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Towards a feature-based L2 pronunciation teaching approach: variations in Hong Kong English and ELF intelligibility

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Abstract: Over the past decades, there has been a significant paradigm shift in L2 pronunciation teaching research, moving away from a native-speaker ideology towards a focus on intelligibility in international communication. ELF intelligibility studies have highlighted pronunciation features crucial for effective international communication. Using Hong Kong English (HKE) as a case of exemplification, this paper illustrates the development of a feature-based, intelligibility-oriented framework for L2 pronunciation teaching by (1) identifying variations in pronunciation features within a local variety and (2) prioritising features based on ELF intelligibility findings and their prominence. The study drew upon recorded interactions of HKE learners/speakers with different English proficiency/education levels (secondary/university students, professionals) ($n = 120$; 240 min), who engaged in a group discussion task. Focusing on segmental features, our analysis categorised key HKE features (individual consonants, initial/final consonant clusters, monophthongs/diphthongs) and arranged them based on their frequency of occurrences. Many of them are either less crucial for intelligibility according to the literature or less prominent on the HKE pronunciation continuum. The paper delineates HKE features deemed 'more' and 'less' important for intelligibility and those that should be the pedagogical focus. It concludes by discussing the application and advantages of an ELF intelligibility-oriented approach in contemporary L2 pronunciation teaching.

Keywords: international intelligibility; Hong Kong English; variation; pronunciation teaching; lingua franca core; intelligibility-oriented approach

以第二語言發音特徵作基礎的教學方法:香港英語變化和英語為共通語的可理解度:在過去數十年,第二語言發音教學研究經歷了顯著的範式轉變,從以母語者為標準轉為著重於國際交流時的可理解度。整體而言,英語為共通語的可理解度研究多集中關注在國際交流時較重要的發音特徵。故此,本文以香港英語為例,展示

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如何發展以發音特徵和可理解度為基礎的教學框架。此通過 (1) 識別本地英語中的發音特徵差異，以及 (2) 根據這些特徵的出現頻率和過往的可理解度文獻來考慮教學重點。本研究邀請了不同英語/教育程度的香港英語學習者和使用者(中學生/大學生、專業人士)參與小組討論和進行語音記錄 ($n = 120$; 240 分鐘)，然後將參與者的英語音段特徵(輔音、開頭/結尾的輔音群、單元音/雙元音)進行分類，並因應其出現頻率進行排列。根據過往文獻，許多這些特徵對於可理解度並非關鍵；只有少許特徵對可理解度有影響，其出現頻率也不高。本研究區分香港英語中「較重要」和「較不重要」的特徵，並指出哪些特徵應該成為教學重點。本文最後討論此框架在當代第二語言發音教學中的應用及優點。

關鍵詞：國際可理解度；香港英語；變化；發音教學；通用語核心；以可理解度為基礎的教學方法

1 Introduction

Over the past decades, the global spread of English has problematised several inter-related issues in applied linguistics: language variation, international intelligibility, and the choice of education models (Kirkpatrick 2020). In the Outer Circle (e.g., India/ Singapore), the emergence of new English varieties has been the focus of World English (WE) research since the 1970s because of the second language (L2) speakers' extensive use of English in postcolonial multilingual societies (Kirkpatrick 2007a). Since the millennium, this research agenda of focusing on language variation has been extended to the investigation of international English use by English as a Lingua Franca (ELF) researchers, particularly in continental Europe (Seidlhofer 2011) and the Association of Southeast Asian Nations (ASEAN) region (Kirkpatrick 2010). As L2 speakers of diverse linguistic and cultural backgrounds are the majority in these contexts, ELF research has highlighted the emergent, dynamic and fluid nature of English use in international communication (e.g., business/academic settings) (Jenkins 2015). Central to both WE and ELF research paradigms is the core principle of linguistic pluralism, which emphasises tolerance of linguistic diversity, preservation of one's cultural identity and mutual understanding in international/intercultural communication (Jenkins et al. 2018; Kirkpatrick 2020).

The development of WE/ELF research has coincided with a major paradigm shift in L2 pronunciation research from adhering to native-speaker (NS) or first language (L1) standard(s) to focusing on intelligibility (Derwing and Munro 2015; Levis 2020). Informed by traditional Second Language Acquisition theories, the nativeness principle 'holds that it is both possible and desirable to achieve native-like pronunciation in a foreign language' (Levis 2005: 370). In contrast, the intelligibility principle suggests that 'learners simply need to be understandable'; it 'recognises

that communication can be remarkably successful when foreign accents are noticeable or even strong' (*ibid.*: 370); it 'treats social variation in accent not as a problem to overcome but as variation to embrace' (Levis 2020: 326).

The application of this latter principle is 'context-sensitive' and 'connected to both speaking and listening' depending on the role of interlocutors and specific sociolinguistic settings (Levis 2018: 34). This paper illustrates the development of a contextualised, feature-based L2 pronunciation teaching framework by considering variations in a specific English variety, i.e., Hong Kong English (HKE), and the intelligibility perspective. Specifically, the study aimed to (1) identify the phonological features of a range of English learners/users in Hong Kong and (2) prioritise these features based on existing ELF intelligibility findings and their prominence in the data. Although previous research has shown that HKE has relatively high intelligibility for international listeners (Kirkpatrick et al. 2008), our study examines a range of HKE speakers with various L1 and L2 features – some of which are particularly crucial for maintaining international intelligibility. More importantly, the proposed feature-based, intelligibility-oriented framework is likely applicable to a wider range of contexts where English is used as an international language.

2 Intelligibility in ELF research

Broadly speaking, intelligibility can be defined as 'the extent to which a speaker's message is actually understood by a listener' (Munro and Derwing 1999: 289). However, its narrow interpretation largely depends on the research foci, theoretical underpinnings and methodological designs (Derwing and Munro 2015; Levis 2018). Specifically, many WE intelligibility studies were informed by Larry Smith's influential framework (known as the Smith paradigm), which suggests that there are three basic levels of intelligibility, namely intelligibility (word/utterance recognition), comprehensibility (word/utterance meaning) and interpretability (meaning behind a word/utterance) (Smith and Nelson 1985). This framework has been subsequently adopted in a wide range of WE studies and also by ELF research, particularly focusing on the notion of international intelligibility, yet with an emphasis on the role of L2 listeners and speakers in international communication (Deterding 2013; Jenkins 2000, 2002). From this perspective, Jenkins's pioneering study (2000) investigated instances of communication breakdown in international interactions among (mainly) L2 interlocutors of different cultural and linguistic backgrounds. She developed what is called the Lingua Franca Core (LFC), which prioritises sets of pronunciation features based on specific features that cause mis-/non-communication and their learnability and teachability (see Table 1 for a summary). Jenkins (2002) argues that the non-core features should be 'considered as

Table 1: A summary of Jenkins's LFC (2000, 2002).

	Core features	Non-core features
Consonants	– Most consonant sounds	– Substitutions of /θ/, /ð/ – Postvocalic (or ‘dark’) /l/
Consonant clusters	– Initial clusters	– Medial/final clusters simplified according to L1 rules of elision.
Vowels	– Vowel length contrasts – /ɜ:/	– Most consistent L2 regional qualities
Suprasegmentals	– Nuclear stress production and placement – Division of a speech stream into word groups	– Weak forms – Connected speech features – Stress-timed rhythm – Word stress – Pitch movement (according to L1 production)

areas in which first language (L1) transfer indicates not “error” but regional accent’ and thus should signify ‘a redefinition of phonological and phonetic error’ for EIL [English as an international language] (i.e., ELF) (97); ‘it is perhaps NSs who need to make receptive adjustments rather than expecting NNSs to alter their production in EIL contexts’ (98). Walker (2010) argues that the LFC is a desirable approach to contemporary L2 pronunciation teaching because it aims at mutual intelligibility, specifically in international communication, takes account of most speakers’ L2 identity, focuses on more teachable (segmental) features, and recognises the greater influence of unexpected segmental sounds on ELF speakers’ understanding.

Indeed, some of the LFC findings are also supported by the functional load (FL) principle, which is used to ‘rank segmental contrasts according to their importance in English pronunciation’, i.e., minimal pair contrasts with a high FL cause more intelligibility problems than those with a low FL (Munro and Derwing 2006: 522). For example, Jenkins (2000) claims that the low importance of substitutions of dental fricatives (e.g., substitution of /θ/ with /f/ and /ð/ with /d/ in ‘think’ and ‘that’) for intelligibility can be explained by their relatively low FL (Munro and Derwing 2006). According to both the LFC and the FL principle, a lack of contrast between /i/ and /ɪ/ (e.g., ‘sheep’ and ‘ship’) is more likely to cause a communication breakdown than pronouncing /f/ for /θ/ (Sewell 2017; see also O’Neal and Latham 2023).

