The pronunciation of English by speakers from China

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Despite the large number of speakers of English in China, little previous work has been done to describe their pronunciation. Thirteen young speakers from north-east, east and central China were recorded reading a passage and participating in a short interview, and their pronunciation is analyzed. The most salient features of their speech include the use of an epenthetic vowel after word-final plosives especially before another word beginning with a consonant, avoidance of reduced vowels especially in function words, heavy nasalization of vowels preceding a final nasal consonant, substitution of [s] for /θ/ and [z] or [d] for /ð/, use of [x] for /h/, and emphasis on sentence-final pronouns. It is suggested that some of these features may become established as part of a unique variety of English that is emerging in China.

Keywords: pronunciation, Chinese English, new varieties of English, epenthetic vowels, reduced vowels, nasalized vowels, rhythm

1. Introduction

Even though there are many millions of English speakers in China and a distinct variety of the language seems to be emerging there, little previous work has been done in providing a rigorous analysis of their pronunciation. For example, in a book on Chinese Englishes (Bolton 2003), despite the extensive coverage of the history and sociolinguistics of English in China, there is just a short section dealing with the Hong Kong accent (Bolton 2003: 206–9) and no discussion of the pronunciation of speakers from other parts of China, and similarly a bibliography of English in China makes no reference to any works on pronunciation (Adamson *et al*. 2002).

In previous work on the pronunciation of English by speakers from China, Chang (1987) lists the vowels and consonants that are problematic and also

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mentions rhythm, stress and intonation, Ho (2003) gives a summary of the impressions of teachers in Singapore about the most serious problems of students from China based on 39 audiovisual recordings, and Hung (2005) has presented some preliminary findings on the recordings of about 100 students from ten different dialect groups in China reading an extensive word-list.

The pronunciation of English in Taiwan has received some attention. Tsui (1987) lists the consonants of English in order of difficulty, Pennington and Ku (1993) report on the production of final plosives, Huang (1996) discusses the relative difficulty of the two fricatives /ʃ/ and /ʒ/, and Chung (2005) provides a valuable list of features of the pronunciation of English by speakers in Taiwan.

The Englishes of Hong Kong (Peng and Setter 2000; Hung 2000; Bolton 2003: 206–9) and Singapore (Tongue 1979; Deterding 2003, 2005a; Lim 2004) have been extensively described, but these Englishes are substantially different from those of Taiwan or Mainland China, even though most of the speakers in Hong Kong and Singapore are also ethnically Chinese. In fact, students from China often express considerable frustration in understanding the English spoken in Singapore, as the pronunciation is so different from their own (Young 2003).

Of course, China is a huge country where many different languages are spoken, so inevitably there is substantial variation in the English of speakers from different regions (Ho 2003). However, there are also some features in common, and these mark the English of speakers from China as distinct from other varieties of English.

This paper will provide a detailed analysis of the English pronunciation of thirteen young speakers from various parts of the People's Republic of China (PRC), based on recordings of a read passage and an interview soon after they arrived in Singapore.

2. Subjects

A class of nineteen young PRC students in the third month of an intensive English program at the National Institute of Education in Singapore were invited to participate in the recording. They had all been in Singapore for about twelve weeks at the time of the recording. One of the nineteen was excluded because he was a member of a remedial group that was instead offered three sessions of intensive teaching. Two students declined to attend and four more failed to show up, either because they decided they did not want to participate or they found something better to do on the day. No attempt was made to chase

Table 1. Age and home province of subjects

student	age	from	student	age	from	student	age	from
F1	19	Liaoning	M1	20	Henan	M6	18	Liaoning
F2	18	Jiangsu	M2	19	Jiangxi	M7	18	Jiangsu
F3	19	Zhejiang	M3	20	Shandong	M8	19	Hunan
			M4	20	Liaoning	M9	19	Anhui
			M5	21	Shandong	M10	19	Jilin

them, as it was intended that the data collection should be entirely voluntary. One student brought his friend from another class, and this subject was also recorded. In total, therefore, thirteen students were recorded, three female and ten male.

All the students claimed to speak Standard Chinese (Mandarin) at home, though it seems likely that some have knowledge of another Chinese dialect that they would use to a certain extent, especially with the older generation such as grandparents. (Attempts by their teacher to find out more about this were not pursued, as it seemed a sensitive topic: Some students were quite upset at the suggestion that they might speak anything other than Standard Chinese at home.) They had all learned English for at least six years, and the average was 8.4 years. The students are listed in Table 1, with the female students prefixed by F and the males by M.

The places of origin include the north-eastern provinces of Liaoning and Jilin, the eastern province of Shandong, and the central provinces of Henan, Zhejiang, Jiangxi, Jiangsu, Anhui and Hunan. Although there are no subjects from the southern provinces of Guangdong and Guangxi and there is an over-representation from Liaoning, the range does include speakers from many different parts of the country. It is hoped that this gives a reasonable overview of the main features of pronunciation that are found with speakers from north-east, east and central China, though it is possible that patterns common in south China are being overlooked.

