Cantonese and English were most commonly spoken in Hong Kong; speaking Mandarin may lose friends. To connect with Hong Kong local students, new immigrants also spoke Cantonese instead of Mandarin with their local peers; otherwise, they could be hard to be accepted in the social circle and might even be

isolated by the local peers.

In order to fit in the Hong Kong community, speaking Cantonese with peers is a social norm. Speaking the same language, Cantonese, narrows the social distance among people in Hong Kong. Locals accept immigrants speaking in Cantonese rather than Mandarin as it shows that the new immigrants are trying to adapt to Hong Kong's environment and show respect to the Hong Kong culture. Speaking Cantonese also identifies the group of people as Hongkongers who have similar background and interests. To gain peer support and acceptance, most people, especially teenagers, would speak Cantonese instead of Mandarin to shorten the social distance. In view of this, speaking Mandarin may not be socially acceptable among peers, and this creates a social barrier in Mandarin learning.

### **5.3.3 Political factors**

Political factors are psycholinguistic and sociolinguistic factors which hinder Mandarin learning in Hong Kong owing to Hong Kong's history, cultural and economic development. Hong Kong had been a British colony from 1841 to 1997 for 156 years. Based on this history, Hong Kong is quite different from mainland China in terms of its culture, politics and language. Therefore, after the handover of Hong Kong, learning Mandarin had become a complicated issue among Hong Kong people.

### 5.3.3.1 The legal status of Cantonese

An interviewee of high Mandarin accuracy from Group NPS suggested two worrying phenomena about the legal status of Cantonese that would be threatened by Mandarin. First, an increasing number of Chinese textbooks are now written with the addition of pinyin on top of the Chinese characters as if a Mandarin book. Second, a rising number of mainlanders in Hong Kong increased the number of speakers for Mandarin.

Many people in Hong Kong thought that mainlanders came to Hong Kong to compete for welfare and resources. They are scared that the welfare of Hong Kong people would eventually be swamped by the influx of mainlanders. Replacing Cantonese with Mandarin was seen as the first step to take away the autonomy and welfare of Hong Kong people. As a result, speaking Mandarin has been unwelcome among Hong Kong people.

In addition, they thought that Cantonese was of higher status than Mandarin due to its linguistic, historical and cultural background. An interviewee from Group UG commented that tones and features were richer in Cantonese than in Mandarin. Linguistically, there are six tones and four tones in Cantonese and Mandarin respectively (Li, 2017). Unlike Cantonese, there are more homophones in Mandarin. Advocators of Cantonese claimed that distinctive features of Cantonese created less confusion and more expression of words. Hong Kong people were proud of their language which is more complicated than others, as this marked the uniqueness of Hong Kong and its culture with

which Mandarin could not compare.

Historically and culturally, traditional poems and passages were written in Cantonese instead of Mandarin (Shao, 2016; Wong, 2015). Being able to read traditional poems and passage in Cantonese gave some Hong Kong people an impression that they were more educated and superior than those who spoke Mandarin (Shao, 2016; Wong, 2015). Cantonese speakers often deem Cantonese as the authentic traditional Chinese as Cantonese are spoken by the ethnicity of Han, which is the beginning of Chinese culture (Wong, 2015). On the contrary, Mandarin was seen as a barbarian language that was imported from the northern China (Wong, 2015). Therefore, speakers of Cantonese were considered more civilized and had higher cultural level than the Mandarin speakers.

The official languages in Hong Kong are Chinese and English. Cantonese speakers in Hong Kong regard Cantonese as a language with higher prestige than Mandarin. They thought they had a long history and culture than Mandarin speakers. It can be concluded that the status of Cantonese was higher than Mandarin among these interviewees, so they were more reluctant to learn Mandarin.

Apart from the official status of Cantonese, participants who were of low Mandarin production accuracy in the test considered the status of Mandarin as low internationally. They did not accept Mandarin as an international language, as it was not as international

as English. They would rather learn English than Mandarin as English was more commonly used in Hong Kong and on the global stage.

As Cantonese speakers in Hong Kong are proud of speaking Cantonese, they do not only avoid learning Mandarin, but also encourage Mandarin speakers from mainland to shift the use of Mandarin to Cantonese (Davidson & Lai, 2007; Leung, 2017). One interviewee mentioned that it was the mainlanders' responsibility to learn Cantonese as they had to fit into Hong Kong's working environment to show respect to Hong Kong. Speaking Mandarin may thus threaten the legal status of Cantonese and weaken the status of Cantonese in Hong Kong.