In the ASEAN region, several intelligibility studies have yielded findings consistent with the LFC developed in the European context: they generally confirm the important role of (initial) consonants (/n/, /l/, /ʃ/, /s/, /p/, /t/ and /k/) (Deterding and Kirkpatrick 2006; Rajadurai 2006), consonant clusters (Jeong et al. 2020; Suntornswet 2019), the /ɜ:/ vowel (Deterding and Kirkpatrick 2006) and long-short vowel

contrast (Jeong et al. 2020) in ELF interactions. It is also reported that features such as dental fricative substitution (Deterding and Kirkpatrick 2006; Rajadurai 2006), vowel quality (Deterding 2010; Deterding and Mohamad 2016) and non-reduced vowel (Deterding 2010) do not tend to affect intelligibility. In his monograph, Deterding (2013) discusses the following pronunciation features concerning intelligibility in ELF interactions in Southeast Asia (see Table 2). His data involved participants from Brunei, China, Hong Kong, Indonesia, Japan, Laos, Malaysia, Nigeria, and Taiwan. Deterding argues that while most of his findings are consistent with Jenkins's LFC, those that are not may be specific to Southeast Asia or require further investigation (e.g., Distinction between long/short vowels). Specifically in the Hong Kong context, K. Chan (2020) has confirmed the importance of consonant features such as /l/-/n/ conflation ('relaxing', 'nice') and replacement of /v/ by [w] or [f] ('villagers', 'television') for the understanding of listeners in the Inner, Outer, and Expanding Circles. He also argues that the absence of reduced vowels, use of strong vowels, and merging of long-short vowels do not necessarily lower intelligibility.

Table 2: Pronunciation features concerning intelligibility in Southeast Asian ELF interactions (adapted from Deterding 2013).

	Likely cause misunderstanding	Rarely cause misunderstanding
Consonants	<ul style="list-style-type: none"> – ^aReplacement of consonants (/l/, /r/, /n/, /v/) – ^aOmission of single final consonants (/s/, /d/) – ^aOmission of /l/ and /r/ from initial clusters – ^aH-dropping or insertion 	<ul style="list-style-type: none"> – ^aRealisation of the TH sounds – ^aOmission of /t/ and /d/ from word-final clusters – Lack of aspiration on initial voiceless plosive – ^aChange of vowel quality in a consistent way – ^aLack of vowel reduction – Distinction between long/ short vowels – ^aVariable or unclear word stress
Vowels		
Word stress		
Utterance stress	<ul style="list-style-type: none"> – ^aUtterance stress has important discourse functions but a different role from that expected in most inner-circle varieties 	
Rhythm		<ul style="list-style-type: none"> – ^aUse of syllable-based rhythm may enhance intelligibility
Intonation	– Requiring further research	
Speaking rate	<ul style="list-style-type: none"> – Speaking too fast and sometimes not very loudly 	
Syllable	<ul style="list-style-type: none"> – Missing or additional syllable 	

^aFindings confirming the LFC.

Nevertheless, some empirical studies have revealed findings that differ from or add to the LFC. For example, Rajadurai (2006) suggests that the (excessive) use of glottal stops in Malaysian English has the effect of shortening the preceding vowel and hence affects intelligibility. Suntornsawet (2019) argues that the reduction/omission of unstressed syllables in Thai English (e.g., [bə] in ‘probably’) may cause intelligibility. O’Neal (2015) highlights that although segmental features such as substitutions of dental fricatives are claimed to be less important for intelligibility in the LFC, they can be made ‘conditionally relevant’ to restore intelligibility in some contexts (236). Research has also shown contradictory evidence/recommendations, particularly regarding the significance of suprasegmental features such as sentence stress, word stress and intonation (Dauer 2005; Jeong et al. 2020; Lewis and Deterding 2018). Although word stress was regarded as a noncore feature in Jenkins’s (2000) LFC, she admitted that it was ‘something of a grey area’, as misplaced word stress may affect nuclear stress placement and sound identification, which are crucial to international intelligibility (150). Based on a corpus involving nine Southeast Asian countries, Lewis and Deterding (2018) presented some evidence that word stress may contribute to misunderstandings in ELF interactions. In Jeong et al. (2020), word stress was also found to have a strong effect on the mutual intelligibility between Malaysian and Swedish English speakers.

From this perspective, Walker (2010: 44–45) stresses that the LFC is ‘part of an ongoing empirical description’ and ‘it will evolve as ELF evolves, and as more is learned about the nature of the pronunciation of English as a Lingua Franca’. Although there is still a need to clarify the contradictory findings on the intelligibility effect of some features, Levis (2018) argues that there is ‘enough evidence to make initial guesses of what is important for most English pronunciation features’ (240). He, therefore, proposes an intelligibility-oriented framework, which highlights aspects of pronunciation that are ‘less important’ and ‘more important’ based on existing findings.

3 A feature-based, intelligibility-oriented approach

One application of ELF intelligibility findings to L2 pronunciation teaching was proposed by Kirkpatrick (2007b), who suggests that an ELF intelligibility-oriented teaching approach can be developed based on the ‘acrolect’ (the educated form) of a nativised or local variety of English. This ‘acrolect’ is positioned on a linguistic continuum with the ‘basilect’ (the bazaar or less educated form) at the other end. Furthermore, Sewell (2013) put forward five criteria for evaluating the feature norms

in pronunciation teaching and assessment, which could potentially be developed into an evidence-based approach according to the intelligibility principle: systematicity or consistency of use in intraspeaker terms, distribution in interspeaker terms, teachability, effects on intelligibility and local acceptability. From this perspective, an ELF intelligibility-oriented approach can be developed by identifying features along the pronunciation continuum of a local variety that interfere with international intelligibility and make these features a pedagogical focus in the ELT curriculum. Sewell (2016) argues that this ‘feature-based approach’ is ‘promising’ because it orients pronunciation teaching ‘towards the intelligibility principle rather than the nativeness principle, regardless of whether we see “nativeness” as residing in native-speaker models or local “nativised” ones, as both are seen as too restrictive’ (98).

In the Hong Kong context, English has been widely used in key domains such as the civil service, legislature, judiciary, business and education system since its colonial period (J.Chan 2016). It has been increasingly used in multimedia, such as email, social networking, and SMS (Bacon-Shone et al. 2015). Spoken English is used mainly for external communication with speakers of various linguistic and ethnic backgrounds in international academic and business settings (Wakefield 2021). This corresponds to ELF settings in Europe and the ASEAN region. Given the long history of English development in Hong Kong, considerable research has described typical features of HKE pronunciation (Bolton and Kwok 1990; Deterding et al. 2008; Hansen Edwards 2016a, 2018; Hung 2000; Setter et al. 2010; Sewell and Chan 2010; Sewell 2023), although very few have explored variations within HKE with respect to who speaks it as well as the specific features involved.

In this respect, Sewell and Chan (2010) was one of the few earlier studies that shows how inter-speaker phonological variation within a mini corpus of spoken HKE follows implicational/hierarchical patterns. This work was followed up in Sewell (2023) based on a sample of 17 Hong Kong speakers, further illustrating the compilation of an HKE implicational scale by identifying the co-occurrence of six consonantal features among speakers. Sewell argues that this scale ‘helps to characterise both the “educated” and “broad” [i.e., less educated] poles of the HKE accent continuum’ according to the presence of the target HKE features in speakers’ speech production (61). He discussed the possible explanations for this scale, drawing on linguistic factors (e.g., orders of acquisition) and sociolinguistic perspective on accent variation. Along similar lines, J. Chan (2014) investigated 6 HKE teachers’ production of segmental features according to their frequency of occurrences and discussed the possibility of prioritising these features based on the intelligibility principle. Building upon these previous works, this study aimed to more systematically describe the HKE pronunciation continuum using a larger-scale dataset and develop an intelligibility-oriented teaching framework for L2 English pronunciation.

4 The study

4.1 Objectives

The study consisted of two research objectives (RO):

RO1: To identify the pronunciation features of HKE speakers of different English proficiency and education levels (i.e., secondary students, university students, professionals);

RO2: To prioritise Hong Kong English speakers' pronunciation features for teaching based on existing ELF intelligibility findings and their prominence in the data.