One aspect of the background of these students became apparent during the interviews: Most of them have parents who are farmers, and many of them have brothers and sisters as is quite common for rural families but would be unusual for students from the cities in the current one-child policy in China. Their rural background means that their English is maybe less polished than that of some of their compatriots from big cities such as Beijing and Shanghai, though the fact that they had all gone through a rigorous selection process to obtain the scholarship in order to come to Singapore means that all have reasonable competence in English.

In return for being recorded and allowing their data to be studied, the subjects were offered an intensive twenty-minute discussion of their speech, including detailed computer-based phonetic analysis, and they went away with a diagnostic report listing the most salient features of their pronunciation. It is hoped that they all felt the session was beneficial and not an onerous burden on their time. (In fact, there were some complaints from students in other classes that the same opportunity was not offered to them.)

3. Data

The recording consisted of two parts: First the subjects read the "North Wind and the Sun" (NWS) passage; and second they were interviewed by the author of this paper (a speaker of RP British English) for two minutes on a topic of their choice. Most chose to talk about their family, though a few preferred to discuss their plans for the future and one spoke about his experiences in high school. The NWS passage is as follows. (Line numbers have been added to allow easy reference.)

1 The North Wind and the Sun were disputing which was the stronger when a
2 traveller came along wrapped in a warm cloak. They agreed that the one who
3 first succeeded in making the traveller take his cloak off should be considered
4 stronger than the other. Then the North Wind blew as hard as he could, but the
5 more he blew the more closely did the traveller fold his cloak around him; and
6 at last the North Wind gave up the attempt. Then the Sun shone out warmly, and
7 immediately the traveller took off his cloak. And so the North Wind was
8 obliged to confess that the Sun was the stronger of the two.

This passage was selected because it is the standard text used by the International Phonetic Association (1999: 39). It is well suited for phonetic research on English as it has instances of all the monophthong vowels, including two clear instances of the rare vowel /ʊ/ (*could* l. 4 and *took* l. 7) and one of /ɜː/ (*first* l. 3). A transcription of the passage can be found for RP British English (Roach 2004), for Tyneside British English (Watt and Allen 2003), for Californian American English (Ladefoged 1999) and for Southern Michigan American English (Hillenbrand 2003). Recordings of the passage are also available for a wide range of varieties of English on the CD-ROM accompanying Schneider *et al.* (2004).

However, for our purposes, there are some shortcomings with the passage:

– there are no instances of /ʒ/;
– there are no instances of initial or medial /z/; this sound only occurs at the end of the function words *was*, *his* and *as*;

- /θ/ never occurs in initial position; it only occurs in word-final position, in the four instances of *North*;
- there are no instances of /s/ or /z/ at the end of a word-final consonant cluster, either as a suffix (e.g. *books*, *moves*) or as part of the stem (e.g. *mix*, *lens*);
- there is just one instance of a dark /l/, in *fold*; there are no instances of potentially syllabic /l/ (e.g. *bottle*) or other word-final /l/ (e.g. *cool*).

The interviews that were also recorded provide some additional material that we can use to investigate those issues where the NWS passage lacks data.

Some of the speakers had trouble with a few words in the passage, particularly *obliged*, which some read as [ʊblɪgɪd]. Two of them read *Wind* as [waɪnd], and M4 even corrected his pronunciation from [wɪnd] to [waɪnd]. Despite a few such problems, all the speakers managed to complete the passage reasonably well, though one (M3) had to be prompted (after a pause of 1.8 sec) to help him with *obliged* as he seemed to be on the verge of giving up at that point.

All the subjects were able to discuss their chosen topic quite well during the interview, and there were only a few instances of misunderstanding.

The recordings were made directly onto a computer in the Phonetics Lab at the National Institute of Education using CSL software from KAY. A Sure SM48 microphone was placed a few centimeters from the subjects' lips, to ensure a high-quality recording and enable detailed phonetic and acoustic analysis of the data.

When referring to the interview data, the identity of the speaker will be followed by the time location of the instance, so M2:43 would refer to data 43 seconds from the start of the interview with speaker M2.

All the data are available on-line (Deterding 2005b).

4. Features of pronunciation

Here some of the features of the pronunciation of these speakers from China will be discussed, with examples given from both the NWS passage and the interview.

4.1 Extra final vowel

Perhaps the most salient feature of the pronunciation of these students that distinguishes it from most other varieties of English is the addition of an extra

Table 2. Occurrence of extra vowel (schwa) at the end of *and* in the NWS passage

line	context	extra schwa	no schwa
1	*and the Sun*	4	9
5	*and at last*	2	10
6	*and immediately*	4	9
7	*and so*	12	1
total		22	29

vowel (an epenthetic vowel), usually a schwa, after a final plosive and before the next word, so typically *and* becomes [ændə], an observation shared by Ho (2003). This presumably arises because Standard Chinese does not allow final plosives (Duanmu 2000), though some Chinese languages, such as Cantonese, do allow unreleased final voiceless plosives (Zee 1999). It seems that the speakers investigated here are so concerned about dropping sounds that, in order to ensure they retain the final consonant, they sometimes add a short vowel after it. Apparently they are not aware that omission of a final /d/ in words such as *and* is in fact often quite acceptable in other varieties of English. For example, in all of the published transcriptions of the NWS passage for British English (Roach 2004; Watt and Allen 2003) and American English (Ladefoged 1999; Hillenbrand 2003) no /d/ is shown for the first instance of *and*.

