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INVESTIGATING PHONOLOGICAL DEVELOPMENT IN L2 AND L3 AMONG MANDARIN SPEAKERS IN HONG KONG: A CASE STUDY

Abstract. This study aims to determine how Mandarin speakers (MS) in Hong Kong (HK) acquire English (L2) and Cantonese (L3) pronunciation features, how the three languages interact in their language learning process, and to identify the pronunciation-related adjustment approaches that MSs use to overcome L2 and L3 pronunciation challenges. Five MSs in HK who had learned L2 for around 15 years were recruited. Three of them were at the intermediate stage of L3 learning and had learned L3 for 4 years. Two participants were at the beginning stage of L3 learning and had learned L3 for less than 6 months. All participants performed Mandarin, English, and Cantonese speech tasks and answered a questionnaire investigating MSs' L2 and L3 pronunciation-related adjustment strategies and language learning experience. Acoustic results of the speech tasks identified cross-linguistic influence patterns from their first language (L1) to L3, from L2 to L3, and from L1 to L2 and then to L3. L3 beginners reported that they frequently used L2 sounds to learn L3 instead of using L1. However, MSs whose L3 was at the intermediate stage did not use their L1 or L2 features to learn L3, except for Cantonese tones. For the pronunciation-related adjustment strategies, the L3 beginners tended to rely on the assistance of other languages when communicating with HK Cantonese speakers using their L2 and L3. But the MSs who were at the intermediate stage of L3 learning rarely used other languages or code-mixing and tended to adjust their own speech (e.g., reducing accents, utilizing repetition, and embedding pausing).

Keywords: L2 & L3 acquisition; multilingualism; pronunciation-related adjustment strategies.

Introduction

The rapid pace of globalization has led to a growing number of individuals incorporating multiple languages into their daily routines or educational endeavors. Multilingualism is the norm nowadays. Recent reports indicate that the population of bilingual or multilingual individuals has exceeded

that of monolingual speakers (Cabrelli Amaro & Wrembel, 2016). This rise in multilingualism necessitates further research in the field. In HK, language policies promote "biliteracy and trilingualism" (e.g., Wang & Kirkpatrick, 2015), advocating for proficiency in Cantonese, English, and Putonghua (Mandarin) as the primary spoken languages. Cantonese is the main language used by residents in HK. Many undergraduate students whose L1 is Mandarin earn their bachelor's degrees in HK and would like to find a job there after graduation. To integrate into Cantonese-speaking society, university students whose L1 is not Cantonese need to master the language. Typically, students who are MSs have Mandarin as their L1, English as their L2, and Cantonese as their L3. Their English proficiency usually ranges from intermediate to upper-intermediate levels (e.g., IELTS 6.0 or above), which meets the university admission criteria in HK. Upon their arrival, mastering Cantonese as their L3 becomes imperative. This study seeks to explore the interactions among the three languages—Mandarin (L1), English (L2), and Cantonese (L3)—acquired by Mainland Chinese students in HK, and to identify the pronunciation-related adjustment strategies they employ in their daily L2 and L3 communication.

L3 Acquisition

In comparison to L1 or L2 acquisition, acquiring an L3 poses significantly greater complexities (Chen & Han, 2019). Learning any language within an L3 context can exert impact on other language systems (e.g., Flynn et al., 2004). Previous studies proposed different L3 acquisition models and patterns of interaction among languages in L3 acquisition. The L2 Status Factor (L2SF; Bardel & Falk, 2007) suggests that initial transfer in L3 learning predominantly originates from the learner's L2 due to the cognitive similarities shared between the L2 and L3. The Typological Primacy Model (TPM; Rothman, 2015) argues that the degree of transfer during L3 acquisition hinges on the typological relationships between the L3 and previously acquired languages. For the interaction patterns identified from previous studies, both progressive and regressive interactions were identified. Chen and Han (2019) noted instances of regressive transfer from L3 to L2 when learners' proficiency in L3 was higher than that of learners' L2. As language learners advance in

proficiency in both their L2 and L3, they tend to compartmentalize the three languages, leading to more balanced interactions among their L1, L2, and L3. Cal and Sypiańska (2020) stated that the language with higher proficiency had greater influence on other languages that they learn in L3 acquisition context. However, previous studies (e.g., Chen & Han, 2019) have relied on participants' self-reflections to identify interaction patterns, yet low linguistic awareness can hinder learners from recognizing these patterns.