4.2 Participants

The spoken data involved 120 HKE learners/users, who are likely to be positioned across the pronunciation continuum based on their different education/English proficiency levels. They included 60 secondary school students, 40 university students and 20 professionals of different occupations (Appendices 1a–c). These Cantonese-speaking participants broadly represent Hong Kong speakers in different stages of English use and learning. Grades 11–12 students were recruited from three secondary schools, where most students belonged to Band 1, 2, and 3 according to Hong Kong's three-band scale (Band 1=highest academic ability; Band 3=lowest). Associated with these bandings, these schools also adopted different degrees of English-medium instruction (EMI), ranging from full EMI (EMI in English-language and all content-area subjects), partial EMI (EMI in English-language and some content-area subjects), to Chinese-medium instruction (EMI only in English-language subjects with some extended English activities in content-area subjects). In each school, the speeches of 20 students were included. The participants also included 20 university students from each of two Hong Kong universities in various faculties. One of these universities is a traditional prestigious university, which tends to attract students with high academic results (University X). The second offers occupation/profession-related programmes (University Y). Similarly, 20 professionals from a range of occupations were involved. They were part-time Master's degree students in the two universities and professionals from the researcher's network. An important selection criterion for the professionals is that they speak English in their daily workplace situations.

4.3 Data collection

As ELF research mainly centred on L2 speakers' pronunciation in naturally occurring interactional speech contexts, particularly in academic and business settings (Jenkins 2000), the speech data in the present study were based on authentic/semi-authentic English interactions of the various participant groups. The Bands 1–3 senior secondary students from three schools participated in a semi-authentic group discussion task in their own school. This interaction task allowed them to discuss and negotiate with their peers to achieve specific goals in the setting of a meeting (e.g., organising an event, preparing for a talk). The university students and professionals were also invited to participate in the same group interaction task with scenarios suitable for their roles as undergraduate/postgraduate students and professionals. Most interactions took 8 minutes (4 people), depending on the number of participants involved (3 minutes for groups of 3). All the interactions were audio recorded using high-quality professional digital voice recorders.

4.4 Phonemic analysis

Each recorded sample was orthographically transcribed, followed by phonemic transcription, involving two researchers who listened to the extracts independently. These researchers also conducted the discussion tasks and were familiar with the context and the participants' English abilities. All the transcribed vowels and consonants were compared and cross-checked by the two researchers to identify instances of disagreement.¹ The typical HKE features were identified with reference to previous studies on HKE phonology and classified into different shared phonological patterns (individual consonants, initial consonant clusters, final consonant clusters, monophthongs, diphthongs). These categorised features were pronounced inconsistently among and/or within the speech of different speakers, and they were quantified in terms of their frequency of occurrences in the speech data. Only feature categories with over 5 instances of specific HKE pronunciation in the data and relevant to the intelligibility discussion are reported in this paper.

Regular standardisation meetings were held involving a third researcher focusing on formatting and categories/instances of HKE features identified. The final decisions were made by repeated listening and negotiation between the two researchers and the additional researcher.² This method resembles the authentic

¹ The agreement rate among the two researchers for these categories ranged from 98.67 % to 100 %.

² All three researchers were previously trained in English Phonology, one of whom was a university teacher in Phonology. They were all Hong Kong Cantonese speakers familiar with the features of HKE.

speaking and listening situation, where the listeners listen to the audible speech. Hence, the investigation focused on speakers' production of consonants and vowel qualities rather than vowel quantities (long-short vowel contrast), which often require instrumental analysis. For instance, although mergers of /i:/ and /ɪ/ are found to be typical in HKE (Deterding et al. 2008; Hung 2000), the analysis only evaluated the difference in their audible vowel quality, notably the articulation of /i/ and /ɪ/ (also /ɔ/-/ʊ/; /u/-/u/) (J. Chan 2014). Our analysis was mainly at the segmental level (vowels, consonants), which is particularly crucial to international intelligibility (Jenkins 2000, 2002; Deterding 2010; 2013). The intelligibility of suprasegmental features such as sentence stress, word stress and intonation is controversial in the literature (Dauer 2005; Jeong et al. 2020; Lewis and Deterding 2018) and requires further investigation.

The analysis led to the construction of an HKE pronunciation continuum based on the prominence of HKE features³ in the dataset rather than focusing on individuals' pronunciation. Although participants with different roles and English abilities were involved, it does not mean that the English proficiency level of an individual in a specific group was necessarily higher than in another group. Further analysis was conducted to reveal the presence/absence of specific HKE features in individuals' speech production. The evaluation was based on whether individual speakers produced at least one instance of each identified HKE feature regardless of their frequency in their own speech. This resembled Sewell's (2023) proposal of using the implicational scaling technique to investigate HKE variation. The elicited HKE features were subsequently prioritised for ELT by comparing them with the ELF intelligibility findings: HKE features that are more prominent in the data and more likely to impede international intelligibility should be given a higher priority in pronunciation teaching. The findings section below also presents a broad comparison of HKE features produced by different groups for illustrative purposes. However, it is acknowledged that the comparison may be limited due to the small number of instances for some features and the more complex backgrounds of certain participant groups, such as professionals with diverse educational backgrounds and language use experiences, as well as university students with mixed academic abilities. The development of one's pronunciation is also a complex process involving a wide

³ It should be noted that the HKE phonology consists of features of Inner Circle varieties (see Hung 2000; Kirkpatrick et al. 2008), particularly Received Pronunciation because of Hong Kong's colonial history and the prevalence of British English in teaching materials (J. Chan 2020). Due to America's economic power and entertainment industry, HKE is also increasingly influenced by American English (Hansen Edwards 2016b). These features also form part of the HKE pronunciation continuum. Nevertheless, this paper only reports on features inconsistently pronounced in the speech data and those relevant to ELF intelligibility.

range of factors including age, motivation, language use experience and exposure, and cognitive abilities (Derwing and Munro 2015).

5 Findings

5.1 R01: prominence of HKE features

5.1.1 Consonants

Our analysis yielded variations in HKE features in terms of (1) their prominence in the whole dataset (percentages of specific feature production among all instances; see Figure 1 for the consonantal features) and (2) the percentages of speakers who produced (at least one instance of) these features (Table 3). For the case of HKE consonants, both analyses yielded a similar pattern. This indicates that most of the HKE speakers in our data (over 90 %), to some extent, produced features such as devoiced /z/, /l/-vocalisation/deletion, /ð/ substitution, variation/deletion of final /d/, /t/, /p/ and /k/, and /v/ substitution but not necessarily every time. This may also reflect their degree of difficulties in production, i.e., the higher percentages of the features in the figure/table (/z/, dark /l/, and /ð/), the more unlikely (or challenging) the features are to be produced. Some less frequently occurring features (e.g., /n/-/l/ conflation, the substitution of /r/ by [w]) were more likely found among the Band 3 students, who presumably have a relatively lower academic or English proficiency level. However, the reason for the prominence of /r/ substitution among students at University Y is unclear. Alternatively, /θ/ substitutions were less commonly produced by the students at both universities (particularly University Y), probably due to their greater awareness of this feature as they progressed through the education system. Details of each feature according to their frequency of occurrence are discussed below (see Appendices 2–6).

/z/: The devoicing of voiced consonants is a typical feature of HKE (Hung 2000; Setter et al. 2010). The most common feature is the realisation of the voiced /z/ (94.1%) as a voiceless [s] ('these'), and this feature is consistent in any position of a word (initial/medial/final).

Dark /l/: /l/-vocalisation or deletion is another frequently-occurring HKE feature (90.6 %). In the former case, the dark /l/ was replaced by a vowel ('will' [u]), whereas in the latter case, it was often deleted when positioned after a back vowel ('all') (see also Deterding et al. 2008; Hung 2000). Vocalisation of dark /l/ is also common in other L1/L2 English varieties (Deterding and Kirkpatrick 2006).

TH: The L1 pronunciation of 'th' (in spelling) mainly consists of /θ/ ('think') and /ð/ ('they') depending on the words and consonant positions. Consistent with previous

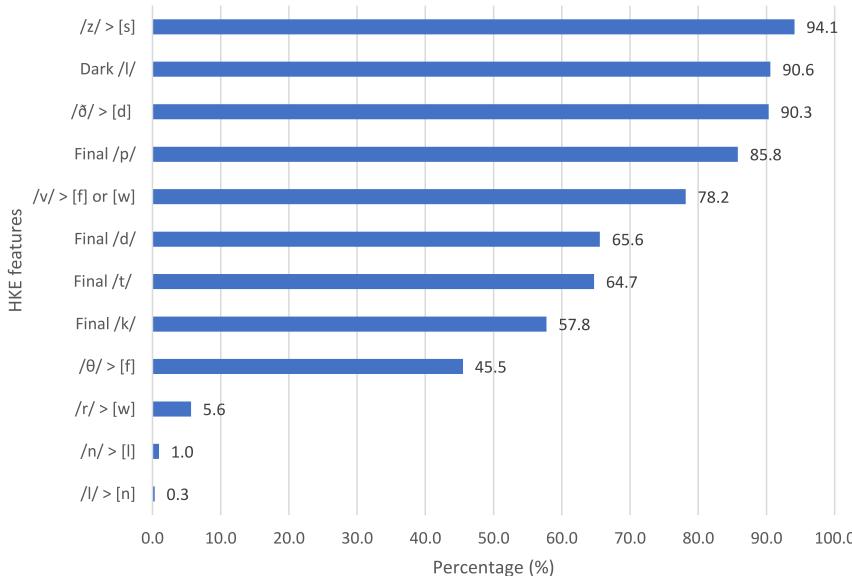


Figure 1: Prominence of HKE consonants.

