Phonological Changes in Cantonese-English Code-Mixing for ESL Learners in Hong Kong and Their Attitudes Toward Code-Mixing

Tzi Dong Ng
The University of Hong Kong, Hong Kong

Hsueh ChuChen
The Education University of Hong Kong, Hong Kong

The purposes of this study were (a) to identify how ESL learners make phonological changes in English words in a code-mixing context; and (b) to examine ESL learners’ attitudes toward Cantonese-accented English and code-mixing in the classroom setting. Two groups of learners with high proficiency (HP) and mid-level proficiency (MP) were recruited to participate in the research. A specially designed code-mixed script, an English translated version, and a list of isolated English words served as the tasks for collecting phonological data. A questionnaire survey was then used to examine participants’ opinions on code-mixing and its effects on pronunciation learning. The results showed that HP and MP learners pronounced numerous words similarly in a Cantonese-accented manner; however, MP learners were less likely to switch back to the correct pronunciation when the context of code-mixing was changed to pure English or when given a list of isolated English words. The survey results found that MP learners tended to be slightly more positive toward Cantonese-accented English and the use of a mixed code in English as a medium of instruction classrooms. Nonetheless, the use of code-mixing was less preferred in English lessons for learners of both groups. More HP learners considered Cantonese-accented English as a symbol of identity as Hongkongers than MP learners.

Keywords: pronunciation learning, language attitude, Hong Kong English, second language phonology

Introduction

Hong Kong is a metropolitan city that serves as an international financial center, thus justifying its multilingual status in recent years. Most Hongkongers are at least bilingual and speak Cantonese and English, not accounting for their levels of proficiency. It seems inevitable for Cantonese English as a second language (ESL) learners to insert English words in their Cantonese speeches or conversations for various motivations
not limited to ‘the desire to express what one wants to say’ and “a pragmatic move to fill a lexical or stylistic
gap’ (Li, 2000), particularly since Hong Kong possesses ‘a long history of linguistic contact with English
since the 17th century’ (Luke, 1998). This form of code-mixing is often used to articulate feelings, meanings
and phenomena in a more convenient manner to achieve effective communication. For instance, Li (2000)
attributed the practice of code-mixing to the principle of economy, where code-mixing requires users to exert
less linguistic effort for an English expression than its Cantonese equivalent.

The use of Cantonese-English code-mixing is explicit and common in social and educational settings, with
the lexical insertion of English words in Cantonese utterances or phrases being the readily observable case. In
this study, code-mixing refers to the act of speaking Cantonese at the phrasal or sentential level while
inserting English lexical items. Phonological changes in code-mixing are defined as phonological variations in
English words embedded in Cantonese utterances, as compared to their standard phonological form. Different
types of phonological changes tend to emerge in code-mixing. Irrespective of the commonality of code-
mixing in these learners’ daily life, different learners pronounce these embedded English words differently,
resulting in variation in phonological changes in English words produced by different learners. For instance,
bisyllabic English words in Cantonese-English code-mixed speech are often pronounced like two individual
words with equal stresses, instead of the normal stress pattern (stressed-unstressed or unstressed-stressed);
e.g., Chen (2013) noted that Hong Kong English speakers tend to pronounce paper (/ˈpeɪpə/) as /ˈpeɪ paː/,
placing unnecessary stress on the unstressed syllable.

The aim of this study is to draw a link between the phonological deviances in Cantonese-English code-
mixing and English language proficiency by analyzing the phonological features of English words spoken in
code-mixing by high-proficiency (HP) and mid-level proficiency (MP) ESL learners. The present study also
attempts to probe these ESL learners’ opinions on code-mixing in general and its effects on pronunciation
learning, and to find whether learners of different proficiency levels hold different attitudes toward these
issues.

**Literature Review**

**Cantonese-Accented English in Hong Kong**

Previous studies on the phonology of Cantonese-accented English or Hong Kong English (HKE) in general
have been conducted by many scholars, including Luke and Richards (1982), Chan and Li (2000), Hung
(2000), Setter (2003), Deterding, Wong and Kirkpatrick (2008), Sewell and Chan (2010), Chen (2011), and
Chen (2013). These studies offer a thorough description and explanation of different types of phonological
features of the Hong Kong accent of English, which have been widely agreed upon. Moreover, a majority of
identified features are unambiguously attributed to the speakers’ first language (Cantonese) interference.
Cantonese (the L1 of Hong Kong speakers) and English (the L2) serve as two typologically different
languages, thus leading to the emergence of phonological changes for ESL learners in Hong Kong (Chan and
Li, 2000), while the phonology of a second language in general has also garnered linguists’ interest in
conducting multi-disciplinary empirical research (Altmann & Kabak, 2010). Chan and Evans (2011) examine
Hong Kong secondary school students’ attitudes toward HKE as a potentially proper pronunciation model in
the English classroom. The findings show that the students have a generally negative attitude toward the
existence of HKE as a variety and the adoption of HKE as a teaching model. The result also suggests that
despite students’ reservations about the localised pronunciation, the authors argue that these local students
have no choice but to accept other pronunciation models due to their limited exposure to native spoken
English. Therefore, accent variations are found in their daily lives.
Among these studies on Cantonese-English code-mixing in Hong Kong, Luke (1998) and Li (2000) discussed the phenomenon of code-mixing from sociolinguistic viewpoints to account for Cantonese speakers’ conversational motivations underpinning code choices. Specifically, both scholars wrote that the ‘Hong Kong accent of English’ was held in low regard, with no societal basis for a nativized variety of English in Hong Kong. These studies emphasized learners’ attitude toward Cantonese-English code-mixing in general and Hong Kong accented English in particular. Meanwhile, Jenkins (2009) found that some ESL speakers did express their desire to “project their local identity” in the variety of English they spoke. This present study also attempts to find whether current ESL learners from Hong Kong have similar perceptions, especially when English acts as the embedded language in daily-life code-mixing.

**Phonological Changes in Code-Mixing**

Code-mixing is one form of language contact, and it has been shown that both the host language and the embedded language contribute aspects of their phonological system to this “mixed language” (Muysken, 2004). Prior research on code-mixing has largely focused on the syntactic or lexical level, not diverting sufficient attention to the phonological level. Among numerous Chinese-English code-mixing and code-switching studies in Hong Kong, Chen (2013) has come closest to the objective of the present study, when she investigated the phonological changes of English words in Cantonese-English code-mixed speech. She suggested that local Hong Kong speakers of Cantonese inserted English words into Cantonese following Cantonese phonology to some degree while preferring to achieve a native-like English pronunciation without specifying the context where English was spoken.