There are four instances of *and* in the NWS passage (lines 1, 5, 6 and 7). One speaker (M9) omitted the *and* in line 5, so there are a total of 51 tokens. Of these, 22 (43%) have a clearly audible extra vowel after the /d/, with a duration ranging from 27 msec to 195 msec (average 79 msec). Quite remarkably, every single speaker has at least one instance of an extra vowel after *and*, though only one of them (M4) has an extra vowel after all four tokens. The incidence of added vowels for the different instances of *and* is shown in Table 2.

Not surprisingly, the insertion of a schwa is most common when the next word begins with a consonant, but it also sometimes occurs before *at* and *immediately* as well. In these cases there is a clear break after the schwa and before the start of the next word.

An added schwa also occurs quite often at the end of *Wind* (20 out of 52 instances). Table 3 shows the distribution of these tokens according to the following word. Once again, we find that an epenthetic vowel occurs most often before another consonant. In two of the instances for M4 (*Wind gave* and *Wind was*), the final /d/ is deleted but there is still an added vowel, so the word sounds like *winner*.

Table 3. Occurrence of extra vowel (schwa) at the end of *Wind* in the NWS passage

line	context	extra schwa	no schwa
1	*Wind and*	3	10
5	*Wind blew*	7	6
6	*Wind gave*	5	8
7	*Wind was*	5	8
total		20	32

Both *and* and *Wind* end with a consonant cluster, and there is similarly sometimes an added vowel after a final /t/ in the consonant cluster in *first succeeded* (5 out of 13 instances).

Even when the first word does not end with a consonant cluster, an added vowel may occur, especially when the next word begins with a consonant as in *agreed that* (6 out of 13 instances), and *at last* (5 out of 13). However, none of the speakers adds a schwa at the end of the sentence-final *attempt*, even though all but one of them produces a clear /t/ at the end of this word. It seems, then, that the addition of a schwa at the end of a word is a linking phenomenon. If words are often learned in isolation in China, by rote memorization and recitation of word-lists, this might explain why an extra vowel is avoided when the word is at the end of a sentence so there is nothing following it but not when it occurs in the middle of a sentence.

If we consider just those cases discussed above where a word-final plosive is followed by another consonant, for each speaker there are two instances of *and* (Tab. 2), three instances of *Wind* (Tab. 3), and also the three phrases *first succeeded, agreed that* and *at last*, so we have a total of eight instances. Of these 104 tokens, there was an extra vowel in 49 (47%). This incidence of an epenthetic vowel after a final plosive is much higher than the overall figure of about 9% reported by Pennington and Ku (1993) for speakers of English in Taiwan. It is possible that speakers from Taiwan insert a final vowel less frequently than the subjects studied here, but we should look carefully at the contexts studied. The Taiwan study involved four kinds of data: word list, final word in a sentence, initial word in a sentence where the next word was *is*, and a read passage. We are not given the text for the last of these, but we can note that none of the other three contexts involved the next word starting with a consonant, the condition that seems to result in most instances of an extra vowel in the data reported here. It seems, then, that Pennington and Ku's data may underestimate the incidence of an epenthetic vowel.

Table 4. Instances of extra vowel (schwa) in the interviews

example	speaker:location
and so did[ə] my father	F3:38
is in the village[I]	M1:07
small crop[ə] land	M1:100
a rest[ə] for	M4:12
just[ə] learn	M4:44
was[ə] located	M5:05
but I also like[ə] biology	M5:110
finish[ə] his masters studies	M6:33
like[ə] my sister	M6:116
to complete[ə] my graduate study	M7:61
I just[ə] study	M8:82
at[ə] that time	M9:54
good[ə] friends[ə]	M10:29
not quite good[ə] but er	M10:67
but[ə] they have no chance	M10:77

Instances of an epenthetic vowel from the interviews are shown in Table 4, and these confirm that insertion of a vowel at the end of a word is most likely to occur when the word is not in sentence-final position.

Of the instances shown in Table 4, only *village* (M1:07) and *friends* (M10:29) involve a sentence-final extra vowel. In fact, all the others involve an epenthetic vowel before another word beginning with a consonant. In the cases where a vowel was added after a plosive, the overwhelming majority occurred after alveolar plosives, the only exceptions being *crop* (M1:100) and *like* (M5:110, M6:116). However, we should note that alveolar plosives are rather more common than either bilabial or velar plosives, so the propensity for an epenthetic vowel to occur after alveolar plosives may just reflect the greater frequency of these sounds.