Table 3: Percentages of speakers with (at least one instance of) HKE consonants.

	Band 1	Band 2	Band 3	University X	University Y	Professionals	Overall
/z/ > [s]	100	100	100	100	100	100	100
Dark /l/	100.0	100.0	100.0	100.0	100.0	100.0	100.0
/ð/ > [d]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Final /t/	100.0	95.0	100.0	100.0	100.0	100.0	99.2
Final /p/	100.0	100.0	100.0	94.7	85.7	86.7	94.9
Final /d/	100.0	89.5	94.1	100.0	89.5	95.0	94.8
/v/ > [f] or [w]	75.0	100.0	94.4	100.0	100.0	100.0	94.7
Final /k/	100.0	84.2	88.9	90.0	94.7	85.0	90.4
/θ/ > [f]	95.0	85.0	100.0	55.0	20.0	80.0	72.5
/r/ > [w]	15.0	18.8	40.0	20.0	90.0	20.0	34.5
/n/ > [l]	0.0	5.3	25.0	0.0	0.0	20.0	8.4
/l/ > [n]	5.0	0.0	10.0	5.0	5.0	0.0	4.2

research (Bolton and Kwok 1990; Deterding et al. 2008; Hansen Edwards 2018; Hung 2000), it is common that HKE speakers substituted voiced /ð/ with [d] ('those') (90.3 %). Substitution of voiceless /θ/ with [f] was less prominent ('think') in the overall data (45.5 %), but it was occasionally produced by many HKE speakers (72.5 %). This may

indicate their awareness of the L1 pronunciation, but they pronounced it inconsistently. Substitution of voiceless /θ/ for the 'th' sound in words beginning is common in the ASEAN region, but it may be pronounced differently in different varieties ([t] in Singapore/Malaysia English, [s] in China English) (Deterding and Kirkpatrick 2006).

Final consonants: Word final consonants such as final /p/, /d/, /t/, and /k/ were often pronounced differently by HKE speakers from those of L1 varieties (e.g., RP) (Setter et al. 2010). Specifically, these final consonants were frequently found to have been unreleased ('shop', food', 'not', 'back') or omitted ('about'), and in very few cases, /d/ was substituted by [t] ('workload'). It is likely that the speakers were aware of these final sounds but were unable to or did not pronounce them as they are absent in the Cantonese (their L1) phonology. Overall, variations or omissions of final /p/ (85.5 %) were more prominent HKE features than /d/ (65.6 %), /t/ (64.7 %) and /k/ (57.8 %), but they are present to some extent in most participants' speech (>90 %).

/v/: Another prominent example of devoiced consonants is /v/ (78.2 %), which was produced by most participants (94.7 %). Hung (2000) hypothesised that this phoneme is virtually non-existent in HKE and is phonetically realised as [w] at the onset of a stressed syllable but as [f] at the beginning of an unstressed syllable. His hypothesis is generally supported in our data in that /v/ in words such as 'view' was pronounced as [w], whereas it was produced as /f/ in words such as 'heavy'. Nonetheless, there were also cases where /v/ at the onset of a stressed syllable was substituted with [f] (rather than [w]). In addition, /v/ was frequently replaced by /f/ at the coda of syllables. The variations in the production of /v/ may be related to the participants' English proficiency level or awareness of the L1 pronunciation. The pronunciation of [f] is also arguably more similar to that of /v/ than [w].

/r/, /n/ and /l/: Although substitutions of /r/ by /w/ (5.6 %) ('really'), /n/ by /l/ (1.0 %) ('nice') and /l/ by /n/ (0.3 %) ('lesson') in onset syllables were reported to be common HKE features (Bolton and Kwok 1990; Hung 2000; Setter et al. 2010), they only accounted for relatively small proportions in the data (cf., Deterding et al. 2008). There were relatively more participants who featured /r/-/w/ substitution (34.5 %). In Cantonese, /r/ is absent and may be replaced by a similar existing consonant /w/. Despite the presence of /n/ and /l/ in Cantonese, they are sometimes interchangeable for some Hong Kong speakers when they speak Cantonese.

5.1.2 Initial consonant clusters

Our analysis has identified a list of HKE initial consonant clusters (Figure 2), yet they only contributed to a small proportion of the data (cf., Deterding et al. 2008; Setter et al. 2010). They included simplifications or variations of /tr/ (25.0 %) ('train'), /pr/ (23.0 %) ('pressure'), /pl/ (22.2 %), ('plan'), /kl/ (20.3 %) ('class'), /fr/ (16.1 %) ('friend'), and /br/ (12.5 %) ('breakfast'). Indeed, most of these features were only present in less

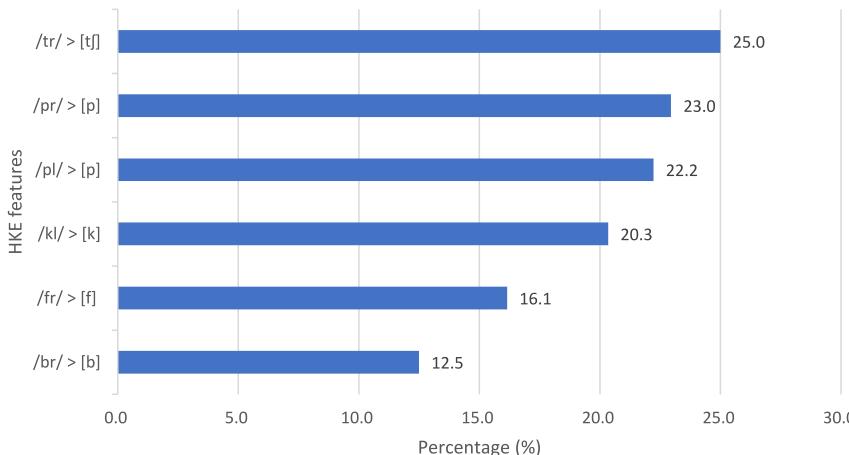


Figure 2: Prominence of HKE initial consonant clusters.

than 25 % of the sample population (Table 4), except for /pr/ (36.6 %). All these HKE initial consonant clusters involved /l/ or /r/ as the second sound, which was sometimes omitted or pronounced incompletely. Some participants in the data also simplified /tr/ to [tʃ]. Among the six participant groups, several categories of consonant cluster simplification were more common among the Band 3 students (e.g., /fr/, /kl/, /tr/) and professionals with diverse backgrounds (e.g., /pr/, /fr/, /pl/).

5.1.3 Final consonant cluster

Final consonant clusters do not exist in Hong Kong speakers' L1 and are often simplified. As this simplification also frequently occurs in connected speech in an utterance, our analysis of consonants and consonant clusters took account of pauses, and vowels and consonants in the previous/following words. As can be seen in

Table 4: Percentages of speakers with (at least one instance of) HKE initial consonant clusters.

	Band 1	Band 2	Band 3	University X	University Y	Professionals	Overall
/pr/ > [p]	20.0	31.3	20.0	22.2	37.5	77.8	36.6
/fr/ > [f]	28.6	20.0	40.0	17.6	15.4	41.7	25.0
/kl/ > [k]	25.0	33.3	57.1	20.0	12.5	0.0	24.2
/pl/ > [p]	12.5	33.3	14.3	0.0	0.0	40.0	14.3
/tr/ > [tʃ]	0.0	25.0	40.0	0.0	0.0	12.5	13.3
/br/ > [b]	12.5	0.0	^a N/A	0.0	22.2	25.0	12.5

(^aFeature not occurring in the sub-dataset).

Figure 3, many frequently occurring final consonant clusters in our HKE data belonged to this category. These features also appeared in most participants' speech production (Table 5).