As for the methodology employed by Chen (2013), the flow of procedures was appropriate and her framework serves as a foundation for this study. Also, the tokens in her sample scripts used to derive the phonological changes in code-mixing, including the words ‘oral’, ‘email’, ‘present’ and ‘paper’, were relatively high-frequency words appearing in the daily conversation of tertiary-level students. However, Chen focused on a comparison between Cantonese English and Taiwan-Mandarin English to draw a connection between code-mixing and foreign accents. In contrast, this study examines purely Cantonese English by analyzing inserted lexical items in code-mixing, since the essence of a single type of code-mixing already includes numerous features such as intra-sentential code switching and tag switching (Wong, 2012). In addition, Chen does not specify the proficiency levels of her study’s participants; this can be problematic since proficiency levels can also influence phonological changes in code-mixing even within one variety. Our concern is that there might be variations in the phonological changes in code-mixing between HP and MP ESL learners who belong to the same category as, ‘speakers of Hong Kong English’, especially for tertiary-level students in Hong Kong who have a sound background in ESL learning. In addition, the direction in Chen’s comparative study does not allow for diversity in participants’ English proficiency. This study therefore sets out to make English proficiency an independent variable among the participants.

Regarding ESL learners’ English proficiency level, after reviewing relevant studies, there appears to be a lack of direct studies that correlate Cantonese-English code-mixing with Cantonese learners’ English proficiency. Although Jalil (2009) concluded that code-mixing usually involves a higher necessary level of grammatical proficiency in both the embedded language (English) and host language (Cantonese), we found an absence of research that explores how Cantonese-English code-mixing and ESL learners’ general English proficiency are related. Previous studies (e.g. Li, 2000) investigated characteristics of code-mixing in the generic sense without considering the possibility of variations between speakers. We propose that speakers of disparate proficiency levels in the embedded language (L2) could demonstrate different forms of code-mixing. Specifically, we would like to know how these learners’ phonological changes in code-mixing and their English proficiency are related, since phonological awareness, at the least, is shown to be influenced...
by language proficiency (Bialystok, McBride-Chang, & Luk, 2005). Kootstra et al. (2012) explored the role of speakers’ relative language proficiency in priming the production of code-switching. Their study did take L2 proficiency into account, despite not looking into the phonology. Whether L2 proficiency is linked to phonological changes in code-mixing remains unknown.

Lee (2012) compiled a Cantonese-English code-mixing speech corpus and claimed that Cantonese speakers ‘pronounced the same word in totally different ways in two situations’, namely in monolingual English utterances and Cantonese-English code-mixing. While Lee’s study offered insight for this study, that is, both English words in their monolingual settings and mixed-code were considered, it remains unknown whether the pronunciation of isolated English words is influenced by ESL learners’ usual practice of code-mixing. This research, therefore, includes an investigation of English words spoken in three different discourse styles: code-mixed utterances, pure English utterances, and separate stand-alone English lexical items. We focus on examining ESL learners differentiated into two proficiency groups, and how HP and MP participants demonstrate different, if not contrasting, effects of code-mixing on the pronunciation of various English words.

Attitudes Toward Code-Mixing and Its Effects on Pronunciation

A majority of studies on attitudes toward code-mixing lies in purely education contexts and language acquisition (Dewaele & Wei, 2014), and do not stem from a specific phonological perspective as in this study. For ESL learners’ attitudes toward code-mixing in Hong Kong, Lai (2010) concluded that the participants who were ESL learners tended to attribute speaking a mixed-code to the ethnolinguistic identity of being a ‘Hongkonger’. Regan (2010) concluded that Hongkongers possessed an ‘overtly negative attitude’ toward Cantonese-English code-mixing, even when they used the mixed-code for various purposes. A potential problem with Regan’s study was neglecting how well these people mastered the embedded language of the mixed code, a factor that could possibly affect Hongkongers’ attitudes toward code-mixing. Speakers with different proficiency levels in the embedded language (L2) might hold different attitudes toward code-mixing. It was also found that bilinguals who actually practise code-mixing perceived it as an indication of poor linguistic proficiency (Chana and Romaine, 1984). Dewaele and Wei (2014) identified various independent variables such as personality traits and the degree of multilingualism that were linked to attitudes toward code-mixing, again not considering speakers’ level of mastery of the embedded language. Regarding their attitudes toward the effects of code-mixing on both pronunciation and language learning, the authors recognized an absence of studies that compare the aforementioned trends in attitudes by English proficiency levels, the exception being Chen’s research, which compared differences in their first language backgrounds (Hong Kong Cantonese and Taiwan Mandarin).

In view of the above research gaps, this study attempts to draw a connection between code-mixing and English proficiency by analyzing phonological features of English words used in code-mixing by HP and MP ESL learners. This study hypothesizes that the proficiency of ESL learners would serve as the key variable influencing their phonological features and their attitudes towards code-mixing and its effects on pronunciation. Such a hypothesis suggests that differences in the phonological features of code-mixing between the two groups of learners are explained by discrepancies in their proficiency. Likewise, variations in these learners’ attitudes toward code-mixing and its effects on pronunciation can be attributed to the same justification, leading to our hypothesis that HP participants hold a different view toward code-mixing and its effects on pronunciation and language learning than the MP group. This study poses the following two research questions:

1. What are the similarities and differences in the phonological code-mixing features between HP and MP
ESL learners in Hong Kong?

2. What are HP and MP learners’ attitudes toward code-mixing and its effects on pronunciation in the target language?

Methods

Participants

Ten university students majoring in English and another ten majoring in physical education (PE) were invited to read aloud a prepared script containing a code-mixed monologue, where 24 English lexical items were embedded in Cantonese phrases. Then 22 English majors and another 22 PE majors, including the existing 20 participants, completed a questionnaire on their attitude toward code-mixing and issues related to pronunciation learning. In the two proficiency-varying groups, participants aged 18-25 years old were included. The native language of all participants was Cantonese and the compiled script sample was intelligible to them, since authentic informal and colloquial language was used for some of the phrases.

English Majors were selected to contribute to the first target group of research participants because it was assumed that they were relatively more advanced English learners, as reflected by their public examination performance. According to the admission requirements on English major programs at their university, students should achieve a grade of C or above in the Use of English in the Hong Kong Advanced Levels Examination (HKALE) or Level 5 in English Language of the Hong Kong Diploma of Secondary Education Examination (HKDSE). Since these English majors fulfilled one of these criteria, their major along with their public exam results serve as a reliable index reflecting their general HP ESL learner status in Hong Kong. In contrast, the PE majors belonged to the MP group, as their HKALE or HKDSE English subjects’ results were all below grade C or the equivalent.

Instruments and Procedures

Three phases of implementation proceeded in this study.

Phase I

In the first phase, a Cantonese-English code-mixed speech sample in the form of a monologue (Appendix A) was created for a pilot study, where an English major and a PE major were invited to read the passage aloud. The sample contains a vast amount of colloquial and informal language in Cantonese. The purpose of this design was to offer a more localized and relatable linguistic context for the reading. For example, the phrase ‘勁神秘’ (‘very mysterious’) in the sample generally appears in spoken Cantonese. For the embedded English words, the selection criteria were mostly concerned with whether a variation existed between the standard pronunciation and that produced by Cantonese-accented English. The selected tokens are categorized by types of Cantonese-accented features shown in Table 1.