### **5.3.3.2 Preserving the identity as a Hongkonger**

Apart from the legal status of Cantonese in Hong Kong, Cantonese had a symbolic meaning to Hongkongers. Three interviewees who had lower accuracy in Mandarin production stated that Cantonese had an official status in Hong Kong as Cantonese can represent their ethnic identity. They regarded Cantonese as their mother tongue whereas Mandarin was only a foreign or even northern language from Mainland China. Mandarin-speakers were of a different ethnicity as they did. Speaking Cantonese and avoiding using Mandarin helped them to maintain their identity as a Hongkonger rather than a Chinese.

According to the Public Opinion Programme conducted by The University of Hong Kong in 2019, more than half respondents in Hong Kong regarded themselves as Hongkongers rather than Chinese as they thought that they were quite different from people in Mainland China. They grew up under a mixture of both Chinese and Western culture, and that speaking fluent Cantonese could be a mark of a Hongkonger instead of a Chinese (Chan & Chan, 2014; Lee, 2001; Shao, 2016; Wolfe, 2019). Besides, Hong Kong is an international financial centre, speaking Cantonese to mark Hongkonger's own identities enables them to be respected and valued internationally. However, foreigners often regard people speaking in Mandarin as Mainland Chinese. In order to show a superior status, Hong Kong people avoid speaking in Mandarin.

Participants from the interviews valued their identity as a Hongkonger. Some even thought that people speaking in Mandarin were of a different nationality, for language is an indicator of one's nationality. Thus, they did not want to speak in Mandarin to be mistreated as Mainland Chinese. Moreover, Cantonese represents the brilliant years of Hong Kong culture as shown in Hong Kong movies and songs during the 1980s (Li, 2001). There are lots of slangs in Cantonese which cannot be replaced or explained by using Mandarin. Therefore, Hong Kong people treasure Cantonese as their native language as

it displays Hong Kong's culture and marks the identity of people who grew up in Hong Kong.

### 5.3.3.3 Seeing PMI as a political measure in taking over Hong Kong

In the interview, five participants thought that PMI teaching was a political measure for China to take over Hong Kong. For this reason, they were reluctant to speak in Mandarin. The participant who had high accuracy in the Mandarin production from Group NPS suggested that

*'The implementation of PMI teaching is a way to control Hong Kong by replacing our native language from Cantonese to Mandarin. More and more primary schools adopt PMI teaching, it can eradicate Cantonese speakers in Hong Kong as it reduces the opportunity for students to learn and speak in Cantonese.'*

The participant who had low accuracy in the Mandarin production from Group PS further pinpointed that

*'The use of PMI teaching is to make Hong Kong people listening to the Communist Party, as we have no choice whether we want to learn Chinese with Mandarin or Cantonese. Eventually, all people in Hong Kong will speak in Mandarin, Hong Kong will lose its uniqueness and becomes a small city in China.'*

Before the handover of Hong Kong, China promised the implementation of 'One Country, Two Systems' and that would not be changed for fifty years until 2047. However, the implementation of PMI aroused concerns among different groups. PMI was seen as a political measure of the Communist Party to eradicate Cantonese (Shao, 2016; Wong, 2015). Participants in the interviews believed that if this situation continued, Cantonese



in Hong Kong would eventually be replaced by Mandarin. Hong Kong people had long been proud of their unique background, having grown up under the mixture of the East and the West. A lot of Hong Kong people were worried that if Cantonese was being replaced, the status of Hong Kong would be replaced.

Other than that, participants in the study suggested that students had no choices in the medium of teaching. It gave them an impression that Hong Kong must listen to the Communist Party and had already lost its autonomy, freedom and uniqueness. Eventually, the culture and identity that Hongkongers were proud of would be lost. As Hongkongers had strong political views towards the Chinese government, they did not want to speak in Mandarin but would speak Cantonese instead to show the uniqueness and autonomy of Hong Kong people.

In recent years, combined with the effects of national education protest in 2012, Umbrella Movement in 2014, Fishball Revolution in 2016 and the anti-Extradition Bill protests in 2019, Hong Kong citizens, especially for the younger and more educated groups, are even more reluctant to learn Mandarin owing to its relation to the Chinese government (Chan & Chan, 2014; Wolfe, 2019). Therefore, even though PMI may seem to be an effective means in enhancing Hong Kong students' Mandarin proficiency, many

Hong Kong native Cantonese speakers refuse to use Mandarin outside of school due to their identity and the autonomy that they are persuading.

All in all, the implementation of PMI instruction aroused fear among Hongkongers and was seen as a political measure. Any measures that are seen as political would induce intense discussions among Hong Kong people. As a consequence, when Mandarin was being labelled politically, Hong Kong people refrain from learning it.