The symbol '+C' in the figures indicates that the final consonant clusters were followed by another consonant (including that at the beginning of the following word). The speakers often omitted the middle consonant(s) in this cluster of three (or more) consonants. They include /sk/+C (93.3 %) ('ask you'), /nd/+C (89.0 %) ('stand behind'), /st/+C (88.0 %) ('first step'), /ŋk/+C (78.5 %) ('think so'), /nt/+C (77.2 %) ('different people'), /kt/+C (67.8 %) ('products'), /ft/+C (62.5 %) ('raft building'). Two prominent HKE final consonant clusters that do not belong to this category (i.e., with less than 3 consonants) are simplifications of /nd/ to [n] (88.0 %) ('friend') and /ŋk/ to [n] (50.2 %) ('think'), where the final consonant was often missing (cf., Deterding et al. 2008). There is a lack of a clear pattern in the differences among the six participant groups, although certain final consonant clusters (e.g., '/kt/ + C', '/ŋk/') appear to be less commonly found among the Band 3 students. A possible explanation is the relatively low occurrence of these features in the sub-datasets.

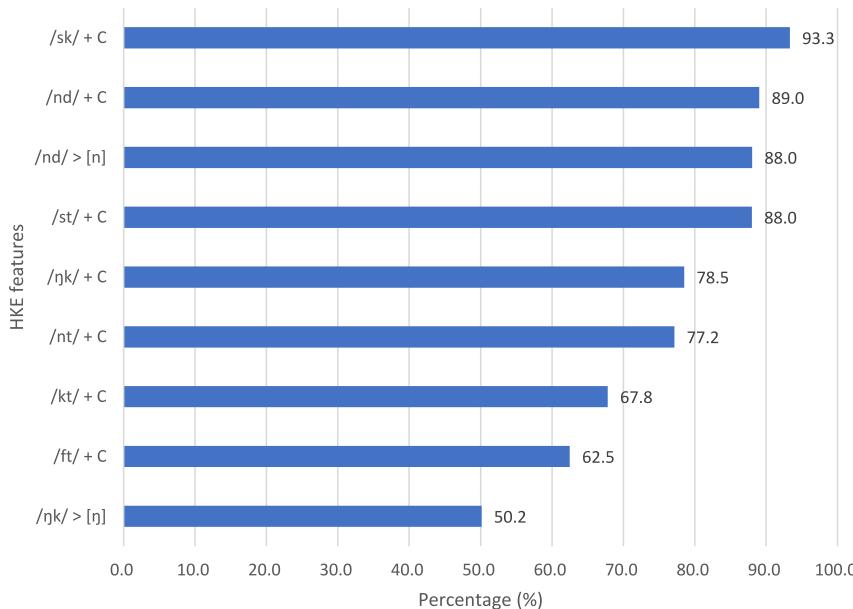


Figure 3: Prominence of HKE final consonant clusters.

Table 5: Percentages of speakers with (at least one instance of) HKE final consonant clusters.

	Band 1	Band 2	Band 3	University X	University Y	Professionals	Overall
/nd/+ C	100.0	100.0	94.4	100.0		100.0	99.1
/nd/> [n]	100.0	100.0	100.0	95.0	95.0	100.0	98.2
/nt/+ C	100.0	75.0	100.0	100.0	94.7	82.4	92.1
/sk/+ C	100.0	0.0	^a N/A	^a N/A	100.0	100.0	91.7
/st/+ C	86.7	100.0	93.8	61.5	93.8	93.8	88.9
/ŋk/+ C	87.5	100.0	84.2	70.6	88.2	94.1	87.6
/kt/+ C	81.8	87.5	33.3	77.8	100.0	75.0	80.5
/ŋk/> [n]	73.3	88.2	50.0	80.0	86.7	82.4	76.3
/ft/+ C	0.0	100.0	^a N/A	^a N/A	100.0	50.0	60.0

(^aFeature not occurring in the sub-dataset).

5.1.4 Monophthongs

Figure 4 displays the HKE monophthongs identified, which are consistent with previous studies on HKE phonology (Bolton and Kwok 1990; Deterding et al. 2008; Hung 2000; Setter et al. 2010). Interestingly, although most of them have a relatively low overall percentage, they were present in most participants' speech (Table 6). Almost all the participants occasionally produced /æ/-/e/, /ɪ/-/i/ and /ɒ/-/ɔ/ mergers and

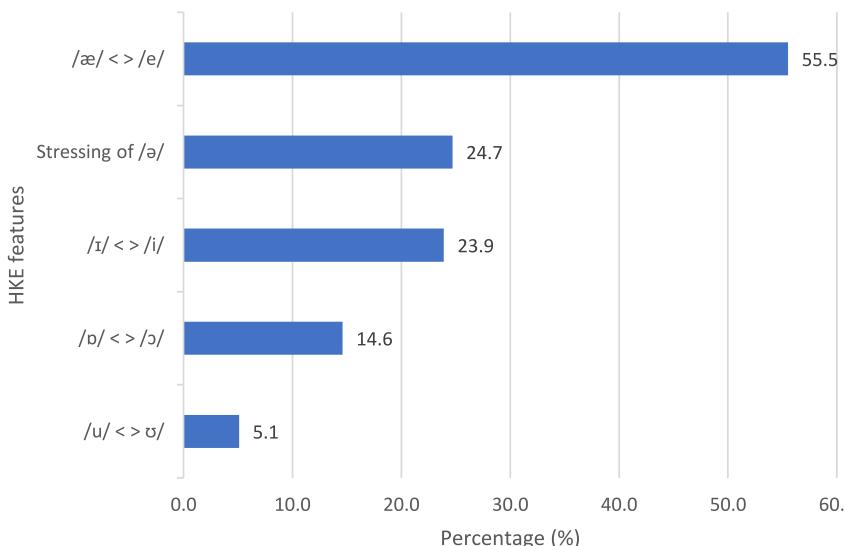
**Figure 4:** Prominence of HKE monophthongs.

Table 6: Percentages of speakers with (at least one instance of) HKE monophthongs.

	Band 1	Band 2	Band 3	University X	University Y	Professionals	Overall
Stressing of /ə/	100.0	100.0	100.0	100.0	100.0	100.0	100.0
/ɪ/ < /i/	100.0	100.0	100.0	100.0	100.0	100.0	100.0
/æ/ < /e/	100.0	100.0	100.0	100.0	95.0	100.0	99.2
/ɒ/ < /ɔ/	95.0	95.0	100.0	95.0	95.0	75.0	92.5
/u/ < /ʊ/	45.0	47.1	65.0	80.0	80.0	75.0	65.8

stressing of unstressed syllables (>90 %). This may indicate their awareness of these features according to L1 norms. Interestingly, /u/-/ʊ/ mergers were more commonly found among the university students and professionals for unknown reasons.

Mergers of /æ/ and /e/: This is the only feature in this category with over 50 % frequency of occurrences (55.5 %). In the data, there is a much higher tendency that /æ/ was shifted towards the more closed and fronted /e/ ('rational') (3036/3041 instances of this HKE feature) than vice versa ('better'). This is probably because only /e/ (but not /æ/) is present in Cantonese.

Mergers of /ɪ/ and /i/: The study considered audible differences in vowels and, thus, only focused on the contrast between /ɪ/ and /i/ regarding vowel quality. Although this is a commonly recorded HKE feature in the literature, it has a relatively low frequency of occurrences in the data (23.9 %). The majority of the /ɪ/-/i/ mergers were a shift from /ɪ/ to /i/ ('this') (2374/2384) rather than one shifting from /i/ to /ɪ/ or to a sound between /ɪ/ and /i/ ('need').

Mergers of /ɒ/ and /ɔ/ and of /u/ and /ʊ/: As compared to the previous two monophthong features, merging between /ɒ/ and /ɔ/ ('top', 'important') (14.6 %) and between /u/ and /ʊ/ ('to', 'good') (5.1 %) was found to be less prominent among the HKE speakers. Among all the HKE monophthongs, there were relatively fewer participants featuring /u/-/ʊ/ mergers (65.8 %).

Stressing of unstressed syllable /ə/: Most L1 English varieties have a stress-based rhythm consisting of stressed and unstressed syllables, and the unstressed syllables tend to be realised as schwa (/ə/). In contrast, L2 varieties in many places, such as Hong Kong and Singapore, are perceived to adopt a syllable-based rhythm, in which these unstressed syllables are often stressed (Deterding 2010, 2013; Setter et al. 2010). Our findings generally confirm the existence of this HKE feature: this feature is present in all participants' speech, but /ə/ is not always stressed in the unstressed syllables (24.7 %). The HKE continuum may reflect different degrees of syllable-based and stress-based rhythm depending on individuals. When /ə/ was stressed, it was sometimes pronounced as full vowels such as [ɔ] ('condition'), [ə] ('teenagers'), [a] ('popular'), [ʌ] ('museum'), [u] ('today'), [ou] ('provide') and [e] ('adventure').