This study aims to utilize acoustic data to validate potential interaction patterns in L3 acquisition. For MSs in HK, their language learning situation is quite unique—Mandarin is their L1; English is usually their L2, and they usually start to learn English from primary school; whereas Cantonese is their L3, and they learn it after entering HK. In terms of typological distance, their L1 Mandarin and L3 Cantonese are closer and belong to the same language family (e.g., Chen & Tian, 2024). According to the TPM, L1 Mandarin is expected to have a greater influence on L3 Cantonese. However, the phonetic features of L3 Cantonese also exhibit similarities with L2 English (e.g., both languages have [i] and [ɪ] contrast). The L2SF model also suggests the significant role of L2 in L3 learning. Previous studies have not considered the language acquisition sequence of multilingual learners such as MSs in HK. The learning of L2 and L3 by MSs in HK is worth investigating. The research findings can be applied to any multilingual societies similar to the situation in HK.

Pronunciation-related Adjustment Strategies

The Communication Accommodation Theory states that individuals adjust their behaviors in interactions with others (Coupland & Giles, 1988). When it comes to pronunciation, speakers often employ strategies, for example, speech rate modulation, as listed by Chen (2016). Previous research primarily focused on L1 and L2 contexts. In the L1 setting, studies (e.g., Yule, 2010) scrutinized mother-infant communication, while in L2 contexts, the emphasis was on interactions in English classrooms. Saito and van Poeteren (2012) explored how experienced instructors adapt their pronunciation to enhance mutual understanding and aid student learning in L2 environments. Their findings underscore that many skilled educators utilize

methods, such as slower speech and clearer articulation. Among the 44 surveyed teachers, strategies including avoiding assimilation, eschewing contractions, and inserting more pauses and repetitions were commonly reported. These approaches help delineate word and sentence boundaries, aiding student comprehension in L2 input. Björkman (2014) outlined a communication strategies framework, categorizing strategies into self-initiated and other-initiated forms. Self-initiated tactics involve speakers independently employing strategies to ensure clear communication, such as enhancing explicitness in statements or seeking clarification. On the other hand, other-initiated strategies are responses to communicative needs expressed by interlocutors, aiming to fulfill specific requirements including confirming information or requesting clarification. Chen (2016) compared pronunciation adjustment strategies among English teachers in Mainland China and HK, examining techniques, such as speech rate adjustment and stress on specific words. Conversely, HK teachers notably favored strategies, such as "contraction avoidance", "sentence stress emphasis", and "repetition". Song and Shan (2014) highlighted communication challenges faced by Mainland Chinese students in HK, emphasizing convergence (e.g., code-switching) and divergence (e.g., maintenance) accommodation strategies. However, only a few strategies related to pronunciation, such as code-switching and mediating, were reported by participants.

While existing studies have explored pronunciation adjustment strategies employed by teachers in educational settings, there is a gap in research concerning such strategies in L3 communication contexts by language learners. Apart from previously identified communication strategies, this study will also investigate the use of other languages and code-switching to align with the multilingual communication context.

Research Questions

Based on the identified gaps mentioned above, the following research questions have been raised:

1) What are the possible language interaction patterns among the L1, L2, and L3 produced by MSs in HK from different L3 learning strategies?

2) What pronunciation adjustment strategies do MSs in HK commonly use in their L2 English and L3 Cantonese communication?

Methodology

Participants

Five Mandarin-speaking participants in HK who were undergraduate students and had learned L2 English for around 15 years were recruited. Their L1 was Mandarin, and they did not speak any Chinese dialects. Their L2 English proficiency level was intermediate to upper-intermediate level and achieved 6-6.5 in their previous IELTS speaking test. The medium of instruction for their undergraduate study was English.

The five participants were at different L3 Cantonese learning stages. Three participants were at the intermediate stage of L3 learning. They had lived in a Cantonese-speaking society for over 3 years and had learned L3 Cantonese over 3 years. Two participants were at the beginning stage of L3 learning, who had lived in a Cantonese-speaking society for less than 6 months and had learned L3 Cantonese less than 6 months. Three native speakers (one from each language) were recruited as the baseline.

Target Features

Instead of focusing on all English and Cantonese segmental and suprasegmental features, this study only considered the challenging English and Cantonese vowels, and Cantonese tones (Ts) summarized from previous studies. MSs face challenges with differentiating between the English lax and tense contrast, such as [uː] and [ʊ] (Liang, 2014), as well as [e, æ, ʌ] (Chen et al., 2001). So and Attina (2014) stated that MSs found it challenging to grasp vowels that are absent in their L1 but have phonetically similar equivalents. Based on this study, the Cantonese [ʊ], [œ], [ɵ], and [ɐ] present challenges for MSs since they bear phonetic resemblance to Mandarin [u], [ə], and [a].