## Chapter 6 Conclusion

### 6.1 Implication of the study

Most Cantonese speakers in Hong Kong can speak fair Mandarin (Census and Statistics Department, 2016). In the study, the place of articulation is found to be the most common mistake made by Cantonese speakers in Hong Kong. Therefore, in teaching and learning Mandarin, one should be aware of the place of articulation of Mandarin sounds and avoid mixing up with similar Cantonese sounds.

From the study, it can be concluded that the length and continuous exposure, motivation, social distance and acceptance and political factors are the psycholinguistic and sociolinguistic factors which either facilitate or hinder native Cantonese speakers in Hong Kong in learning Mandarin. In order to enhance the level of Mandarin and its impression among people in Hong Kong, government and educators should stress the benefits of Mandarin learning such as enriching one's knowledge and increasing the opportunities to work with China and avoid treating Mandarin as a political measure to rule Hong Kong.

From the study, students who can speak Mandarin fluently started learning it since kindergarten. The possible pedagogical implications can be exposing students to Mandarin as early as in kindergarten in order to achieve a higher accuracy in later period. Moreover, continuous exposure and usage of Mandarin are vital as second language

attrition might occur if learners do not speak the language for a long period of time. Therefore, Mandarin should be taught as a subject from kindergarten to senior secondary school; otherwise, learners have to relearn the language in university or after graduation if they have stopped learning Mandarin in secondary school.

PMI instructions provide extended exposure of a Mandarin learning environment for students in Hong Kong. However, students who have any extra trainings in Mandarin production may result in a lower accuracy in Mandarin production. In view of this, schools and teachers should provide more resources for parents and students to study Mandarin at home so as to enhance the accuracy. While PMI instruction can help students to learn Mandarin, some people in Hong Kong might show strong opposition as it is seen as a political measure to control Hong Kong. To ease the worry among Hong Kong people, the importance of Mandarin cannot outweigh Cantonese. For example, schools can implement PMI instructions in the upper primary from primary four to six and the Education Bureau should give clearer guidelines on how PMI instructions can be implemented so as to unify the standard among different schools. In this way, Chinese can be learnt in both Cantonese and Mandarin during primary school to achieve a balance between the use of the two languages.

All respondents in this study did not show any integrative motivation towards Mandarin and were even worry that Mandarin may replace Cantonese in Hong Kong. The use of Mandarin is also viewed as a force that eradicates Hong Kong people's identity and Cantonese, which is the native language of Hong Kong. To promote the use of Mandarin, the government can put an emphasis on the positive side of this language, such as outstanding movies, songs and dramas using Mandarin as well as introducing some attractive activities for the public to understand Mandarin as a language, rather than interpreting it politically. Mandarin could be promoted like English in Hong Kong, in which English is highly valued without threatening the status of Cantonese. In that way, Mandarin can become more acceptable in Hong Kong.

The hatred towards Mandarin has been cultivated among Hong Kong locals since the Individual Travelling Scheme was implemented in 2003. Government should strike a balance between the promotion of Hong Kong tourism and the impact on Hong Kong locals since the majority of locals in Hong Kong thought that mainland tourists were rude and uneducated, and that these visitors were associated with Mandarin. Tourists should be guided to respect the culture and customs in Hong Kong before paying their visits. Protecting the welfare of Hong Kong people while promoting tourism is important. In

this way, Hong Kong locals would not vent their anger on the mainland tourists and hate Mandarin.

## **6.2 Limitations**

There are several limitations on the data collection in this study. The collection of data was carried out during coronavirus pandemic in which classes were suspended and some people were required to work from home. Therefore, it was impossible to request the respondents to record their Mandarin production in a language laboratory and thus the recording quality may not be the same for every recording. However, all respondents were requested to record their production using a recording device in a quiet room to minimize any disturbance during recording.

Another limitation is the sampling method and the sample size. Convenience sampling instead of random sampling was used. Therefore, for the participants in group i and group ii, most of them come from the same secondary school. On the other hand, the sample size of participants from each group is relatively small. Only around 20 participants were in each group could be found to complete this study. Thus, the results found in this study may not be able to generalize to a larger and more diverse sample in the Mandarin production with respect to different groups.

The design of the production test was only limited to the production of six Mandarin consonants which are commonly mispronounced by Cantonese speakers. Nevertheless, other Mandarin consonants and vowels were not included. Therefore, the actual accuracy in Mandarin production may not be the same as this study as only six consonants were tested.

For each three pairs of consonants, only 4 pairs of vocabulary items were being tested as there were not too many minimal pairs of words which could be chosen with the same tone and vowels. The number of items may not be able to generalize to all of the words starting with the six target consonants.