The tabulated phonological features were categorized on the basis of the systematic pronunciation errors observed by Chan and Li (2010) and the phonological changes in code-mixing identified by Chen (2013). For instance, Chan and Li (2010) highlighted how Cantonese ESL learners ‘tended to transfer the articulatory habits [from Cantonese to English] of not releasing final plosives to English’, contributing to the feature of ‘not releasing the final stop consonant’, as exemplified by pronouncing book (／bok／) as /bok/. As for vowels, the fact that Cantonese ESL learners were unaware of the difference between /æ/ and /e/ (Chan and Li, 2010)
can be attributed to replacing /æ/ with /e/ in words like ‘man’ and ‘RAM’, which was analyzed by Chen (2013) and hypothesized in the present study. These tokens were deliberately placed in the monologue to offer participants more authentic code-mixed expressions.

**TABLE 1**

Cantonese-Accented English Words by Phonological Feature Categories

| Features                                             | Number | Notes    |
|------------------------------------------------------|--------|----------|
| Replacing /n/ with /l/                               | /lʌm`baː/ | /lɔk'siː/ |
| Replacing /æ/ with /e/                               | Oral   | Report   |
| Replace /l/ or /w/                                  | /ˈlɔw/  | /wiːˈpɔt/|
| Replacing /æ/ with /e/                               | /men/   | /ˈpiː/   |
| Replace /rem/                                       | /rem/   | /ˈdʒeˈket/|
| Omitting the second consonant in a CC-type consonant cluster | /piːˈsen/ | /piːn/ |
| Replacing /l/ in the coda position with /w/ or simply deleting it | /ˈjiːˈmeˌsow/ | /ˈseow/ |
| Replacing /e/ with other sounds                      | /fik/   | /ˈkɪk/   |
| Not releasing the final stop consonant              | /buk/   | /ˈdʒeˌkɛt/|
| Resyllabifying monosyllabic words into bisyllabic ones | /ˈlɔkˈsiː/ | /ˈfɛnˈsiː/ |
| Stressing the unstressed syllable (resulting in an equal stress) | /ˈɔːˈlɔw/ | /ˈpɔʊˈteiˌtɔu/ |

In addition to the aforementioned script sample in the form of a passage, a translated English version was included in this study, with all the key words appearing in the original code-mixed script, thus enhancing the comparability for the 24 tokens. The English script is shown in Appendix B. In addition, a list of all the English words previously appearing in the monologue had been prepared and the isolated words were expected to yield possible additional findings dependent on the context. The isolated items are shown in Appendix C.

**Phase II**

In the second phase, 20 participants were invited to read the three refined scripts. The pronunciation of all the English words in the three script samples were phonologically analyzed by transcribing them into IPA. IPA transcriptions were carried out by the first author, an English major graduate previously taking Introduction to Phonetics and Phonology, who had relevant experience in being a research assistant for phonetics research, also involving IPA transcriptions. The first author was also in training sessions conducted by the second author, in order to achieve inter-rater reliability. The second author was an experienced rater, holding a Ph.D. in Linguistics, specializing in inter-language phonetics and phonology. Her training sessions for the first author involved both instruction and hands-on practice on transcribing speeches from existing corpora data. This study selected the Received Pronunciation as the benchmark for comparison between the tokens produced by subjects and their standard phonological form. Subsequently, the rates and types of these identified variations were summarized into tables. Out of a total of 1,500 tokens (25 words x 3 tasks x 20 participants), 15% (225 words) was randomly selected to check the IPA transcriptions by a second rater—another English major graduate who had taken the Introduction to Phonetics and Phonology course. The first author conducted training sections for the second rater in order to achieve inter-rater reliability. The second
author later served as the third rater to double-check the IPA transcriptions to minimize unwanted prejudice that might arise. In order to reduce auditory prejudice, the authors also randomly selected 10% of all tokens and inspected their acoustic information against the same tokens produced by a native speaker of English.

**Phase III**

In the third phase, a follow-up survey with a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree) was conducted to examine awareness and attitude toward code-mixing, as well as the relationship between code-mixing and pronunciation. Forty-four participants, 22 from each proficiency group, were asked to complete the questionnaire.

Among the 20 questions in the survey, items 1, 2, 4 and 20 are related to attitudes toward Cantonese-English code-mixing, whereas 3, 6, 7, 8, 13 to 19 are about relationships between code-mixing and language learning. Finally, items 5, 9 to 12 focus on attitudes toward Cantonese-accented English.

**Results and Discussion**

This section first describes the identified phonological features of HP and MP ESL participants. Next, it attempts to elaborate on the similarities and differences in features between the two proficiency groups by comparing the cross-task percentages and types of phonological variations, answering the first research question raised by the authors. Finally, the results of the survey on attitudes toward code-mixing and its effect on pronunciation are presented and explained in response to this study’s second research question.

**Phonological Features in Code-Mixing**

Participants from the two proficiency groups were asked to read aloud a code-mixed passage containing Cantonese sentences embedded with English words. Given the objectives of this study, we hypothesized that the two groups would exhibit rather diverse results in their phonological features in code-mixing. In other words, the differences in these features between the two groups were assumed to outweigh the similarities. Consequently, both similarities and differences in phonological features between HP and MP spoken data were identified. The findings are summarised in Table 2.

**Similarities and differences in phonological features in code-mixing**

*Similarities between HP and MP ESL learners.* As shown in Table 2, five tokens were selected from the 25 embedded English words, since they are lexical items that illustrate the relatively more prominent phonological changes in code-mixing, according to previous studies and predictions, as shown in Table 1. In terms of similarities between the two proficiency groups, the phonological adaptation strategies employed on embedded English words were found to be fairly common to both HP and MP participants. For instance, in the word ‘oral’, the change in vowel quality of the schwa /ə/ in the second syllable to /əʊ/ tended to be a commonly observed feature for participants from both groups. The same phenomenon of highly similar phonological features can also be applied to other selected tokens in Table 2. In fact, the verb ‘present’ even shows that HP and MP participants had five phonological adaptation strategies in common. For instance, the first vowel, a short /ɪ/, in the word was realized as a high front /i:/ by both the HP and MP speakers. Table 3 shows the corresponding acoustic information comparing the /ɪ/ produced by the native speaker with the /i:/ produced by both HP and MP speakers. Likewise, Figures 1, 2 and 3 are the spectrograms of the different
phonetic realizations of the first vowel in present as demonstrated by the three speakers. It was observed that the Formant 2 (F2) values of both HP and MP speakers washigher thanfor the native English speaker, indicating that HP and MP speakers produced an /i:/ instead of an /ɪ/. The acoustic information and pictures were obtained using Praat.