4.2 Absence of reduced vowels

In British or American English, reduced vowels (schwas) tend to occur in two contexts: the unstressed syllables of polysyllabic words, such as the first syllable of *considered* and *confess*; and the weak forms of monosyllabic function words, such as *that*, *than*, *to* and *of*. The pronunciation by Chinese subjects of all of these words in the NWS passage was investigated. The realization of the vowel in *and* is not discussed here as both Roach (2004) and Ladefoged (1999)

Table 5. Realization of the vowel in the first syllable of *considered* and *confess* in the NWS passage

	considered		*confess*	
speaker	**full**	**schwa**	**full**	**schwa**
F1		1		1
F2	1		1	
F3		1		1
M1		1	1	
M2	1		1	
M3		1		1
M4		1	1	
M5		1		1
M6		1		1
M7	1		1	
M8		1		1
M9		1	1	
M10		1		1
total	3	10	6	7

transcribe this word with a full vowel in *and at last*, and Hillenbrand (2003) shows all four instances of *and* with a full vowel for South Michigan American English.

For the polysyllabic words, the realization of the vowel in the first syllable is shown in Table 5. All but three speakers use a schwa in *considered*, and just over half use a schwa in *confess*, the rest using a full vowel instead.

A total of two instances of *that*, and one instance each of *than*, *to* and *of* were investigated for all 13 speakers, and in all of these 65 function words, only three tokens are produced with a schwa (M1: *than*, M6: *than*, M7: *to*). The other 62 tokens have a full vowel, representing the strong form of the function word.

It seems that while many of these speakers use a reduced vowel in the unstressed syllables of polysyllabic words, they almost always use a full vowel in monosyllabic function words. One explanation for this pattern might be that words are often learned in isolation in China, and while a schwa is likely to occur in the citation form of a content word, it will never occur in a function word in isolation. If learning English depends substantially on memorization of isolated words, the weak forms of function words may never occur.

One consequence of the use of full vowels in nearly all function words is that the pronunciation of English by speakers from China has a distinctly syllable-based rhythm. In this respect, it is similar to many new varieties of English,

including that of Singapore (Low, Grabe and Nolan 2000; Deterding 2001) and many other Englishes in the ASEAN region (Deterding and Kirkpatrick 2005), the Bahamas (Childs and Wolfram 2004: 447), Barbados (Blake 2004: 504) and West Africa (Gramley and Pätzold 2004: 319). Crystal (2003: 172) observes that at least one influential model for young people in the West, rap music, has syllable-based rhythm, and he speculates that this kind of rhythm might one day become standard for all Englishes. With respect to rhythm, therefore, Chinese speakers of English may be in the forefront of the global evolution of the language.

4.3 Nasalized vowels

There is of course a tendency in all varieties of English for vowels that occur before a final nasal consonant to become partially nasalized (Ladefoged 2001: 164). However, the tendency is rather stronger than expected with these data from the Chinese students, to the extent that the whole vowel often becomes nasalized and sometimes there is no nasal consonant at all. Chung (2005) also notes a tendency among speakers of English in Taiwan for deletion of a final /n/, leaving just a nasalized vowel.

There are three instances of *Sun* in the NWS passage, so there are a total of 39 tokens of this word. The full results for the 13 speakers are shown in Table 6.

Table 6. Instances of heavy nasalization and complete absence of the /n/ in *Sun* from the NWS passage

speaker	oral	nasalized	nasalized and no [n]
F1	3	0	0
F2	0	1	2
F3	0	3	0
M1	0	3	0
M2	0	2	1
M3	0	0	3
M4	0	0	3
M5	0	2	1
M6	1	1	1
M7	1	0	2
M8	3	0	0
M9	0	1	2
M10	3	0	0
total	11	13	15

Table 7. Instances of heavy nasalization of the vowel. The affected vowel and nasal are bold. A duration of 0 msec indicates that there was no nasal consonant

words	duration of nasal consonant (msec)	speaker:location
*er nine perhaps n**ine** or ten years ago*	0	F1:10
*my homet**own** is in*	0	F2:16
*chat on l**ine** and watch films*	35	F3:89
*my mother is in …. w**ine**shop*	26	M2:27
*wh**en** I come to Singapore*	0	M4:08
*there is no sea in my homet**own***	0	M4:62
*there is no t**ime** for*	45	M4:77
***on**ly on the TV*	0	M4:88
*in Shandong prov**in**ce*	0	M5:02
*goes to work **in** a … some*	0	M5:54
*some in a **in** a factory*	0	M5:56
*I don't w**ant** get a job*	77	M7:54
*maybe … t**en** years*	0	M7:85
*a very little t**own***	42	M9:27
*at that t**ime** is very hard*	0	M9:54
*work in their homet**own** … so*	0	M9:61

Of the 39 tokens, 28 were judged to have heavy nasalization and only 11 were perceived to have the degree of nasalization expected in English. Three speakers (F1, M8 and M10) always use the expected degree of nasalization, but all the others have heavy nasalization for most or all of their tokens. Of the 28 tokens with heavy nasalization, 15 have no measurable closure for the final consonant, including all three tokens for two of the speakers (M3 and M4).