In summary, the English target features examined in this study are [ʊ], [u], [æ], [e], and [ʌ], while the Cantonese features encompass [ʊ], [u], [ɐ], [œ], [ɵ], and [ɛ].

Procedure

The present study encompassed two stages. The first stage was a production task. All 5 participants performed Mandarin, English, and Cantonese words reading-aloud tasks. To prevent participants from identifying the target features of this study, they read a Mandarin words-reading aloud task with 30 monosyllabic Mandarin words containing all Mandarin vowels and consonants, an English words-reading aloud task with 27 monosyllabic English words containing all English vowels and consonants, and a Cantonese words-reading aloud task with 20 monosyllabic Cantonese words containing all Cantonese vowels and consonants. All the words in the reading-aloud tasks were real words. The items containing the target English and Cantonese features are listed in Tables 1 and 2. Each case read each item three times. Totally, 20 tokens were analyzed for English, and 24 tokens were analyzed for Cantonese. Fricatives and affricates constituted the initial sounds of the tokens.

Table 1

Items Containing the Target English Features

Target English feature	English words
[ʊ]	foot
[u]	food
[æ]	had
[e]	head
[ʌ]	hut

Table 2

Items Containing the Target Cantonese Features

Target Cantonese feature	Words	Jyutping
[ʊ]	渴	hot3
[u]	呼	fu1
[ɐ]	盒	hap6

Target Cantonese feature	Words	Jyutping
[œ]	靴	hoe1
[ɵ]	出	ceot1
[ɛ]	車	ce1

The second stage involved self-reflection. All the participants self-reported the possible language interaction patterns in their L2 and L3 learning experiences.

The last stage involved a survey, in which all five participants self-report the pronunciation adjustment strategies of their L2 English and L3 Cantonese in their communication in HK. Based on previous studies (e.g., Chen 2016; Lim, 2023; Saito & van Poeteren, 2012), a 17-item questionnaire for English pronunciation adjustment strategies and a 14-item questionnaire for Cantonese pronunciation adjustment strategies were developed (Table 3.). The items were categorized into seven categories: speed adjustment, clear pronunciation, key information emphasizing, fluency modification, avoidance of advanced features, use of other languages, and code-switching. Among the seven items, two items, the use of other languages and code-switching, were developed to fit in the multilingual context. All participants reported the frequency of using each pronunciation adjustment strategy on a 5-point scale from "never" to "always".

Table 3

Categories of English and Cantonese Pronunciation Adjustment Strategies Investigated in This Study

Categories	Items
Speed adjustment	e.g., adjusting the speed of speech
Clear pronunciation	e.g., precise pronunciation of individual words
Key information emphasizing	e.g., highlight stress on key words in sentences
Fluency modification	e.g., utilizing repetition
Avoidance of advanced features	e.g., avoiding the use of contraction
Use of other language	e.g., using speakers' L1 (Mandarin) to explain because the speaker is more proficient in Mandarin

Categories	Items
Code-mixing	e.g., embedding Mandarin words in speech

Data Analysis

The first (F1), second (F2), and third (F3) formants of English and Cantonese monophthongs were measured using Praat, a software developed by Boersma and Weenink (2023). There exists an inverse relationship between vowel height and the F1 frequency, wherein vowel height corresponds to lower F1 frequencies, and vice versa. The F2 of vowels is generally associated with vowel backness, indicating that the more front the vowel, the higher the second formant frequency tends to be. F3 is related to lip rounding. As the formant frequency decreases, the lip shape tends to become more rounded. To mitigate the impact of consonant-vowel coarticulation and tonal influence on vowel articulation, the temporal midpoint of the steady-state portion of each monophthong was measured. Each participant read aloud each feature three times. The mean formant values of these three reading aloud times were considered as the representative formant values for that participant. The formant values were then converted to the Bark scale, using the framework established by Zwicker and Terhardt (1980). To control gender-related differences in formant frequencies, the Bark Difference Metric developed by Syrdal and Gopal (1986) was applied for normalization. The normalized F1 value was calculated as the Bark-converted F3 minus the Bark-converted F1, and the normalized F2 value as the Bark-converted F3 minus the Bark-converted F2.

Participants' self-reflection data were coded to identify the possible language interactions they reported. A top-down coding method was applied. When participants mentioned using one language to facilitate learning another (e.g., using Mandarin tones to learn Cantonese tones), their report on the possible language interactions was coded (e.g., L1 Mandarin influencing L3 Cantonese).

The mean frequency of each pronunciation adjustment strategy reported by all participants was calculated and reported.

Results

Possible Interactions Among L1, L2, and L3

To address the first research question "What are the possible language interaction patterns among the L1, L2 and L3 produced by MSs in HK from different L3 learning stages?", all five participants' production data were used.