**TABLE2**

**Comparison of Phonological Features in Code-Mixing Between HP and MP ESL Learners**

| Token    | IPA     | High-proficiency (HP)                                      | Mid-proficiency (MP)                                      |
|----------|---------|------------------------------------------------------------|-----------------------------------------------------------|
| oral     | /s; rəl/| 1. Substitution of the syllable-initial consonant /r/ by /l/ | Anomalies in F2 values for both HP and MP speakers       |
|          |         | 2. Absence of stress pattern (equal stress for the two syllables) |                                                           |
|          |         | 3. Change of vowel quality from schwa /ə/ to /ɔ/ in the second syllable, combined with /w/ |                                                           |
|          |         | 4. Deletion of the word-final consonant /l/ |                                                           |
| jacket   | /dʒæˌkɪt/ | 1. Vowel shortening from /ɔ:/ to /o/ |                                                           |
|          |         | 2. Vowel lengthening from /i/ (in the unstressed syllable) to a long vowel /e/ |                                                           |
|          |         | 3. Not releasing the word-end stop-plosive consonant /t/ |                                                           |
| notes    | /nəʊts/ | 1. Dropping the word-final consonant /l/ |                                                           |
|          |         | 2. Vowel lengthening from /ɪ/ (in the unstressed syllable) to a long vowel /e/ |                                                           |
|          |         | 3. Not releasing the word-end stop-plosive consonant /t/ |                                                           |

**TABLE 3**

**Acoustic Information of the First Vowel in “Present” Realized by Different Speakers**

| Native Speaker | High-proficiency | Mid-proficiency |
|----------------|------------------|-----------------|
| Duration       | 21.761ms         | 92.817ms        | 82.631ms       |
| F1             | 392.35           | 422.6           | 420.34         |
| F2             | 1579.82          | 2556.28         | 2339.26        |
Figure 1. Spectrogram of /i/ in “present” produced by a native English speaker.

Figure 2. Spectrogram of /i:/ in “present” produced by an HP participant.
Differences between HP and MP ESL learners. Table 2 shows a maximum of one difference in the phonological features between the two groups. For example, for the word ‘jacket’, the only identified difference was that MP participants tended to drop the word-final stop-plosive consonant /t/, while HP participants tended to keep it but not release it. Instances of dropping or not releasing final plosives among both proficiency groups was consistent with Chan and Li’s (2010) findings that ‘final plosives tended to be swallowed’. In fact, these results suggested that similarities in phonological changes in code-mixing between the two proficiency groups exceeded the differences, thus rejecting the study’s hypothesis of diverse phonological features between HP and MP participants. At this stage of the study, the answer to whether proficiency level serves as the key factor affecting phonological features cannot be safely assured, owing to the unexpected findings that refuted our hypothesis. Nevertheless, the instruments of this study included two other scripts for a better comparability of each token under different contexts. The recording of the code-mixed passage was conducted in the second phase and so were the sessions for the English passage and word list.

Similarities and differences in phonological features in different contexts. Apart from broadly comparing the phonological features between HP and MP participants, we conducted a detailed analysis of the collected spoken data. First, each proficiency group was separately treated by examining the phonological changes across the three samples, namely the original code-mixed passage, the English translation and the list of stand-alone words, for comparison across tasks within the same proficiency group. The rates and types of phonological variations for each proficiency group were then tabulated and subject to inter-group comparison. Tables 3 and 4 present a summary of the cross-task variation analysis for both groups.

In both tables, for each of the five selected tokens, the rate of variation in each of the three contexts was calculated and recorded. Taking the first token ‘oral’ in Table 3 as an example, the rate of variation was measured by dividing the number of participants by a variant pronunciation (9) in the HP group by the total number of participants in the same group (12), showing that 75% of the HP participants had a variant pronunciation in code-mixing for ‘oral’. ‘C’, ‘E’ and ‘W’ represent a context where the variation occurred. For instance, the first type of variation (consonant substitution) for ‘oral’ was only observed in the
context of code-mixing, while the third type (vowel lengthening) was observed in all three contexts. These context-based markings supplemented further analysis for whether some deviances exclusively emerged in the code-mixing context but not in the other two.

Focusing on the first token ‘oral,’ fewer HP participants (75%) produced a variant pronunciation than MP participants (100%) in code-mixing. In the context of pure English, however, the variation rate for ‘oral’ dropped to 50% for HP learners, while that for MP learners remained unchanged (100%). From the observed types of variation, a larger portion of MP learners tended to lengthen the short vowel /ə/ in the second syllable of ‘oral’ to a long vowel /əʊ/, thus leading to another variation—the absence of a stress pattern between the two syllables.

When progressing to the third task (a list of isolated English words), HP learners’ rate of variation for ‘oral’ fell to only 8.33%, one-tenth of the MP learners’ rate (83.3%). On the other hand, the changes in the rates of variation for ‘oral’ across the three tasks for HP participants (75%, 50% and 8.33%) showed a larger disparity than the comparable changes for MP participants (100%, 100% and 83.3%). Similar patterns of differences in the rates of variation across tasks were observed in other selected tokens, such as ‘notes’ (HP: 83.3%, 41.7%, 16.7% vs. MP: 100%, 100%, 97%) and the verb ‘present’ (HP: 100%, 91.7%, 75% vs. MP: 100%, 100%, 100%). The general trend for HP learners’ was a gradual decrease in the rates of variation of tokens across the three tasks. This result showed HP learners’ relative flexibility in switching between accents of English in varying linguistic contexts, partially corroborating the claim that relative language proficiency influences flexibility of code-mixing (Koorstra, Van Hell & Dijkstra, 2012). In contrast, examples such as ‘jacket’ (MP: 100%, 100%, 100%) and ‘present’ (MP: 100%, 100%, 100%) illustrated the common trend for MP learners, that is, their rates of variation of tokens across tasks tended to diminish by a slight proportion or even remain unchanged.
| Tokens      | Rates of Variation | Types of Variation                                                                 |
|------------|--------------------|------------------------------------------------------------------------------------|
|            | Code-Mixing (C)    | English (E)                          | Word List (W)                      |
| 1. oral    | 75% 50% 8.33%      | 1. Substitution of the syllable-initial consonant /r/ by /l/ (C)                   |
|            |                    | 2. Absence of stress pattern (equal stress for the two syllables) (C)             |
|            |                    | 3. Change of vowel quality from schwa /ə/ to long vowel /əʊ/ in the second syllable, combined with /w/ (C, E, W) |
|            |                    | 4. Deletion of the word-final consonant /l/ (C, E, W)                              |
| 2. jacket  | 91.7% 58.3% 58.3%  | 1. Replacing the open-mid vowel /æ/ with /e/ (C, E, W)                              |
|            |                    | 2. Vowel lengthening from schwa /ə/ (in the unstressed syllable) to a long vowel /e/ (C, E, W) |
|            |                    | 3. Not releasing the word-end stop-plosive consonant /t/ (C, E, W)                  |
| 3. notes   | 83.3% 41.7% 16.7%  | 1. Confusion between the word-initial /n/ and /l/ sounds (C)                       |
|            |                    | 2. Monophthongizing the diphthong /əʊ/ as monophthong /ʊ/ (C, E, W)               |
|            |                    | 3. Substitution of consonant /t/ by /k/ (C, E, W)                                  |
|            |                    | 4. Re-syllabification from one syllable to two (C)                                 |
| 4. present | 100% 91.7% 75%     | 1. Dropping of the consonant /r/ in the consonant cluster /pr/ (C)                  |
|            |                    | 2. Vowel lengthening of /i/ to /iː/ (C)                                             |
|            |                    | 3. Devoicing of the voiced consonant /z/ to a voiceless consonant /s/ (C, E, W)    |
|            |                    | 4. Not releasing the word-final stop-plosive consonant /t/ (C, E)                   |
|            |                    | 5. Absence of stress pattern (equal stress) (C)                                    |
| 5. claim   | 16.7% 0 0          | 1. Dropping of the consonant /l/ in the consonant cluster /kl/ (C)                  |
|            |                    | 2. Monophthongizing the diphthong /ei/ as /e/ (C)                                  |
TABLE 5
Intra-Group Comparison of Phonological Features for MP Participants Across the Three Tasks