Heavy nasalization of the vowel preceding a nasal consonant, often accompanied by absence of any closure for the nasal, is also common in the interviews. Some instances are listed in Table 7 together with the duration of the closure for the final nasal.

It is possible that the heavy anticipatory nasalization of vowels occurs because of the influence of Standard Chinese, for which it has also been noted that a vowel preceding a final nasal consonant becomes nasalized and there may be no oral closure (Duanmu 2000: 72). In a few cases, the speakers uttered some Chinese names, and this allows us to consider whether their pronunciation of Chinese is the source of the phenomenon in English. M7 said *Nanjing* (M7:104) with two very clear final nasals (with a closure of 107 msec and 80 msec respectively), and this contrasts quite starkly with *ten years* (M7:85) produced by the same speaker with no clear nasal consonant. Similarly, M2

said *renmin daxue* ('people's university') (M2:62) with a clearly articulated final /n/ in *min* (49 msec), contrasting with his much shorter nasal consonant in *wineshop* (M2:27). Finally, *Shandong province* (M5:02) has two clear nasal consonants in *Shandong* (86 msec and 33 msec) but no closure for the nasal consonant in *province*. So it seems that some of the speakers who omit the nasal consonant and use heavy anticipatory nasalization in English do not do the same in Chinese. One might surmise that they were trying to articulate the Chinese words especially carefully for the benefit of a foreigner, but this assumption is not supported by the fact that they did not seem to slow down at all for the Chinese names. So this remains something of a mystery: If their first language is not the influence that causes heavy anticipatory nasalization in their pronunciation of English, it is not clear what is.

4.4 Voiceless dental fricatives

There are four instances of *North* in the passage, making a total of 52 tokens of this word. In listening to these, it is hard to be absolutely certain what consonant occurs in every case, and in fact it has been shown that it is not uncommon for trained phoneticians to be unable to agree on the classification of the sound that is used when there is an underlying /θ/ (Shanti and Deterding 2000). Here, indeterminate instances are classified as [θ].

Of the 52 tokens, 25 have [θ] and 27 have clear instances of [s]. The pronunciations by the individual speakers are shown in Table 8. Most speakers

Table 8. Realization of the consonant at the end of *North* in the NWS passage

speaker	[θ]	[s]
F1	0	4
F2	3	1
F3	2	2
M1	4	0
M2	0	4
M3	4	0
M4	3	1
M5	1	3
M6	4	0
M7	0	4
M8	0	4
M9	4	0
M10	0	4
total	25	27

Table 9. Realization of /θ/ in syllable-initial position in the interviews

[θ]		[s]	
word	**instances**	**word**	**instances**
think	F2:50, M3:23, M3:91, M3:112, M6:108, M8:47, M9:49, M9:03	*think*	F2:49, M6:102, M8:94, M8:96, M10:08
something	M6:112	*something*	F1:17, M2:46, M5:42, M5:61
three	M1:07	*three*	M10:86
things	M9:77, M9:105		
third	F2:79		
total	13	total	10

use [θ] or [s] throughout, so for example M9 always uses [θ] but M10 uses [s]. However F2, F3, M4 and M5 vary.

It is important to consider initial /θ/ separately from final /θ/, as the two may differ. For example, in Singapore English, initial /θ/ tends to be pronounced as [t] but /θ/ in syllable-final position is often [f] (Deterding and Poedjosoedarmo 1998: 157; Wee 2004: 1025).

As there are no instances of syllable-initial /θ/ in the NWS passage, we have to consider the interviews. A total of 23 words were found where syllable-initial /θ/ would occur in standard British or American English, and the realization of these is shown in Table 9.

The results show that, in the interviews, a little more than half of syllable-initial instances of /θ/ are realized as [θ] and the rest are [s]. Comparison of Tables 8 and 9 reveals that the speakers tend to use the same sound in final position in the NWS passage and initial position in the interview, so M9 consistently uses [θ] while M10 uses [s]. At first glance, it appears that [s] is more likely in the middle of a word (as in *something*), but further inspection reveals that the pronunciation of /θ/ in this word in every case follows the expected pattern for that speaker, with M6 using [θ] and F1, M2 and M5 using [s].

Chung (2005) notes that [s] is often used in place of /θ/ in Taiwan, and Hung (2005) confirms this tendency for speakers in many parts of China. However, Hung (2000) and Bolton (2003: 208) list [f] as the typical substitution for /θ/ in Hong Kong, so further research is needed to determine the extent to which [f] is found in other parts of south China, such as Guangdong.

4.5 Voiced dental fricatives

There are many instances of function words beginning with /ð/ in the NWS passage. Here we will consider the consonant at the start of five words: two

Table 10. Realization of /ð/ at the start of function words in the NWS passage

speaker	[ð]	[z]	[d]
F1	0	0	5
F2	5	0	0
F3	2	0	3
M1	5	0	0
M2	1	4	0
M3	1	4	0
M4	1	0	4
M5	5	0	0
M6	1	0	4
M7	2	3	0
M8	1	4	0
M9	5	0	0
M10	3	2	0
total	32	17	16

instances of *that,* one of *than*, and two instances of *then*. The pronunciation of these words is shown in Table 10.