The normalized F1 and F2 values are listed in Table 4. Participants whose L3 learning is at the intermediate stage produced English [ʊ] (F1: M = 9.27; F2 = 6.77) closer to that of the native speaker (F1: M = 9.88; F2 = 6.35). Their Cantonese [ʊ] (F1: M = 9.45; F2 = 8.77) was also closer to that of the native speaker (F1: M = 9.03; F2 = 7.91) with smaller F2 values. There is a possible interaction pattern from L2 to L3 (smaller F2 of English [ʊ] is transferred to smaller F2 of Cantonese [ʊ]). However, for participants whose L3 is at the beginner stage, their English [ʊ] and Cantonese [ʊ] had larger F2 values (English: 10.30; Cantonese: 10.02) which is closer to that of the Mandarin native speaker (F2 = 11.27 [largest among the three languages]). The large F2 value of Mandarin [u] influences L3 beginners' L2 English and then to L3 Cantonese. Their L2 English and L3 Cantonese F2 values of the four sounds are larger than those of participants whose L3 learning is at the intermediate stage. A possible interaction pattern from L1 to L2 and then to L3 has been identified.

Table 4

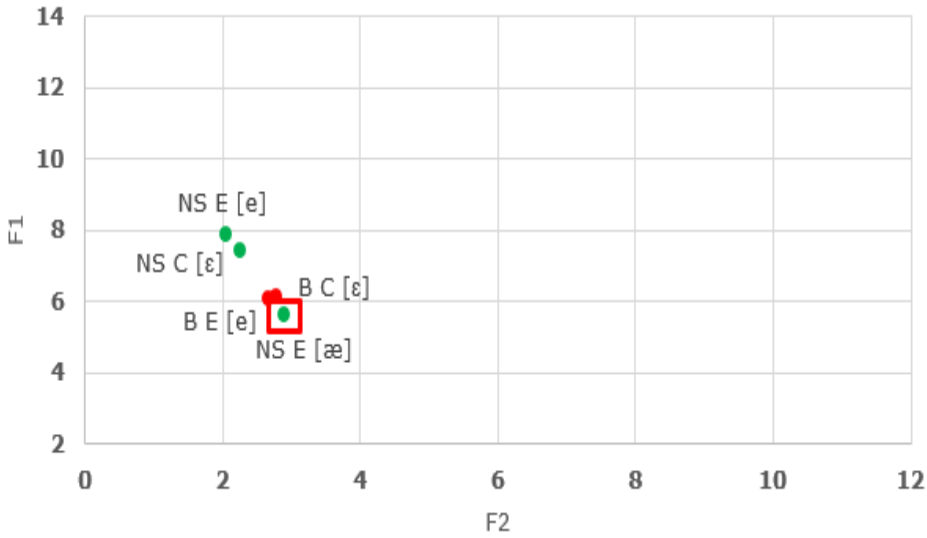
MSs and Native Speakers' Production on [u] and [ʊ]

Participants	Formants	English [ʊ]	English [u]	Cantonese [ʊ]	Cantonese [u]	Mandarin [u]
L3 learning at intermediate stage	F1 (Mean)	9.27	10.96	9.45	10.56	
	F2 (Mean)	6.77	10.43	8.77	10.01	
L3 learning at beginner stage	F1 (Mean)	9.20	11.55	9.44	11.37	
	F2 (Mean)	10.30	10.21	10.02	10.04	
Native speaker	F1	9.88	11.89	9.03	10.79	12.89
	F2	6.35	7.33	7.91	10.39	11.27

The normalized F1 and F2 values of English [æ] produced by L3 learning at the beginner stage (F1 = 6.94; F2 = 2.74) and L3 learning at the intermediate stage (F1 = 7.01; F2 = 2.67) were closer to the English native speaker's production (F1=2.89; F2 = 7.13). However, MSs' normalized F1 and F2 values of English [e] and Cantonese [ɛ] produced by L3 learning at the beginner stage (English: F1 = 6.05; F2 = 2.66; Cantonese: F1 = 6.13; F2 = 2.77) were closer to English native speaker's production of English [æ] (Figure 1). A possible interaction pattern from L2 English to L3 Cantonese was identified. MSs used L2 English sound to pronounce the L3 Cantonese sound.