### **6.3 Suggestion for further studies**

Further study can be conducted to determine the effect of PMI instructions on the overall Mandarin consonants and vowel productions to determine whether PMI instruction is successful in enhancing overall Mandarin production accuracy. Moreover, further studies can be conducted to examine how different schools incorporate Mandarin in teaching and learning so as to enhance students' Mandarin production as a whole.

### **6.4 Conclusion**

Overall, the implementation of PMI instruction lengthens the time of exposure of learners to Mandarin. Yet, lacking integrative motivation, having huge social distance

and under the influence of different political factors for Cantonese speakers in Hong Kong to learn Mandarin, government's aim to train Hong Kong students to be trilingual and biliterate requires more hard work to achieve.



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## Appendices

### Appendix 1: Consent form for Participants

#### 普教中及其他心理語言學因素如何影響香港的廣東話使用者的普通話聲母發音研究簡介

你被邀請參加這項研究調查。這項研究調查的目的是研究普教中及其他心理語言學因素如何影響香港的廣東話使用者的普通話聲母發音。

這項研究將會由 2020 年 2 月 12 日至 2020 年 4 月 28 日進行，資料搜集則為期一星期，由 2020 年 2 月 17 日至 2020 年 2 月 23 日進行。在這項研究中，參加者只需要標示出自己是於那一個參加者組別(曾就讀過普教中學校的中學生，未曾就讀過普教中學校的中學生，幾乎沒有普通話訓練的大學畢業生)。然後，參加者會收到一張以普通話聲母 z, zh, c, ch, s, sh 為詞語開首的中文詞語清單。參加者需要錄取自己對那些中文詞語的普通話發音並把錄音帶發給研究人員。經分析後，5 名發音最準確的參加者會被邀請進行 15 分鐘的面談以了解及分析其他心理語言學因素如何影響香港的廣東話使用者的普通話聲母發音。

#### 私隱保障

所有的記錄和有關被調查者的信息都會被保密。所有的文字記錄，電子備份都會在論文完成之後被永久刪除。

#### 聯絡

如果您對此有任何疑問，您可以聯系調查者香港浸會大學的羅珮嘉同學，聯系方式為+852 60751492。如果您認為表格中的描述與實際調查不相符，或者在調查過程中您的權力被侵犯，您可以聯系香港浸會大學 *Committee on the Use of Human and Animal Subjects in Teaching and Research*，郵箱地址為 [hasc@hkbu.edu.hk](mailto:hasc@hkbu.edu.hk)。

#### 研究表格

- 1.參加者的姓名:
- 2.請標示出你所屬的組別 曾就讀過普教中學校的中學生  未曾就讀過普教中學校的中學生 大學畢業生
- 3.請以普通話讀出以下字詞並錄音發給研究者(z vs zh, c vs ch, s vs sh 分開三段錄音)

|                           |                                     |
|---------------------------|-------------------------------------|
| Mandarin Consonants 普通話聲母 | Vocabulary to be tested 需要測試的生<br>字 |
|---------------------------|-------------------------------------|

|                    |   |
|--------------------|---|
| <p>‘z’ vs ‘zh’</p> | <p>1. 姿勢 知識</p> <p>2. 栽花 摘花</p> <p>3. 宗旨中止</p> <p>4. 糟了 招了</p>  |
| <p>‘c’ vs ‘ch’</p> | <p>1. 粗布 初步</p> <p>2. 擦錯 差錯</p> <p>3. 村長 春天</p> <p>4. 粗長 出場</p> |
| <p>‘s’ vs ‘sh’</p> | <p>1. 搜集 收集</p> <p>2. 商業 桑葉</p> <p>3. 山頂 三頂</p> <p>4. 私自 獅子</p> |

3. 完成測試分析後，你能否接受一個 15 分鐘的線上面談？(只會隨機抽取面談並會遷就參加者的時間進行)

是       否

4. 如果你可以進行線上面談，請寫下你的手提電話。

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## **Appendix 2: Interview questions**

The interview questions are as follows:

### **A. For participants who had high accuracy in the test**

1. How do you learn Mandarin?
2. Besides learning Mandarin at school, have you taken other courses to learn Mandarin or spare other time to learn mandarin?
3. Do your parents encourage the use of Mandarin?
4. When did you start to learn Mandarin?
5. How often do you use Mandarin?
6. What do you think of the language Mandarin? Do you think that there is a need to master Mandarin fluently?

### **B. For participants who had low accuracy in the test**

1. Did you have any trainings in Mandarin before? If yes, please specify.
2. How often do you use Mandarin?
3. What factors affect your level of confidence in Mandarin speaking?
4. What do you think of the language Mandarin? Do you think that there is a need to master Mandarin fluently?
5. Which factor hinders you the most in speaking Mandarin?