Unlike /θ/, where any substitution always involves [s], two different replacements of /ð/ are found: The speakers from Liaoning (F1, M4 and M6) and from Zhejiang (F3) use [d], while those from elsewhere use [z]. Hung (2005) reports that, overall, [d] is a more common substitution than [z], so more data from a wider range of provinces is needed to confirm this.

It is conceivable that the students who use [d] may have been influenced by the pattern found in Singapore, where [d] is a common substitution for /ð/ (Deterding and Poedjosoedarmo 1998: 157; Wee 2004: 1025), but this seems unlikely as none of them use [t] for /θ/, the other pattern found in Singapore.

Use of either [d] or [z] for /ð/ has previously been reported for Chinese speakers of English (Chang 1987). For speakers in Taiwan, Chung (2005) lists [d] and [l] as the two alternative substitutions. And in Singapore English, only [d] is possible. It is interesting to note that, although all these speakers have a tendency to avoid use of voiced dental fricatives, they adopt a range of replacement strategies.

Overall, Table 10 shows that nearly half of the instances of /ð/ at the start of content words are realized as [ð], while the others are about equally divided between [z] and [d]. A common pattern, found with M2, M3, M4, M6 and M8, is to use [ð] in the first word (*that*) but to replace the dental fricative for all four later words. Presumably these speakers were paying more careful attention to their pronunciation at the start of the reading.

Table 11. Realization of medial /ð/ in the interviews

word	[ð]	[z]	[d]	no consonant
father	F3:15, M1:26, M2:05, M5:14, M6:04, M9:06	M3:05	F1:03	F2:26
mother	F3:06, M1:46, M2:06, M5:15, M6:04, M9:10	M3:06	F1:04	F2:21
brother	M1:13	M3:07, M8:13, M10:30		
grandfather	M5:11	M8:18		
grandmother	M5:12			
total	15	6	2	2

There is one instance of /ð/ in medial position in *other* in the NWS passage. For this word, two speakers (M4 and M6) produce a very weak consonant, and three (M3, M8 and M10) use [z].

As most of the speakers were talking about their family, there are a large number of medial instances of /ð/ in the interviews, in words such as *father*, *mother* and *brother*. The speakers are generally consistent in their production during the interviews, so only the first occurrence of each word is shown in Table 11.

All speakers who adopt a substitution for /ð/ in the interview use the same one as in the NWS passage, so M3 uses [z] while F1 uses [d]. The main differences are that F2 elides the consonant in medial position in the interview while she produces a [ð] in initial position in the NWS passage, F3 uses [ð] in the interview whereas she sometimes uses [d] in the passage, and M6 produces a [ð] in medial position while he mostly uses [d] at the start of function words when reading the passage.

Overall, there seems to be a tendency to avoid [d] for medial /ð/, both for *other* in the NWS passage and for referring to family members in the interview, while medial [z] is a little more common.

4.6 /h/ pronounced as [x]

In Standard Chinese, the sound that is represented as <h> in the Pinyin spelling is generally considered to be a velar fricative [x] (Lee and Zee 2003), though Duanmu (2000: 27) observes that it is variable and may sometimes be [h]. Not surprisingly, the pronunciation of Chinese has an influence on the realization

Table 12. Instances of /h/ as [x] in the interviews. The affected sounds are bold

words	speaker:location
my father is er … at ***h****ome*	M1:35
a lot of ***h****ousehold work*	M1:58
I always ***h****elp my mother … er* ***h****elp them*	M1:69
a farmer in ***h****ome*	M6:73
or … ***h****ave a cup of tea*	M9:40
does some very ***h****ard work*	M9:99
in my senior ***h****igh school*	M10:07

of English /h/. Chang (1987) reports that speakers from China often pronounce English /h/ as a velar fricative, and Chung (2005) notes the same tendency for students in Taiwan to pronounce /h/ as [x] in both function words such as *him* and content words such as *husband*.

In the NWS passage, the most unusual pronunciation of /h/ is by M8 who produces the pronouns in *as he could*, *fold his cloak*, *around him* and *took his cloak* with such a strong velar consonant that it sounds like [k]. Three speakers (M1, M6, M9) have a notably harsh fricative at the start of *hard* that might be classified as [x], though all the other speakers (including M8) produce an ordinary [h] in *hard*.

In the interview, there are a number of instances of /h/ produced as [x], as shown in Table 12.

Note that these tokens are mostly from the same three speakers (M1, M6 and M9) that have [x] in *hard* in the NWS passage. These three speakers all come from different provinces (Henan, Liaoning and Anhui respectively), so this use of [x] for /h/ does not seem to be regional, in contrast to the selection of [d] or [z] as a replacement for /ð/ noted above. One might note that the difference between [x] and [h] is gradual, so a harsh instance of [h] might be classified as [x], but the distinction between [d] and [z] is more categorical, as one cannot have something halfway between them. It is possible that categorical distinctions are more likely to be regional, while a gradual distinction may depend more on the style of speech of the individual. More data is needed to test this hypothesis.