| Tokens | Rates of Variation | Types of Variation |
|--------|-------------------|-------------------|
|        | Code-Mixing (C)   | English (E)       | Word List (W) |          |        |
| 1. oral| 100% 100% 83.3%   | 1. Substitution of the syllable-initial consonant /r/ by /l/ (C) |
|        |                   | 2. Absence of stress pattern (equal stress for the two syllables) (C) |
|        |                   | 3. Change of vowel quality from schwa /ə/ to long vowel /əʊ/ in the second syllable, combined with /w/ (C, E, W) |
|        |                   | 4. Deletion of the word-final consonant /l/ (C, E, W) |
|        |                   | 5. Vowel shortening from /ɔ/ to /ɒ/ (C, E, W) |
| 2. jacket| 100% 100% 100%  | 1. Replacing the open-mid vowel /æ/ with /e/ (C, E, W) |
|        |                   | 2. Vowel lengthening from /ɪ/ (in the unstressed syllable) to a long vowel /e/ (C, E, W) |
|        |                   | 3. Not releasing the word-end stop-plosive consonant /t/ (C, E, W) |
|        |                   | 4. Dropping the word-final consonant /t/ (C, E, W) |
| 3. notes| 100% 100% 91.7%   | 1. Confusion between the word-initial /n/ and /l/ sounds (C, E, W) |
|        |                   | 2. Monophthongizing the diphthong /əʊ/ as monophthong /ʊ/ (C, E, W) |
|        |                   | 3. Substitution of consonant /t/ by /k/ (C, E, W) |
|        |                   | 4. Re-syllabification from one syllable to two (C) |
| 4. present| 100% 100% 100%  | 1. Dropping of the consonant /r/ in the consonant cluster /pr/ (C, E, W) |
|        |                   | 2. Vowel lengthening of /ɪ/ to /i:/ (C, E, W) |
|        |                   | 3. Devoicing of the voiced consonant /z/ to a voiceless consonant /s/ (C, E, W) |
|        |                   | 4. Deletion of the word-final stop-plosive consonant /t/ (C, E, W) |
|        |                   | 5. Absence of stress pattern (equal stress) (C, E, W) |
| 5. claim| 58.3% 33.3% 33.3% | 1. Dropping of the consonant /l/ in the consonant cluster /kl/ (C, E, W) |
|        |                   | 2. Monophthongizing the diphthong /eɪ/ as /e/ (C, E, W) |

Moreover, the results of these recording tasks questioned the previous hypothesis that HP and MP ESL learners would show relatively diverse effects in their pronunciation of various English words in a mixed code, where the difference in their English proficiency levels would explain the predicted differences in phonological features. In spite of the hypothesis, findings imply that similarities in phonological features in code-mixing between the HP and MP learners outweighed the observed differences.

Using the token ‘oral’ as an example again, both HP and MP learners tended to delete the word-final consonant /l/, while our hypothesis predicted the HP participants would not demonstrate such a phonological variation. An alternative explanation is that HP ESL learners tended to adapt to the Cantonese accent when pronouncing English words embedded in Cantonese utterances, instead of adhering to the standard pronunciation, owing to the learners’ personal preferences. This is also supported by this study’s statistical findings from the survey on ESL learners’ attitudes toward code-mixing. In sum, the results of the questionnaire survey found that HP participants did not have a particularly positive attitude toward speaking with standard pronunciation in code-mixing, the details of which are explained in the following section.

Although merely comparing the phonological changes in code-mixing between two proficiency groups does not prove the hypothesis correct, the follow-up analysis of the cross-task performance of participants yielded new insights into the research questions. Accordingly, the rates of variation of selected tokens across the three...
tasks produced by a single proficiency group reflected the trend in the various types of phonological variation in different contexts. In particular, for ‘oral’, the findings showed that HP participants replaced the syllable-initial /r/ consonant with /l/ only in the context of code-mixing but not in pure English and isolated words. Here as well, this observation can be explained by the HP learners’ phonological adaptation of the Cantonese accent in English pronunciation, since the consonant /r/ does not appear in the Cantonese sound system. It is noteworthy that this first-language influence prevailed only in the context of code-mixing but not in the other two pure English (L2) contexts, as shown by the phonological deviances in certain tokens in the HP group (those marked with C only in Table 3). Likewise, for the token ‘notes’, results showed that the MP participants resyllabified the word from one syllable to two, resulting in a pseudo-pronunciation, similar to producing the sounds of two Cantonese words. Following the analysis of the cross-tasks phonological deviances of one proficiency group is the comparison of the deviances between the HP and MP groups.

Survey Results on Attitudes Toward Code-Mixing

The survey explored HP and MP ESL learners’ attitudes toward Cantonese-English code-mixing, attitudes toward Cantonese-accented English, and the relationship between code-mixing and language learning. It is comprised of 20 five-point Likert-type items.

Regarding the participants’ attitudes toward code-mixing (items 1, 2, 4 and 20 as shown in Table 5), both HP and MP ESL learners largely agreed that they felt comfortable code-mixing (4.36 vs. 4.18). Of the total, 86.3% of MP participants responded positively to being comfortable with code-mixing, while the HP group was slightly less positive, with 81.7% agreeing with the statement. Second, both groups moderately agreed that they would practice more code-mixing when they achieved higher English language proficiency (3.68 vs. 3.36). In addition, 63.6% of the HP participants subscribed to the statement and only 36.6% of the MP group held the same view.

| Group | SA (%) | A (%) | N (%) | D (%) | SD (%) | M  | SD  | t    | p    |
|-------|--------|-------|-------|-------|-------|----|-----|------|------|
| HP    | 59     | 22.7  | 13.6  | 4.5   | -     | 4.36| .902| .761 | .451 |
| MP    | 31.8   | 54.5  | 13.6  | -     | -     | 4.18| .665| 1.535| .132 |

TABLE 6
Survey Results for Items 1, 2, 4 and 20

For attitudes toward Cantonese-accented English (items 5 and 9-12 in Table 6), the two groups took a similar stance of somewhat appreciating spoken Hong Kong English (3.23 vs. 3.32). Nevertheless, a slightly larger portion of HP participants (22.7%) did not like Hong Kong English than the MP participants (13.6%). In their identities, both groups held a fairly positive view toward the comment that having a Cantonese accent in English acted as a symbol of identity as a Hongkonger (3.23 vs. 3.23), with more HP participants

5 = Strongly agree (SA); 4 = Agree (A); 3 = Neutral (N); 2 = Disagree (D); 1 = Strongly disagree (SDi)
* p < .05, ** p < .01
considering the Cantonese accent of English as an identity marker (54.5% vs. 44.4%). Both groups adequately agreed that speaking in Cantonese-accented English was natural for Hong Kong locals (3.82 vs. 3.82), with a significantly large portion of MP participants (81.8%) agreeing with the statement. A smaller portion of the HP group, though still a high percentage (72.7%), also answered positively.