Figure 1

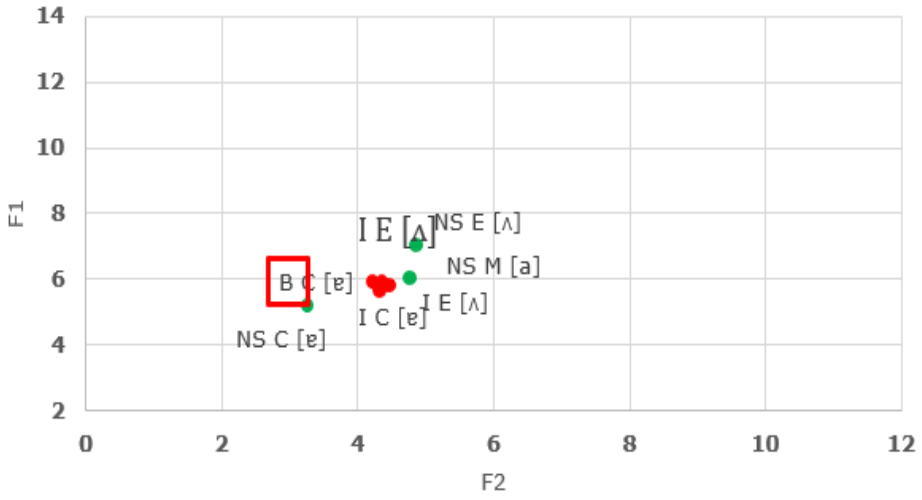
MSs and Native Speakers' Production on [æ], [e], and [ɛ]



The normalize F1 values of English [ʌ] (beginner stage: F1 = 5.88; intermediate stage: F1 = 5.79) and Cantonese [ɐ] (beginner stage: F1 = 5.93; intermediate stage: F1 = 5.67) for two groups MSs were similar to that of their L1 Mandarin [a] (F1 = 6.03), but lower than that of native English speakers (F1 = 7.04). Possible interaction patterns from L1 to L2, and from L1 to L3 were discovered.

Figure 2

MSs and Native Speakers' Production on [ʌ], [ɐ], and [a]



For Cantonese [œ] and [ɵ], MSs mispronounced these two sounds and used Mandarin [o] and [u] to replace respectively.

Self-reflection on Language Interactions

To address the first research question, "What are the possible language interaction patterns among the L1, L2 and L3 produced by MSs in HK from different L3 learning stages?", the participants' self-reflection on their L2 and L3 learning experiences was reported.

Participants from both groups reported that they did not use L1 Mandarin or L3 Cantonese to learn L2 English pronunciation. They explained that they learned English IPA instead of using other languages. Participants who were at the beginning stage of L3 learning used the languages that they learned to help them acquire the target language. For segments learning, they reported using L2 English sounds to learn L3 Cantonese sounds. For L3 tone learning, they learned with the help of L1 Mandarin.

Case (C) 1 (at the beginning stage of L3 learning):

> I use the sounds of English to learn the sounds of Cantonese. I find that these two languages have more similarities, and I link English and

Cantonese. Despite sharing the same writing system as Mandarin, Cantonese has different pronunciations.

C2 (at the beginning stage of L3 learning):

I use English sounds to learn Cantonese sounds. For example, the English word "strawberry" and the Cantonese word "士多啤梨 (strawberry in Cantonese)" have similar pronunciations, so I use the English pronunciation to learn Cantonese. However, I only use Mandarin tones to learn Cantonese tones. I don't rely on Mandarin for other features of Cantonese pronunciation.

However, for the participants who are at the intermediate stage of L3 learning, they did not report any using the languages that they learned to acquire the target languages.

C2 (at the intermediate stage of L3 learning):

I rarely used L1 to learn L2 English or use L1 or L2 to learn L3 Cantonese. I think Chinese and English are two different language systems. It's hard for me to use Chinese to learn English. Although Mandarin and Cantonese both belong to Chinese, there are a lot of differences between the two languages.

Pronunciation Adjustment Strategies

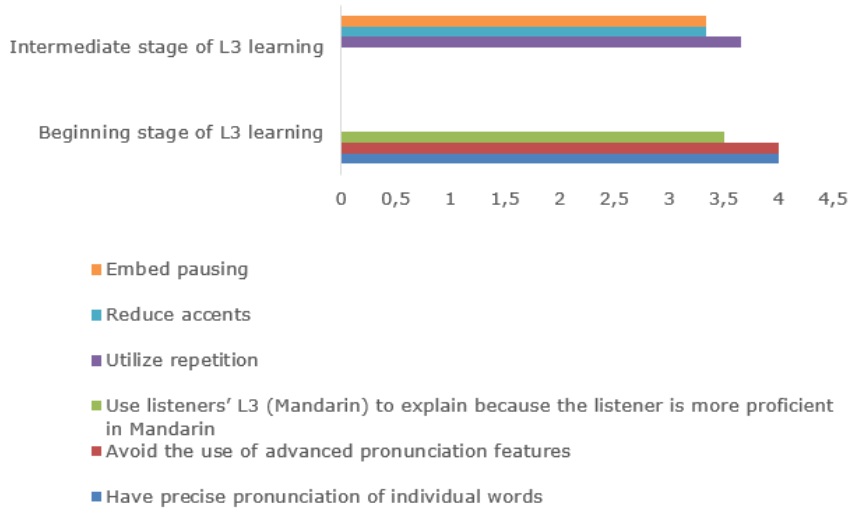
To address the second research question, "What pronunciation adjustment strategies do MSs in HK commonly use in their L2 English and L3 Cantonese communication?", participants' survey data were reported.