4.7 /ʒ/ pronounced as [ɹ]

/ʒ/ is by far the least common consonant in English, occurring less than one third as often as /θ/, the next rarest (Cruttenden 2001: 216). However, it does occur in a few common words, particularly *usually*.

Standard Chinese has a sound represented by the letter <r> in the Pinyin spelling that, for some speakers, is quite similar to English /ʒ/, but for others is more of an approximant. In fact, Duanmu (2000: 26) describes it as a retroflex approximant which is similar to English /r/ but with no lip rounding, and Lee and Zee (2003) show it as a post-alveolar apical approximant.

Many Chinese speakers of English have considerable difficulty with /ʒ/. For speakers in Taiwan, Tsui (1987) lists it as the most problematic consonant, and Huang (1996) reports that it causes even more difficulties than /ʃ/ with only one out of 60 students getting it right. For speakers from China, Ho (2003) specifically mentions problems with the word *usually*, observing that many pronounce it as "urally", but Hung (2005) suggests that this phenomenon may be lexical, as use of [ɹ] is more likely to occur in *usual* than *pleasure*.

Although /ʒ/ does not occur either in the NWS passage or in any of the interviews, F1, M3, M5, M7 and M8 were asked to read a sentence including the word *usually*. Of them, F1, M3 and M5 all use [ɹ] in place of /ʒ/, while M7 and M8 both use [ʒ]. This suggests that use of [ɹ] for /ʒ/ may be more predominant for speakers from the north-eastern provinces of Liaoning (F1) and Shandong (M3, M5), while those from the central provinces of Jiangsu (M7) and Hunan (M8) do not exhibit this phenomenon. Hung (2005) confirms that use of [ɹ] for /ʒ/ in *usual* occurs mostly in Northern China, including the cities of Beijing and Tianjin. For speakers in Taiwan, Huang (1996) reports that most substitutions of /ʒ/ involve [dʒ], and [ɹ] never occurs.

4.8 The fricatives /v/ and /z/

Standard Chinese has no voiced fricatives, with the possible exception of /ʒ/ as discussed above. Indeed, part of the rationale given by Duanmu (2000: 26) for classifying the sound represented by the letter <r> in Pinyin as /r/ instead of /ʒ/ is the absence of any other voiced obstruents in Chinese.

As discussed above, both /ð/ and /ʒ/ cause problems for many speakers. A few speakers also avoid the other two voiced fricatives of English, /v/ and /z/. For speakers in Taiwan, out of the 24 consonants, Tsui (1987) ranks /v/ and /z/ eleventh and seventh respectively in order of difficulty. For speakers from China, Chang (1987) suggests that /v/ is sometimes replaced by [w], and Hung (2005) notes the regular absence of all the voiced fricatives in his data. Hung (2005) also reports that initial /z/ is often replaced with [dz], but unfortunately, we do not have any instances of initial /z/ in the data studied here.

For the first instance of *traveller* in the NWS passage, M4 omits the consonant altogether, M3 uses a [w], and M1, M5, M6 and M8 have a very weak

consonant. In the interviews, instances of omitted /v/ occur in *love* in *my grandfather er love me very much* (M5:21) and in *government* in *a clerk in our government* (M6:67).

/z/ is omitted in *as* in the NWS passage by F2, and it gets replaced by a [d] by M2 and by [ð] by M5 in both *as* and *has*. In the interviews, /z/ is omitted in *has* in *my mother has no job* (F2:21) and it is replaced by a glottal stop in *visit* in *she will come to visit me* (F2:98).

4.9 /l/ pronounced as [n]

Hung (2000) and Bolton (2003: 208) report the interchangeability of [l] and [n] in Hong Kong English. While this phenomenon is less common for speakers from other parts of China, it is so salient when it does occur that it is worth noting.

In the NWS passage, M2 pronounces *last* with an initial [n], and in the interviews, M2 uses an initial [n] in *law* (M2:72) and M3 pronounces *family* as [fæmni] in *there are four people in my family* (M3:04). M2 comes from Jiangxi, which is in central China, and Ho (2003) reports that substituting [n] for /l/ is common among students from central China. On the other hand, M3 is from Shandong, which is rather further north, so the substitution of [n] for /l/ in *family* by M3 is less expected.

4.10 Vocalized /l/

The only instance of a dark /l/ in the NWS passage is in *fold*. Eight speakers (F2, F3, M1, M3, M4, M5, M6 and M7) vocalize this consonant, though it is hard to be certain. Dark /l/ sounds rather similar to a close back vowel, so the difference between [koʊd] and [koʊld] can be quite small.

There are many instances of vocalized /l/ in the interviews, some of which are listed in Table 13. In some cases, such as *people* (M8:08), the syllabic /l/ becomes [ə], while in other cases, such as *successful* (F3:11), it becomes [ʊ]. After back vowels, the /l/ may be omitted entirely, so *small* (M1:67) is pronounced as [smɔː], but after front vowels the /l/ may be pronounced as [ʊ], so *well* (M5:19) is pronounced as [weʊ].