5.1.5 Diphthongs

Different forms of diphthong reduction/variation were identified in our analysis, and they often occurred when followed by certain consonants (cf., Setter et al. 2010) (Figure 5). In order of their prominence in the data, these diphthong-consonant combinations included /eɪl/ (100 %), /eɪk/ (97.1 %), /aɪk/ (95.3 %), /oʊn/ (85.6 %), /eɪm/ (74.4 %), /aɪt/ (70.9 %), /oʊm/ (64.9 %), /aʊt/ (55.8 %), /eɪm/ (35.4 %), /ɔɪm/ (25.3 %) and /aɪm/ (22.1 %). This pattern is similar to the proportion of speakers producing them (Table 7). Clear inter-group variation patterns could not be identified for most diphthong categories. One observable pattern, however, is the absence or relatively low occurrence of certain HKE diphthongs (e.g., /eɪm/, /oʊn/, /oʊm/, /eɪm/, /ɔɪm/, /aɪm/) among the students at both universities (except for /oʊm/ among University Y students). Similarly, none of the professionals simplified /oʊm/ in the data, while the simplification of /eɪm/ was more common among the Band 3 students.

Reduction of /eɪ/ to /ɪ/ or /e/: Reduction of diphthongs in syllables ending in [l], [k] and [n] were more common than those ending in [m]. The variation depends on the diphthong-consonant combination in specific words. For instance, /eɪ/ was often

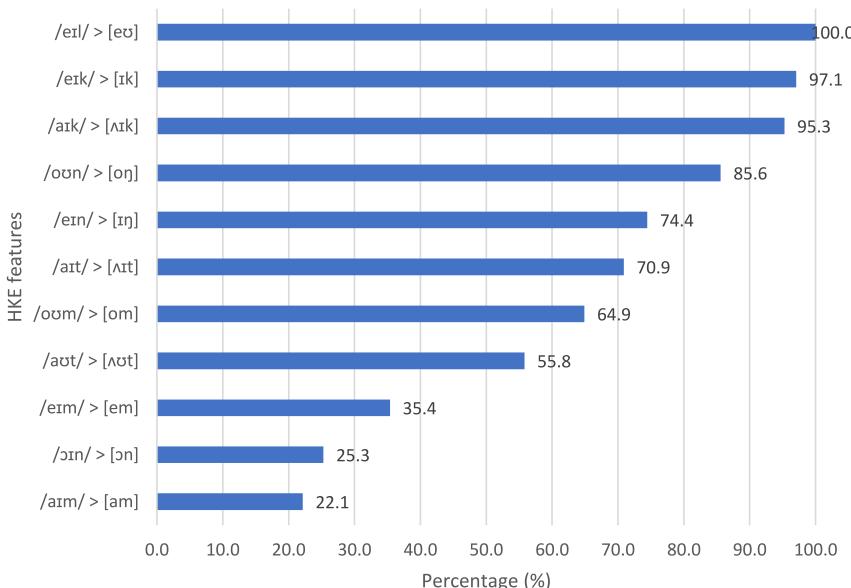


Figure 5: Prominence of HKE diphthongs.

Table 7: Percentages of speakers with (at least one instance of) HKE monophthongs.

	Band 1	Band 2	Band 3	University X	University Y	Professionals	Overall
/eɪl/ > [eʊ]	100.0	100.0	^a N/A	100.0	100.0	100.0	100.0
/erk/ > [ɪk]	100.0	100.0	100.0	85.7	100.0	100.0	98.4
/ɑrk/ > [ɑrk]	90.9	100.0	85.7	93.8	100.0	100.0	96.0
/eɪn/ > [ɪn]	87.5	83.3	100.0	33.3	66.7	100.0	79.1
/aɪt/ > [ɪt]	85.7	28.6	85.7	85.7	81.8	86.7	78.7
/oʊn/ > [oŋ]	100.0	92.3	91.7	53.8	71.4	100.0	85.3
/aʊt/ > [ʌt]	85.7	92.9	60.0	60.0	42.9	60.0	67.1
/oʊm/ > [om]	100.0	75.0	75.0	0.0	75.0	0.0	66.7
/eɪm/ > [em]	42.9	33.3	80.0	0.0	0.0	44.4	35.1
/ɔɪn/ > [ɔŋ]	42.9	55.6	33.3	0.0	11.1	28.6	30.8
/aɪm/ > [am]	40.0	42.9	44.4	0.0	0.0	28.6	25.9

(^aFeature not occurring in the sub-dataset).

pronounced as [ɪ] in syllables closed by [k] ('take') and, in those ending with [n], [eɪm] was replaced by [nɪ] ('change'). In other /eɪ/ syllables with [l] and [m] endings, /eɪ/ was reduced to /e/ ('female', 'game'). Particularly, the dark /l/ in /eɪl/ was always vocalised ('fail' [eu]). /eɪ/ in open syllables was retained ('may').

Variation of /aɪ/ and /au/: When pronouncing the diphthongs /aɪ/ and /au/, the HKE speakers frequently replaced /a/ with [ʌ] if the diphthongs were followed by final voiceless oral stops such as [k] ('like') and [t] ('quite'). There were few instances where /aɪm/ was reduced to [am] ('time').

Variation of /ou/ and /ɔɪ/: Similar variation/reduction patterns were also identified for HKE speakers' production of /ou/ and /ɔɪ/. For example, the second vowel in these diphthongs was sometimes omitted when followed by [m] ('homework' [om]) and [n] ('point' [ɔn]). Alternatively, /ou/ followed by /n/ tended to be reduced and modified to [oŋ] ('phone').

5.2 RO2: prioritising features for L2 pronunciation teaching

RO2 sought to prioritise these pronunciation features based on the relevant intelligibility findings, functional load principle and prominence of specific features in the data. According to Levis (2018), an intelligibility-based teaching approach emphasises three main dimensions, namely, (1) features that are likely to promote intelligibility, (2) the needs of the learners and (3) the use of techniques that are most likely to promote learning. Our discussion corresponds to the first dimension, as the other two require further investigation into specific learning/teaching contexts. It builds

upon Levis's framework, which highlights less/more important segmental features and is contextualised by considering the HKE pronunciation continuum.

In other words, pronunciation features that hinder international intelligibility and are more prominent in the data should be considered 'more important' for pronunciation teaching in Hong Kong and vice versa. It should be noted that the purpose of our discussion is mainly to showcase how this feature-based approach can be developed based on empirical evidence. The results are subject to updates on the ongoing development of intelligibility research and the corresponding findings. There is also an array of factors that may affect listeners' perceptions, including familiarity with accents, familiarity with speech topics, cultural expectations, attitude and motivation and the listeners' proficiency and linguistic awareness (Yan and Ginther 2017). In the ELF context, Reithofer (2020: 289) argues that having 'very specific and in-depth knowledge of the topic' is more crucial than other factors, such as listeners' familiarity with the speaker's accent, background knowledge and English proficiency. O'Neal (2024) also suggests the loss of intelligibility due to a phonemic substitution can be supplemented through contextual information. As this study primarily focused on HKE speakers' production in relation to existing research on international intelligibility, the prioritisation of features serves only as a starting point for pronunciation teaching. L2 learners should also develop the ability to employ various strategies (e.g., communication/accommodation strategies, see Walker 2010) to communicate effectively with speakers from diverse cultural and linguistic backgrounds and with different language-use experiences.

5.2.1 Consonants

Intelligibility research has suggested that all consonant sounds are important, except for 'th' substitutions and 'dark' /l/ (Deterding 2010, 2013; Deterding and Kirkpatrick 2006; Jenkins 2000). These less important HKE features are common in ELF interactions both in Europe and the ASEAN region (including Hong Kong). It is also suggested that initial consonants and those with a higher FL are more important for maintaining understanding (Brown 1988; Levis 2018; Munro and Derwing 2006; Sewell 2017). In contrast, medial (individual) consonants between vowels and devoicing of final consonants are less important (e.g., /z/-/s/ in HKE); many L1 speakers also do not fully voice stops at word ends in any environment (Deterding 2013; Levis 2018).

From this perspective, the majority of the prominent HKE consonants (deletion/vocalisation of dark /l/, substitution of /ð/ by [d], substitution of /θ/ by [f]) do not necessarily impede intelligibility (Table 8). This accords with previous findings that HKE is generally intelligible to international audiences (Kirkpatrick et al. 2008). Although /z/ was frequently devoiced to [s] in our HKE data, this sound is often

Table 8: Priorities in HKE consonants.