**TABLE 7**

*Survey Results for Items 5, and 9-12*

| Group | Item Description                                                                 | SA (%) | A (%) | N (%) | D (%) | SD (%) | M    | SD  | t    | p    |
|-------|----------------------------------------------------------------------------------|--------|-------|-------|-------|--------|------|-----|------|------|
| HP    | I like speaking Hong Kong English, e.g. actually; she is so charm; I'm looping this song, etc. | 4.5    | 40.9  | 27.3  | 18.2  | 4.5    | 3.23 | .973| -.353| .726 |
| MP    | -                                                                               | 4.5    | 40.9  | 31.8  | 18.2  | 4.5    | 3.23 | .973| -.353| .726 |
| HP    | I think having a Cantonese accent in English is a symbol of identity as a Hongkonger. | -      | 54.5  | 18.2  | 22.7  | 4.5    | 3.23 | .973| .000 | 1.000|
| MP    | 4.5                                                                              | 4.5    | 40.9  | 31.8  | 18.2  | 4.5    | 3.23 | .973| .000 | 1.000|
| HP    | I think speaking in Cantonese-accented English is natural for Hong Kong locals. | 13.6   | 59.1  | 22.7  | 4.5   | -      | 3.82 | .733| .000 | 1.000|
| MP    | 4.5                                                                              | 4.5    | 77.3  | 13.6  | 4.5   | -      | 3.82 | .588|     |      |
| HP    | I think Hong Kong people who speak in standard pronunciation are not that localized. | -      | 13.6  | 18.2  | 54.5  | 3.6    | 2.32 | .894| -1.754| .088 |
| MP    | 9.1                                                                              | 4.5    | 54.5  | 36.4  | -     | 2.73   | .631 |     |      |      |
| HP    | I think Hong Kong English will become a new variety of English in the future, like Singaporean English. | 9.1    | 18.2  | 18.2  | 40.9  | 3.6    | 2.68 | 1.210| -.292| .772 |
| MP    | -                                                                               | 18.2   | 45.5  | 31.2  | 4.5   | 2.77   | .813 |     |      |      |

The rest of the items (3, 6-8 and 13-19 in Table 7) elicited the ESL learners’ responses to the relationship between code-mixing and language learning, including pronunciation learning. Both groups were positive toward wanting to speak like a native English speaker (4.45 vs. 4.05). A remarkable 95.5% of the HP group had a positive view and no participants held a negative view. On the other hand, a 86.4% majority of the MP participants wanted a near-native accent. HP participants tended to feel more discouraged when told that their pronunciation was incorrect (3.64 vs. 3.18). Accordingly, an exclusive 22.7% of the HP participants reacted strongly, while no MP participants held such a strong view.

Considering code-mixing and English pronunciation learning, the HP group largely disagreed that code-mixing would help them learn better English pronunciation, and the MP group viewed it less negatively (2.27 vs. 2.73). Among the HP participants, a large portion (72.6%) did not think code-mixing helped improve their English pronunciation. Only 36.4% of the HP participants wanted to speak with standard pronunciation in code-mixing, while a larger portion of MP participants (59.1%) did. For the following items, the HP participants were more aware that they had a different English pronunciation when speaking in a mixed code than before participating in the research (3.5 vs. 3.18).

When asked whether they could smoothly switch between Cantonese-accented English in code-mixing and standard pronunciation in English, HP participants tended to be more confident in their ability in switching than MP participants (4.23 vs. 3.64). Among the HP participants, a significant number (90.9%) was assured of their own ability. Of the MP participants, although a notable rate (68.2%) claimed to be able to switch between accents, 13.6% were still somewhat not confident.

Both groups felt negatively toward English teachers using code-mixing in class (2.73 vs. 2.59). Of the MP group, almost half (45.5%) did not prefer code-mixing in English classes. Slightly more than half of the HP participants (54.5%) were neutral toward the use of code-mixing in English classes. In the same setting, both groups seemingly preferred their English teachers using English as the medium of instruction (EMI) in class
When asked whether they liked their non-English teachers for EMI subjects (e.g., math class instructed in English) using code-mixing in class, MP participants seemed more positive than the HP group (3.14 vs. 3.45). More than half of the MP group (54.5%) liked the use of code-mixing in EMI subjects, except in English lessons, while only 31.8% of the HP participants liked this idea.

### TABLE 8
Survey Results for Items 3, 6-8 and 13-19

| Group | SA (%) | A (%) | N (%) | D (%) | SDi (%) | M      | SD     | t      | p    |
|-------|--------|-------|-------|-------|---------|--------|--------|--------|------|
| MP    | 54.5   | 27.3  | 9.1   | 9.1   | .364    | -      | -      | -      | -    |
| HP    | 22.7   | 45.5  | 4.5   | 4.5   | .596    | -      | -      | -      | -    |
| MP    | 27.3   | 59.1  | 4.5   | 4.5   | .844    | -      | -      | -      | -    |
| HP    | 4.5    | 36.4  | 22.7  | 31.8  | .046    | -      | -      | -      | -    |
| MP    | 59.1   | 31.8  | 4.5   | 4.5   | .800    | -      | -      | -      | -    |
| MP    | 9.1    | 59.1  | 18.2  | 13.6  | .848    | -      | -      | -      | -    |
| MP    | 31.8   | 59.1  | 9.1   | 9.1   | .612    | -      | -      | -      | -    |
| MP    | 9.1    | 59.1  | 18.2  | 13.6  | .848    | -      | -      | -      | -    |
| HP    | 4.5    | 4.5   | 54.5  | 31.8  | .827    | -      | -      | -      | -    |
| HP    | 22.7   | 45.5  | 31.8  | -     | .750    | -      | -      | -      | -    |
| HP    | 22.7   | 54.5  | 18.2  | 18.2  | .785    | -      | -      | -      | -    |
| HP    | 4.5    | 50    | 36.4  | 4.5   | .858    | -      | -      | -      | -    |
| HP    | 4.5    | 27.3  | 50    | 18.2  | .795    | -      | -      | -      | -    |
| MP    | 22.7   | 45.5  | 27.3  | -     | .684    | -      | -      | -      | -    |