One must be cautious about describing vocalized /l/ as a special feature of Chinese English. Although Chung (2005) lists vocalized /l/ as a feature of Taiwan English and Ho (2003) also describes it as a problem for speakers from China, we should note that it is common in many other varieties of English, including Estuary English (Cruttenden 2001:88) and Singapore English (Tan

Table 13. Instances of vocalized dark /l/ in the interviews

words	speaker:location
*an **old** couple*	F1:36
*five peop**le** in my family*	F2:03
*I'm the only **child** in my family*	F3:03
*She's very success**ful** in making clothes*	F3:11
*trip**le** E engineer*	F3:57
*a **small** farm*	M1:45
*when I was **small** I **al**ways helped my mother*	M1:67
*they didn't **call** it a farm*	M1:95
*it is er **small** crop land*	M1:98
*for exampl**e***	M2:49
*four peop**le** in my family*	M3:03
*four peop**le** in my family*	M8:08
*very **cold** in winter*	M4:54
*we get along very **well***	M5:19
*trip**le** E*	M7:17
*one year **old**er than me*	M8:15
*rice … and anim**als***	M8:60

2005). Wells (1982: 259) suggests that vocalized /l/ is likely to become completely standard in English, just as the historical /l/ is no longer pronounced in words such as *walk* and *calm*. Once more, Chinese speakers may be in the forefront of the evolution of English.

4.11 Glide before initial /ɪ/

In Standard Chinese, the close vowels /i/ and /u/ cannot occur at the start of a syllable and must be preceded by a glide, so *yin* [jin] and *wu* [wu] are well formed syllables but **in* and **u* are not. This affects the pronunciation of English by people from China, so even proficient speakers often insert [j] at the start of a word like *English*.

Insertion of [j] at the start of *in* only occasionally occurs in the NWS passage, such as with M4 who pauses after *succeeded* and then pronounces the following *in* as [jɪn]. But there are many instances of [jɪn] in the interviews, some of which are listed in Table 14.

An alternative way to describe these tokens is to say that the vowel in *in* is very close, so the distinction between /iː/ and /ɪ/ is not always maintained, especially before a final nasal.

Table 14. Instances of [j] before *in* in the interviews

words	speaker:location
it's ***in*** *mmm … wineshop*	M2:25
for example ***in*** *Beijing*	M2:50
goes to work ***in*** *a … some*	M5:54
he erm ***in*** *his early years*	M5:73
a farmer ***in*** *home*	M6:73
er ***in*** *vacation*	M7:95
four people ***in*** *my family*	M8:08
er ***in*** *my senior high school*	M10:06
they live er ***in*** *the same floor*	M10:24
because er ***in*** *my … when I was*	M10:84

4.12 Stressed final pronouns

The tendency to place stress on function words and also on the final word of an utterance has been reported for Singapore English (Deterding 1994; Goh 2005), and Levis (2005) has shown that *him* in *around him* from the NWS passage tends to have substantially greater prominence in Singapore English than American English. It has been shown that a tendency to stress pronouns, especially when they occur in final position, is a common feature of the English Lingua Franca that seems to be emerging throughout the ASEAN region (Deterding and Kirkpatrick 2005).

When reading the NWS passage, the subjects from China similarly tend to stress the *him* in *around him*. In fact, all but two of them (M7 and M9) place considerable emphasis on this final pronoun.

5. Conclusion

Some of the most salient features of the pronunciation of English by speakers from eastern, north-eastern and central China have been outlined here. Many of the features, including replacement of /θ/ with [s], insertion of a final [ə], avoidance of weak forms for function words, and stressing of final pronouns, are widespread. Other features, such as use of [x] for /h/, occur with just a few speakers but do not seem to be restricted to people from certain regions of China. And some features, such as the choice of [d] or [z] as a replacement for /ð/, the pronunciation of /ʒ/ as [ɹ], and the use of [n] in place of /l/, seem to depend on where the speaker comes from.

Most of the features described here involve vowels and consonants, and only brief mention has been made of the suprasegmental aspects of rhythm and stress placement. Further work is needed to determine if, for example, there are characteristic intonation patterns for the English of speakers from China.

The tendency for words to be learnt by memorizing them in isolation has been suggested as a possible contributing factor for some of the features, including the greater tendency to use full vowels in monosyllabic function words than the unstressed syllables of polysyllabic words and the insertion of an extra vowel after a final plosive when the following word begins with a consonant but not in sentence-final position. It is hard to predict if these features will become established as part of Chinese English or if they will disappear as more speakers become increasingly fluent in the language.

As an ever-expanding number of speakers of English in China become proficient in the language, it is likely that distinctive styles of Chinese English will continue to emerge, and one day a new variety may become established with its own independent identity, a process that is already quite advanced in Singapore (Schneider 2003; Deterding 2005a). When this happens, Chinese English may have more speakers than Britain and America combined, and then it may start to have a major impact on the way the language evolves. At that time, native speakers may even become irrelevant (Jenkins 2000; Seidlhofer 2001), and Chinese English will truly be in the forefront of the development of the language.

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