More important	Less important
- ^a Higher FL (/f/-/v/, /n/-/l/)	- ^a Lower FL (/θ/-/f/, /ð/-/d/)
- Initial consonants (/z/, /r/, /v/, /n/, /l/)	- Dark /l/
	- Close approximations to core consonant sounds, if not confused with other sounds
	- Medial consonants between vowels
	- Devoicing of final consonants (/z/, /v/)

^aSee Brown (1988) for the full list of FL contrasts.

located in the final position (rather than initial) due to the low frequency of words beginning with /z/. Subsequently, priorities in teaching HKE should be given to consonantal contrasts with a higher FL (/f/-/v/, /n/-/l/) and initial consonants (/z/, /r/, /v/, /n/, /l/). Nevertheless, some of these features are not that common among HKE speakers (initial /r/, /n/, /l/). Deterding (2013) reported instances of miscommunication caused by missing final consonants (/s/, /z/, /v/, /t/, /d/, /p/, /k/), but most of them accompanied other contributory factors. As HKE speakers tend to vary (rather than delete) these consonants in word-final positions, the extent to which these variations (e.g., unreleased plosives) affect intelligibility may require further investigation.

While Levis (2018) argues that aspiration following initial voiceless /p/, /t/ and /k/ are crucial for intelligibility (also Jenkins 2000, 2002), these features are often found in other Southeast Asian English varieties but rarely in HKE. In Deterding (2013), however, there were few instances of misunderstanding caused by a lack of aspiration on initial voiceless plosive among ELF speakers in Southeast Asia. Deterding proposes that this feature could be an emerging norm in the region.

5.2.2 Consonant clusters

Initial consonant clusters are especially important for intelligibility, particularly if the words begin with a stressed syllable (Deterding 2013; Jenkins 2000, 2002; Jeong et al. 2020; Levis 2018) (Table 9). In our speech data, several initial consonant clusters were sometimes simplified (/tr/, /pr/, /pl/, /kl/, /fr/, /br/) by the HKE speakers, and should, hence, be the foci in the English classroom. All of these clusters consist of either /r/ or /l/ in the second position, which, according to Deterding (2013), is a major cause of misunderstanding in ELF interactions in Southeast Asia.

Some final consonant clusters are crucial for intelligibility, especially when they are the placement of inflectional endings (–s/’s and –ed endings), but medial consonant clusters tend to be less important because they can be easily re-syllabified into

Table 9: Priorities in HKE consonant clusters.

More important	Less important
– Initial consonant clusters	– Complex final consonant clusters, including those in connected speech (in clusters of three consonants, /pt/+C, /sk/+C, /nd/+C, /st/+C, /ŋk/+C, /tr/, /pr/, /pl/, /kl/, /fr/, /br/)
– ‘-s/-s’ and ‘-ed’ endings	– Some final consonants in final consonant clusters (/nd/) – Medial consonant clusters

different syllables (‘nt’ in ‘painting’) (Levis 2018). Nevertheless, it is permissible that some complex final consonant clusters are simplified according to L1 English rules of syllable structure (Deterding 2010, 2013; Jenkins 2000, 2002). One example is the omission of the medial consonant in clusters of three consonants (‘scripts’), and this also applies to those in connected speech when a final two-consonant cluster is followed by another word beginning with a consonant. This feature of connected speech was frequently found in our HKE data. Deliberate attempts to pronounce the medial consonant may not be necessary as they may make the word less intelligible or affect speech fluency. Deterding (2010) argues that the deletion of final consonants in final clusters (/t/, /d/) is common in Southeast Asia (and L1 varieties) and may potentially be part of the regional standard (also Hansen Edwards 2016a). This may apply to the simplified final consonant clusters [nd] in HKE.

5.2.3 Vowels

Table 10 summarises areas of HKE vowels that are more or less important in pronunciation teaching according to previous intelligibility findings and the concept of FL. There have been inconsistent, inconclusive findings about the impact of vowel variations on intelligibility. While Jenkins (2000, 2002) suggests that vowel length contrasts are particularly important, there is little evidence that this would cause misunderstanding in Deterding (2013). Alternatively, Brown (1988) has ranked different FL vowel contrasts according to their importance. Given the inconsistent and inconclusive evidence, it seems safer at this stage to prioritise teaching features with the potential to cause misunderstanding. For example, as the vowel pairs /e-æ/ and /i:-ɪ/ have a higher FL than /u:-ʊ/ and /ɔ:-ɒ/ and have a higher frequency of occurrences in the HKE data, they should have a higher priority in learning/teaching. Levis (2018) also argues that distinctions in which vowels have merged in certain varieties (/ɔ:-ɒ/) are less important for intelligibility. In fact, the pedagogical foci of most of these distinctions in HKE can be on the contrasts between long and short

Table 10: Priorities in HKE vowels.

More important	Less important
<ul style="list-style-type: none"> - ^aHigher FL (/e-æ/, /i:-ɪ/) - Maintenance of vowel length contrasts (e.g., between ‘<u>live</u>’ and ‘<u>leave</u>’, /eɪk/ > [ɪk], /eɪn/ > [ɪn], /əʊn/ > [oŋ], /əʊm/ > [om], /eɪm/ > [em], /ɔɪn/ > [ɔŋ], /aɪm/ > [am]) - Vowels in stressed syllables 	<ul style="list-style-type: none"> - ^aLower FL (/u:-ʊ/) - Distinctions in which vowels have merged in certain varieties (/ɔ:-ɒ/)
	<ul style="list-style-type: none"> - L2 regional qualities except for /ɜ:/, if consistent (/eɪl/ > [eʊ], /aɪk/ > [ʌɪk], /aɪt/ > [ʌɪt], /aʊt/ > [ʌʊt]) - Production of schwa in unstressed syllables (/ə/ in ‘<u>condition</u>’) - Distinctions in unstressed syllable quality, e.g., between /ə/ and /ɪ/ in ‘<u>result</u>’

^aSee Brown (1988) for the full list of FL contrasts.

vowels (e.g., between ‘live’ and ‘leave’), which are particularly crucial according to ELF intelligibility findings. According to Walker (2010), the importance of long-short vowel contrasts also applies to diphthongs, such as those in HKE that are often reduced (e.g., /eɪk/ > [ɪk], /eɪn/ > [ɪn], /əʊn/ > [oŋ], /əʊm/ > [om], /eɪm/ > [em], /ɔɪn/ > [ɔŋ], /aɪm/ > [am]). Since it is generally agreed that most L2 regional qualities (if consistently pronounced) do not affect intelligibility (Deterding 2013; Jenkins 2000), several HKE diphthongal features in our data are likely acceptable (e.g., /eɪl/ > [eu], /aɪk/ > [ʌɪk], /aɪt/ > [ʌɪt], /aʊt/ > [ʌʊt]).

Another area of vowel production concerns the pronunciation of unstressed syllables. Deterding (2010) suggests that stressing unstressed syllables in di-/multi-syllabic words (/ə/ in ‘condition’) is common in many L2 English varieties and may enhance intelligibility in international communication. From a teaching and learning perspective, while L2 learners may need to learn to recognise the presence of schwa as a marker of unstressed syllables (particularly if the prospective interlocutors are L1 speakers), they need not produce schwa in all places (Levis 2018). When producing an utterance, what is important for L2 speakers is to be able to identify key words (or syllables) in the stream of speech and to lengthen the stressed syllables.

6 Summary and implications

Using HKE as a case of exemplification, the paper has showcased how a feature-based, ELF intelligibility-oriented framework can be developed by (1) identifying

pronunciation variations in the local variety and (2) prioritising these features based on existing ELF intelligibility findings and their prominence within the variety. It considers Hong Kong as a context where English is used as an international language involving interlocutors of different cultural and linguistic backgrounds and, therefore, maintaining international intelligibility should be the main learning/teaching goal. This provides insights for wider contexts to adopt a similar developmental process for an intelligibility-oriented approach to teaching English as an international language.