Results of the frequent English pronunciation-related adjustment strategies were presented in Figure 3. The frequent English pronunciation-related adjustment strategies used by L3 beginners were to have precise pronunciation of individual words (M = 4.00), avoiding the use of advanced pronunciation features (e.g., assimilation, elision, and linking in connected speech) with M = 4.00, and using listeners' L3 (Mandarin) to explain because

the listener was more proficient in Mandarin (M = 3.50). For the participants who were at the intermediate stage of their L3 learning, they utilized repetition (M = 3.66), followed by reducing accents (M = 3.33) and embedding pausing (M = 3.33).

Figure 3

Frequent English Pronunciation-Related Adjustment Strategies by the two Groups

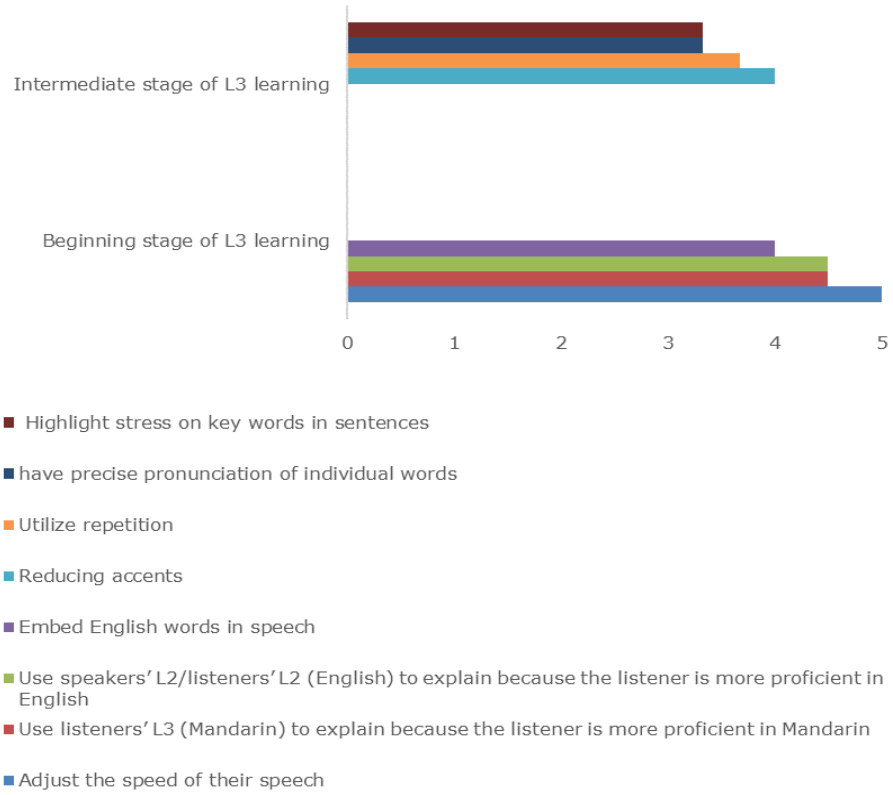


For Cantonese pronunciation-related adjustment strategies (Figure 4), L3 beginners adjusted the speed of their speech (M = 5.00), used listeners' L3 (Mandarin) to explain because the listener was more proficient in Mandarin (M = 4.50), used speakers' L2/listeners' L2 (English) to explain because the listener was more proficient in English (M = 4.50), and embedded English words in speech (M = 4.00). MSs whose L3 were at the intermediate stage reported that reducing accent (M = 4.00), utilizing repetition (M = 3.67), having precise pronunciation of individual words (M = 3.33), and highlighting stress on key words in sentences (M = 3.33) were the common pronunciation-related adjustment strategies that they used to form successful communication. However, they rarely used other languages or code-mixing when using L3 Cantonese to communicate. Participants reported that

the pronunciation-related adjustment strategies that came to their mind were all included in this questionnaire. No more pronunciation-related adjustment strategies could be added.