After running the independent samples t-test, results from items 3, 4 and 14 yielded statistical significance ($p<.05$). Regarding the relationship between code-mixing and pronunciation learning, in spite of the general positive attitudes toward code-mixing, both proficiency groups actually disapproved of the idea that code-mixing helped improve their English pronunciation. This finding is in line with Chen’s (2013), as her Hong Kong participants also had negative view toward the notion. Also, it seemed clear that Cantonese learners of English, regardless of their English proficiency levels, did not regard code-mixing as a way of learning English pronunciation, because a mixed code generally resulted in a Cantonese accented English, as in this study’s phonological findings, and this accent gave rise to numerous systematic pronunciation problems, as

(3.91 vs. 3.95).
stated by Chan and Li (2010). Second, for responses to learners’ self-rated ability to switch between accents depending on the context, the MP learners regarded themselves as being fairly able to switch between the Cantonese accent and standard pronunciation, although the phonological data of the present study showed otherwise. The MP learners showed negligible differences in pronouncing English tokens across the three tasks indifferent contexts, which means they were actually less able to switch between accents than they believed. Finally, although Chen’s findings (2013) concluded that HKE speakers felt less comfortable about speaking Cantonese without code-mixing, this study revealed that ESL learners of lower proficiency derived more comfort from such a practice. An account for this observation is that the MP participants tended to make more attempts in speaking with standard English pronunciation in code-mixing, according to this study’s quantitative findings, while in fact, they were less able to pronounce ‘correctly’ as shown by their comparatively higher rates of variation in producing the tokens in the code-mixed task.

**Conclusion**

In such a diglossic city as Hong Kong, phonological changes in the pronunciation of English words in Cantonese-English code-mixing are almost unavoidable, since Cantonese speakers of English are habituated to conforming to the phonological system of their native language, Cantonese. Together with typological differences between Chinese and English (Chan and Li, 2000; Chang, 2001), the previous reason explains why Cantonese ESL learners exhibit such an accent in their Hong Kong English.

**Phonological Changes in Different Contexts in Relation to Proficiency**

Taking the learners’ English proficiency levels into account, the findings of this study implied that both HP and MP ESL learners employed phonological adaptation from Cantonese when pronouncing English words in Cantonese utterances. For example, both groups tended to delete the word-final liquid consonant /l/ in ‘oral’ when the word appeared in code-mixing. However, when the context was varied from a mixed code to pure English, learners of higher English proficiency demonstrated a higher accuracy of pronunciation by omitting such errors as lacking a stress pattern in bisyllabic words such as ‘oral’ and ‘paper’. In contrast, the change in context from code-mixing to English did not cause learners of lower proficiency (MP) to restore the phonological features of standard English pronunciation. Nevertheless, HP learners tended to make some common basic mistakes, for example, not releasing the word-final stop-plosive consonant /t/ in the pronunciation of words such as the noun ‘jacket’ and verb ‘present’, even in the contexts of pure English and an isolated list of words. We expected that the higher proficiency level of learners, the better the pronunciation. This tendency was only evident among HP learners’ in the context of an isolated word list when compared to the MP learners.

**Implications for Teaching**

One teaching implication is that English teachers or teachers in the field of English phonetics and phonology in tertiary education can make more pedagogical effort for HP ESL learners in the pronunciation of words at phrasal and sentential levels, since the task with the word list in this study indicated HP learners as the more successful group. For teaching English pronunciation to lower-proficiency ESL learners, special effort is needed in drawing their attention to commonly used words in the higher education context, as pronunciation problems such as monophthongizing diphthongs (e.g., the diphthong /əʊ/ in ‘notes’ becoming a monophthong /ʊ/) were serious, as observed in this study. Moreover, the finding that MP learners were less
able to switch between accents than their self-perceived ability can also draw L2 teachers’ attention to helping lower-proficiency ESL learners to identify their own English pronunciation issues and attempt to remove deviated English due to code-switches in English classrooms.

This study also identified some frequent “pronunciation errors” in contexts other than code-mixing, as those variations were in the English contexts and could be regarded as “pronunciation errors” by other speakers of English. Moreover, these deviances were found in both proficiency groups, meaning that even high-proficiency speakers would be prone to these errors. For instance, speakers tended to monophthongize diphthongs (e.g., /əʊ/ to /ʊ/), devoice voiced consonants (e.g., /z/ to /s/ in ‘size’ and ‘present’), and lengthen unstressed vowel (e.g., /ə/ to /e/ in ‘jacket’). These errors, as observed in the present study, might be due to first-language interference from Cantonese, since this language does not contain diphthongs, voiced consonants, or the schwa. Regardless of the linguistic reasoning behind the causes of such deviances, Cantonese learners should be made more aware of the linguistic similarities and differences between their first language and their second language (English). A practical way to raise this awareness is to implement the teaching of knowledge related to the contrastive paradigms between Cantonese and English. Tertiary education instructors of English for Academic Purposes (EAP) courses in Hong Kong are suggested to at least touch on the topic of Chinese-English contrastive phonology. This act could draw students’ attention to phonological differences between the Cantonese and English and thereby help them prevent or rectify some of the above pronunciation issues.

In terms of attitudes, both proficiency groups of learners generally disregarded the idea that code-mixing improved their English pronunciation, since some of them would not speak with the Standard English pronunciation in Cantonese-English code-mixing. ESL teachers can take this learners’ preference into consideration when designing the pedagogical contents for English lessons, pronunciation training sessions in particular. Nonetheless, more of the lower-proficiency ESL learners hoped to speak with standard pronunciation in code-mixing but were unable to do so. This could explain previous research findings as to why learners with a lower L2 proficiency tended to use L1 to a greater extent in the classroom (Svensden, 2014).

This study correlates learners’ phonological accuracy and willingness to use code-mixing, as we conjecture that lower-proficiency ESL learners speak with their L1 more frequently than code-mixing because they are less able to speak with standard pronunciation of words from the embedded language (i.e., the L2) in code-mixing. However, a possible consequence that might arise would be that these lower-proficiency language learners’ have reduced opportunities to speak their L2 out of the language class, since they are unwilling to use code-mixing that involves inserted words in the L2. It is therefore suggested that ESL teachers can encourage learners to take the initiative to speak their L2 in other classes regardless of whether code-mixing is used, as the lack of authentic use of English has been identified as a problem in English education in Hong Kong, and also in other regions where English is a second or foreign language (Choi and Lee, 2008).

**English Proficiency**

Findings from HP learners’ pronunciation also suggested that attaining a higher proficiency level in learning a second language as reflected by their overall public exam grades do not necessarily mean a more outstanding performance in lexical pronunciation from the second language, in spite of phonological accuracy being one of the important features reflecting oral proficiency (Iwashita et al., 2008). A candidate with an above-average grade in an English subject does not guarantee that he or she would also attain an above-average level in oral proficiency. Upcoming studies related to English phonological features in Hong Kong are, therefore, advised to consider choosing participants’ grades attained in the speaking paper of public exams such as the HKDSE for a more precise indication of oral proficiency, rather than using the results of
the HKDSE English section as an indicator. This will allow for the delineation of target participants for different research objectives. Alternatively, results of international standardized English tests such as IELTS and TOEFL can be used as indicators of learners’ English proficiency in future studies, instead of results from local public exams. It is hoped that this study’s analysis of phonological changes in code-mixing and the other two contexts demonstrated by HP and MP learners will offer guidance to ESL teachers in identifying the types of learner difficulties (Chan and Li, 2010) encountered by ESL learners of different proficiency levels in Hong Kong, and in appropriating various corrective measures to suit the needs of different learners.