As pronunciation teaching should consider different contextual factors such as institutional requirements (e.g., curricula/assessment), students' individual needs, and existing classroom practices, the application of this approach may have several significant implications. First, the intelligibility-oriented approach is arguably compatible with communicative language teaching (CLT), which has been widely adopted in L2 education in Hong Kong and worldwide (Butler 2011). Fluency and accuracy are two competing yet complementary strands in oral communication lessons, and bridging the gap between the two strands is always challenging. Most instructional listening and speaking techniques tend to attend to the fluency strand, whereas it is easier to focus on accuracy when teaching pronunciation. In CLT, pronunciation is often expected to be taken care of by itself as most lesson time is devoted to students' learning of different language skills. From this perspective, a more selective approach to teaching pronunciation is desirable, and this could be realised in teachers' selective teaching of and on-the-spot feedback on features that hinder intelligibility. Future research should explore learners' individual needs and the teaching practice to facilitate the adoption of intelligibility-oriented teaching for L2 pronunciation teaching.

Second, the prioritisation of pronunciation features based on intelligibility findings can provide teachers with concrete guidelines on the order/foci of features to be taught in the curriculum, depending on students' English proficiency. In Hong Kong, and this is increasingly common in other contexts, there has been a shift in the ELT curriculum and assessment from a clear adherence to L1 norms to focusing on communicative forms and functions (J. Chan 2020, 2022). However, the focus on L1 accuracy is still (implicitly) present (J. Chan 2020). Although HKE teachers are practising teaching models (J. Chan 2014), they tend not to focus on pronunciation teaching from an L2 perspective, especially as commercial teaching materials are largely based on L1 varieties (J. Chan 2020). These guidelines can likely raise their awareness of the essential HKE features according to the intelligibility principle and empower local teachers in their L2 identity.

Third, this feature-based approach focuses on linguistic variation rather than specific L1 or L2 varieties. Although an L1 standard has been criticised for its inappropriateness and irrelevance in most international contexts (Kirkpatrick 2007a),

the long-standing L1 ideology persists in ELT practice. An advantage of this teaching approach is, thus, its shifted attention to specific pronunciation features so that learners can have greater flexibility in their choice of pronunciation target as long as it is internationally intelligible, regardless of whether it is the L1 or local ones (Sewell 2016).

Last but not least, in the long-term development, Kirkpatrick (2007b) argues that the codification and benchmarking of the localised English variety can lead to an alternative learning target modelled by the local qualified English teachers, who are presumably successful bilingual speakers in the local context. It is suggested that this so-called 'local institutional bilingual model' is most suitable in local multilingual societies owing to their great relevance to the language use and cultural identities of local bilingual English users (*ibid.*: 279). Subsequently, in assessments of pronunciation, it is also possible that L2 learners are no longer penalised for all their L1-influenced features but only for those that may impede international intelligibility (Sewell 2013).

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Appendix 1a: Participants (secondary students)

		Band 1	Band 2	Band 3	Total no.
Gender	Female	9	13	13	35
	Male	11	7	7	25
No. of interactions		5	5	5	15
Length of recordings (minutes)		40	40	40	120

Appendix 1b: Participants (University students)

		University X	University Y	Total no.
Gender	Female	15	13	28
	Male	5	7	12
Discipline	Humanity and social sciences	7	6	13
	Business and commerce	7	8	15
	Science and engineering	6	6	12
No. of interactions		5	5	10
Length of recordings (minutes)		40	40	80

Appendix 1c: Participants (professionals)

	Professionals
Gender	Female
	Male
Age	25–34
	35–49
Industry	Administration
	Corporate communication
	Engineering
	Education
	Fashion and textiles
	Government
	Hotel management
	Information technology
	Medical
	Science
No. of interactions	Trading
	6
Length of recordings (minutes)	40

Appendix 2: HKE consonants

HKE feature categories	Description	Examples	Total instances in the data
/ð/ > [d]	Substitution of /ð/ by /d/ in onset position	'those', 'they'	3,268
/z/ > [s]	Substitution of /z/ by [s]	'these', 'games'	2,492
Dark /l/	Deletion of dark [l]	'school', 'all'	1,714
	Substitution of dark /l/ by a vowel (e.g., [ʊ])	'will', 'mobile'	
Final /t/	Unreleased final /t/	'what', 'but'	1,277
	Deletion of final /t/	'about',	
/v/ > [f] or [w]	Substitution of /v/ by [f] or [w] in onset position	'very' [f], 'provide' [w],	605
Final /k/	Unreleased final /k/	'talk', 'work'	524
	Deletion of final /k/	'like'	
Final /d/	Unreleased final /d/	'food', 'good'	509
	Substitution of final /d/ by [t]	'workload'	
/θ/ > [f]	Substitution of /θ/ by [f]	'think', 'thank'	395
Final /p/	Unreleased final /p/	'shop', 'help'	236
/r/ > [w]	Substitution of /r/ by [w]	'very', 'red'	61
/n/ > [l]	Substitution of /n/ with [l]	'nice', 'technology'	12
/l/ > [n]	Substitution of /l/ with [n]	'lot', 'lesson'	5

Appendix 3: HKE initial consonant clusters

HKE feature categories	Description	Examples	Total instances in the data
/pr/ > [p]	Simplification of /pr/	'pressure', 'probably'	70
/fr/ > [f]	Simplification of /fr/	'friend', 'fresh'	26
/tr/ > [tʃ]	Simplification of /tr/	'treasure', 'train'	21
/pl/ > [p]	Simplification of /pl/	'plan', 'plastic'	16
/kl/ > [k]	Simplification of /kl/	'class', 'close'	12
/br/ > [b]	Simplification of /br/	'breakfast', 'breaking'	7

Appendix 4: HKE final consonant clusters

HKE feature categories	Description	Examples	Total instances in the data
/nd/+ C	Simplification of/nd/(followed by a consonant)	' <u>and bigger</u> ', 'stand <u>behind</u> '	642
/nt/+ C	Simplification of/nt/(followed by a consonant)	' <u>different people</u> ', 'important <u>for</u> '	520
/nd/ > [n]	Simplification of/nd/to [n]	' <u>and I</u> ', 'friend <u>and</u> '	471
/ŋk/+ C	Simplification of/ŋk/(followed by a consonant)	'think <u>so</u> ', 'think <u>that</u> '	256
/st/+ C	Simplification of/st/(followed by a consonant)	'last <u>move</u> ', 'first <u>step</u> '	220
/ŋk/ > [ŋ]	Simplification of/ŋk/to [ŋ]	'think <u>of</u> ', 'think <u>about</u> '	156
/kt/+ C	Simplification of/kt/(followed by a consonant)	'products', 'extract <u>different</u> '	59
/sk/+ C	Simplification of/sk/(followed by a consonant)	'ask <u>your</u> ', 'ask <u>for</u> '	14
/ft/+ C	Simplification of/ft/(followed by a consonant)	'raft <u>building</u> ', 'left <u>by</u> '	5

* '+C': The evaluation of final consonant clusters also considered the consonants in the following word as this can be part of the connected speech features.

Appendix 5: HKE monophthongs

HKE feature categories	Description	Examples	Total instances in the data
/æ/-/e/	Merger of /æ/ & /e/	'can', 'better'	3,041
/ɪ/-/i/	Mergers of /i/ & /ɪ/	'this', 'need'	2,384
Stressing of /ə/	Stressing of unstressed syllables	'condition', 'today'	1,729
/ɒ/-/ɔ/	Mergers of /ɒ/ & /ɔ/	'what', 'important'	605
/u/-/ʊ/	Mergers of /u/ & /ʊ/	'actually', 'good'	163

Appendix 6: HKE diphthongs

HKE feature categories	Description	Examples	Total instances of in the data
/aɪk/ > [ʌɪk]	Variation of /aɪ/ (followed by /k/)	‘like’, ‘microwave’	383
/eɪk/ > [ɪk]	Reduction of /eɪ/ (followed by /k/)	‘take’, ‘make’	166
/oʊn/ > [oŋ]	Reduction of /oʊ/ (followed by /n/)	‘only’, ‘phone’	160
/aʊt/ > [ʌʊt]	Variation of /aʊ/ (followed by /t/)	‘about’	149
/aɪt/ > [ɪt]	Variation of /aɪ/ (followed by /t/)	‘quite’, ‘right’	112
/eɪn/ > [ɪŋ]	Variation of /eɪ/ (followed by /n/)	‘brain’, ‘change’	67
/aɪm/ > [am]	Reduction of /aɪ/ (followed by /m/)	‘time’, ‘I’m’	31
/oʊm/ > [om]	Reduction of /oʊ/ (followed by /m/)	‘homework’	24
/eɪm/ > [em]	Reduction of /eɪ/ (followed by /m/)	‘game’, ‘same’	23
/ɔɪn/ > [ɔŋ]	Reduction of /ɔɪ/ (followed by /n/)	‘point’, ‘join’	22
/eɪl/ > [eʊ]	Variation of /eɪ/ (followed by /l/)	‘female’, ‘fail’	16

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