Figure 4

Frequent Cantonese Pronunciation-Related Adjustment Strategies by the two Groups



Discussion

Possible interaction patterns from L1 to L2 and then to L3, from L2 to L3, from L1 to L2, and from L2 to L3 have been identified. These findings are partially consistent with Cal and Sypiańska, (2020) and Chen and Tian (2024). Vowels that are absent in the language systems multilingual learners have

acquired—but have phonetically similar equivalents—can be challenging for MSs, who may be influenced by the sounds they already know. This finding is partially consistent with So and Attina (2014). Sounds that learners have previously acquired can influence the target language. For example, although the English [æ] does not exist in Mandarin, it still affects MSs' L3 Cantonese. This finding also supports Flynn et al. (2004). However, no regressive interaction patterns were identified in this study, possibly due to the limited sample size. If the MSs whose L3 is at an advanced level were recruited, a possible interaction pattern from L3 to L2 could be identified. In terms of speech production performances for L3 beginners, their L3 is influenced by both their L1 and L2. When communicating in L3 Cantonese, they also tend to use these two languages for support. However, whether MSs' pronunciation-related adjustment strategies are influenced by the cross-linguistic influence patterns needs further research for deeper exploration. The tendency to embed English in L3 Cantonese may be attributed to the speech habits of the native Hong Kong Cantonese speakers, who often mix English into their Cantonese. In contrast, the use of Mandarin for support may stem from a lack of knowledge of Cantonese pronunciation of certain words.

Participants' self-reports on language interaction support the L2SF (Bardel & Falk, 2007), which emphasizes the importance of L2 influence in multilingual contexts, as well as the TPM (Rothman, 2015), which emphasizes the role of typological factors. With the L2 English learning experiences, L3 learners in the multilingual context always acquire L3 features using their L2 learning experience (e.g., Bardel & Falk, 2007). In acquiring L3 Cantonese tones, learners relied on their L1 Mandarin, likely due to the typological affinity between two languages. However, L3 learners who were at the intermediate stage of L3 learning did not apply translanguaging, which aligns with Chen and Han (2019), who found that advanced language learners tend to compartmentalize the three languages and avoid cross-linguistic interaction.

The common L2 English pronunciation-related adjustment strategies reported by the participants in the two groups were also the common strategies reported in the previous studies (e.g., Chen, 2016; Lim 2023). However, previous studies did not compare the strategies used by multilingual learners who were at different L3 learning stages. Participants from both groups did not

tend to use L3 in L2 pronunciation-related adjustment strategies instead of using their L1 or adjusting their L2 feature to form successful communication. This is a new finding and could be attributed to learners' L3 proficiency. Participants in this study had lower L3 proficiency and their L2 proficiency was much higher. Under these circumstances, they did not use their L3 to support L2 communication. HK is a typical multilingual society, and the language policy follows "biliteracy and trilingualism" (e.g., Wang & Kirkpatrick, 2015). Cantonese native speakers in HK typically possess the ability to communicate in Cantonese, English, and Mandarin. In university learning environment, English is the predominant medium of instruction. When MSs and Cantonese speakers communicate in English, MSs often rely in their more familiar language, L1 Mandarin, for support. Since Cantonese is their L3 and the least familiar of the three languages, it is reasonable for them to default to the language they know best in a multilingual society such as HK.

The identified pronunciation-related adjustment strategies in L3 Cantonese are novel. Participants from the two groups reported different common pronunciation-related adjustment strategies. For the participants who were at the beginning stage of L3 learning tended to use other languages for support. Three out of the four common strategies were using other languages to explain. As mentioned above, HK is a multilingual society where the use of multiple languages in communication is common (e.g., Chen & Tian, 2024). Additionally, Cantonese speakers in HK have a habit of incorporating English while speaking Cantonese (e.g., Ng & Chen 2016). When MSs communicate in Cantonese, they also tend to embed English or explain in English, mimicking the habits of HK Cantonese native speakers. However, Cantonese speakers in HK rarely mix Mandarin into their Cantonese. Beginners have this habit because they may want to accurately express what they intend to say. Further research is needed to identify the reasons behind MSs using these pronunciation-related adjustment strategies. However, the participants who were at the intermediate L3 learning stage tended to adjust their own speech. A possible reason could be attributed to their L3 proficiency. They had learned L3 for more than three years, and they are more confident in using this language. But one thing that needs to be further improved is to have a clear definition of code-switching. Based on Abdul-Zahra (2010), code-switching is

the practice of switching between two or more languages or different variations of the same language by bilingual individuals in conversation, which means that 'embedding Mandarin words in Cantonese speech' is also a possible item for code-switching but has not been examined in this study. For further studies, this subject should be further examined.