Attitudes Toward Code-Mixing in Relation to Proficiency

In the questionnaire results, the overall attitudes of ESL learners toward the use of code-mixing in daily life and in the classroom setting were generally positive, mirroring Chen’s findings (2013) regarding HKE speakers’ attitudes toward code-mixing. Both groups agreed with the naturalness of Cantonese-accented English and its function of reflecting their sense of identity, echoing Lai’s (2010) findings. This mutual view was in line with Grove in his study on Hong Kong English (2009) that ‘some form of mixed-code becomes an identity carrier’, indicating that Cantonese ESL learners’ attitudes toward Cantonese-accented English were more governed by their identification as Hongkongers than the proficiency level they attained or demonstrated. A possible justification is the increasing readiness of the younger generation in accepting localized forms of English (Schneider, 2007), owing to their growing concern and awareness of the importance of locality, possibly exemplified by recent political movements and events in different parts of the world. This finding also validated Jenkin’s (2009) claim that ESL speakers take into consideration their own local identity when speaking a second language. It was also interesting to see that fewer MP learners treated the Cantonese accented English as a symbol of identity than HP learners, even though the MP participants exhibited relatively more features similar to those in Cantonese-accented English across all three tasks in the study. With respect to teaching and learning, both groups of ESL learners preferred teachers using code-mixing in class, which enabled them to learn more effectively. This conclusion can only be applied to the situation for non-English EMI subjects, not English lessons, since learners disliked English teachers using a mixed code. This study anticipates that English teachers will try adopting pure English instruction in English language classes while accounting for the large variety of learners’ demands attributed to their varying English proficiency levels.

Finally, this study attempted to offer insights into the existing literature on second language phonology or localized phonology, adding English proficiency level as a new area of investigation by adopting a research-based approach in examining the Cantonese-accented English of HP and MP learners. It also endeavoured to compare the phonological changes of the two proficiency groups in three contexts—code-mixing, pure English and word lists—and explore the difference in learners’ attitude toward code-mixing by comparing the two proficiency groups. Possible future studies are encouraged to conduct follow-up interviews to acquire additional information from participants about their detailed comments on code-mixing, for example, whether they are always self-conscious of the phonological changes in code-mixing. With an established record of research examining code-mixing, it is hoped that more studies will be conducted in the direction of correlating English proficiency and phonological changes in code-mixing. Furthermore, as participants from the current study were English majors who would become English teachers in the future, or PE majors who would possibly become PE teachers in an EMI school, the phonological changes of these participants might yield significant impact on their students. Combining the findings for the two research questions, we anticipate that studies will emerge to provide implications for teacher education by examining the rates of variation in producing various English words in different contexts demonstrated by two distinctive proficiency groups.
The Authors

Tzi Dong Jeremy Ng graduated with his B.A. in Language Studies (English Major) at the Hong Kong Institute of Education. His main research interests include cross-linguistic phonology and Chinese-English contrastive grammar. Being a native speaker of Cantonese, he has always been interested in the pronunciation of accented English words in Hong Kong. During his undergraduate study at HKIEd, he worked as a student research assistant. He is pursuing M.A. in Linguistics at the University of Hong Kong while serving as a research assistant at the Faculty of Education in The University of Hong Kong.

Department of Linguistics
The University of Hong Kong
Pokfulam, Hong Kong
Tel: +852 93365067
Email: jeremyntd@gmail.com

Hsueh Chu Rebecca Chen is Assistant Professor at the Department of Linguistics and Modern Language Studies in The Education University of Hong Kong. Her chief areas of interest are inter-language phonology, experimental phonetics and computer assisted language learning. She has carried out extensive research on issues of second language learners’ oral fluency and pronunciation, particularly the extent to which accent interferes with intelligibility. She has also studied native and non-native speaker reactions to Chinese-accented speech.

Department of Linguistics and Modern Language Studies
The Education University of Hong Kong
No. 10, Lo Ping Rd., Tai Po, N.T., Hong Kong
Tel: +852 29487376
Email: hsuehchu@eduhk.hk

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Appendix A

Script Sample (With Code-Mixing)

像個大學生，又像個small potato，學統部系好多friend家，有嘅而家喺外國讀書，好happy，有嘅考完oral之後都無見過，都神秘。但不得不提嘅，就像嘅個你明明無動電話number但佢又得著你嘅「舊同學」，無譜，佢會無端端打你，原來佢賣嘅靚新防水、防火、防塵、防臭嘅高科技jacket，仲話家裏嘅女仔好man，女仔就會俾姊妹大讚有taste。我心訝，嘅，明明咩，著住咀嘅呀，就會有好多fans？！嘅個時候，佢會問你著啲啲size，跟住，你會突然醒覺，佢其實係係現錢姐，但係，你想住眼前嘅張紙數社老細嘅買一份你嘅check，再影份住部電腦，嘆息自己做paper既速度仲慢過舊嘅咁嘅RAM，話自己其實係咩應該努力讀書。無奈佢係，當你醒起自己未book場打波，又想落中賣返件cake食，又要今晚十二點前任email，又要去print notes，又要轉班上面最靭嘅水fake咁，原來聽日已經要present唔知邊料report，仲記起明日claim少啲上莊嘅宣傳費......唉，都係抖多陣，起身叫個pizza再算。
Appendix B

Script Sample (English Version)

I’m a university student and also a small potato. But I’ve got many friends in secondary school. Some of them are now studying abroad. How happy! Some mysteriously disappeared after taking their oral exams. And there are always some former classmates who you’ve never got their phone numbers. Still, they can find you out of nowhere. Guess what they want? To sell a hi-tech jacket to you. They would say something like ‘you’ll be more like a man’ if you’re a boy, or ‘your sisters will praise your taste’ if you’re a girl. Wow. If I can get fans after wearing this thing, then I’m already a pop star. They’ll then ask which size you prefer. And you’ll suddenly realize they just want to earn some money. At this moment, you’re looking at the check your boss gave you yesterday. You stare at your computer, feeling that you work more slowly than the RAM of a defected computer. You are thinking whether you should work harder. But life isn’t fair. Because you forgot to book a basketball court. Then you’re hungry and you want a cake. But you need to reply to an email before mid-night and to print notes. But J said something fake to trick you. Oh, you realize you have to present a report tomorrow. Well, you also forgot to claim the expenses for the students’ association. Sigh! You should sleep for a little longer and order pizza later.
Appendix C

Script Sample (Without Code-Mixing)

1. small
2. potato
3. friend
4. happy
5. oral
6. number
7. sell
8. jacket
9. man
10. taste
11. fans
12. size
13. check
14. paper
15. RAM
16. book
17. cake
18. email
19. print
20. notes
21. fake
22. present
23. report
24. claim
25. pizza