Implications for Language Teachers in Multilingual Society

The current study identified some positive interaction patterns. Take the [ʊ] sound as an example. MSs who were at intermediate L3 learning stages positively transferred smaller F2 of English [ʊ] to their Cantonese [ʊ]. Their pronunciation was closer to that of the Cantonese native speaker. For these positive interactions, it is recommended that language teachers highlight them in language instruction especially for those teachers who are teaching in a multilingual society. Regarding negative interactions (e.g., English [ʌ] and Cantonese [ɐ] produced by both L3 beginners and intermediate learners receive negative influence from Mandarin), language teachers should provide more explicit instruction and practice on these features. Additionally, corrective feedback should be provided by the teachers when they find that their students mispronounced these features. Language teachers should also be equipped with basic phonetic knowledge of the languages that their students need to learn or usually use.

Conclusion

This study identified four types of interactive patterns: from L1 to L2 and then to L3, from L2 to L3, from L1 to L2, and directly from L1 to L3. It also highlights the adjustment strategies employed by multilingual learners, with a particular focus on L2 English pronunciation. Notably, participants tended to rely on their L1 or adjust L2 features to achieve successful communication, rather than incorporating L3 elements—likely reflecting differences in their language proficiency levels. The varied pronunciation-related adjustment strategies observed across learners at different stages of L3 acquisition underscore the complexity of language interactions within

multilingual contexts. Furthermore, the divergences in strategy use between beginners and intermediate learners—particularly in how they draw on other languages or adapt their speech for L3 Cantonese pronunciation—emphasize the significant impact of proficiency levels on language strategy selection. Future research should delve deeper into defining and exploring phenomena such as code-switching, particularly concerning the incorporation of Mandarin words in Cantonese speech to enhance our understanding of multilingual communication processes. These findings offer valuable insights for language educators and researchers grappling with the intricacies of pronunciation acquisition and language interactions in multilingual settings.

While this study contributed to understanding of L1 acquisition and pronunciation-related adjustment strategies, it also has several limitations. As a case study, it involved only five participants, which limits the generalizability of the findings. Future research should consider recruiting a broader and more varied sample to enhance statistical robustness.

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HONGKONGO MANDARINŲ KALBA KALBANČIŲ ASMENŲ K2 IR K3 FONOLOGINĖS RAIDOS TYRIMAS: ATVEJO ANALIZĖ

Anotacija. Šiuo tyrimu siekta nustatyti, kaip kalbantieji mandarinų kalba (MK) Honkonge įgyja anglų kaip antrosios kalbos (K2) ir kantoniečių kaip trečiosios kalbos (K3) tarimo ypatybių; kaip šios trys kalbos sąveikauja mokymosi procese. Kitas tyrimo tikslas – nustatyti, kokiais būdais kalbantieji MK siekia įveikti K2 ir K3 tarimo problemas. Tyrime dalyvavo penki Honkongo MK kalbantieji, K2 kalbos mokęsi apie 15 metų. Trys iš jų yra pasiekę vidurinį K3 mokymosi lygį (pažengusieji) ir K3 mokęsi 4 metus. Du dalyviai (pradedantieji) K3 mokosi pradiniame etape – tik 3 mėnesius. Visi dalyviai atliko kalbėjimo užduotis mandarinų, anglų ir kantoniečių kalbomis ir užpildė klausimyną, kuriuo buvo tiriamos su K2 ir K3 tarimu susijusios MK kalbančiųjų prisitaikymo strategijos bei kalbų mokymosi patirtis. Akustiniai kalbos užduočių rezultatai leido nustatyti tarpkalbinės įtakos modelius: iš pirmosios kalbos (K1) į K3, iš K2 į K3, iš K1 į K2 ir tada į K3. Pradedantieji nurodė, kad mokydamiesi K3 dažnai vartoja K2, o ne K1 garsus. Pažengusieji teigė mokydamiesi K3 nesirėmę savo K1 ar K2, išskyrus kantoniečių kalbos tonus. Kalbant apie su tarimu susijusias prisitaikymo strategijas, pradedantieji, bendraudami su Honkongo kantoniečių kalba kalbančiaisiais K2 ir K3, buvo linkę kliautis kitų kalbų pagalba. Pažengusieji retai naudojosi kitų kalbų ar kodų maišymo strategijomis ir buvo linkę koreguoti savo kalbą (pvz., mažinti akcentus, kartoti ir įterpti pauzes).

Pagrindinės sąvokos: K2 ir K3 įsisavinimas; daugiakalbystė; su tarimu susijusios prisitaikymo strategijos.