Age as a factor in ethnic accent identification in Singapore

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This study seeks to answer two research questions. First, can listeners distinguish the ethnicity of the speakers on the basis of voice quality alone? Second, do demographic differences among the listeners affect discriminability? A simple but carefully designed and controlled ethnic identification test was carried out on 325 Singaporean informants of the three major ethnic groups across three age groups in Singapore. The results show interesting age-related patterns in the identification of ethnicity in speakers of Singapore English. The results suggest that young Singaporeans may perhaps be deaf to ethnic variations. National policies and one's own ethnic consciousness (or lack thereof) may perhaps be responsible for creating this 'deafness'.

Keywords: ethnic identification; Singapore English; accent; perception; ethnic identity

Introduction

This study investigates how Singaporeans identify 'ethnicity' on the basis of voice quality alone, focusing in particular on how discriminability in ethnic accents differs across listeners of different age and ethnic groups. Following Crystal (2008), *voice quality* is defined, in this study, as the 'permanently present, background, person-identifying feature of speech ... derived from a combination of such factors as pitch height, loudness level, tempo and timbre of speech'. Using Lippi-Green's definition of accent, *accent* in this study refers to the 'loose bundles of prosodic and segmental features distributed over geographic and/or social space', or more loosely, as a specific 'way of speaking' (1997, 42). Factors that contribute to an accent can be syntactic, lexical, phonetic or prosodic. The last factor contributes to what Crystal would define as voice quality and focuses on areas such as intonation, stress, rhythm and tempo. This study is interested in how voice quality, which contributes to 'accent', can allow listeners to identify the ethnicity of the speaker.

There is a large body of literature addressing the question of whether listeners can perceive ethnicity in speech, especially in American English, with a large number of researchers working on the issue of whether listeners can distinguish between African-American or European-American speakers (e.g. Buck 1968; Dickens and Sawyer 1952; Foreman 2000; Irwin 1977; Lass et al. 1980; Purnell, Idsardi, and Baugh 1999; Thomas, Lass, and Carpenter 2010; Tucker and Lambert 1969). These studies made use of a wide range of experimental techniques; for example, varying

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the length of stimuli from long sentences to single words (see Thomas 2002, 116–30, for an extensive review). Most of these studies highlight a high success rate (70–90%) in the identification of African-American speakers from European-American speakers, and it has been almost conclusively shown that ethnicity can be identified on the basis of voice quality. A number of other studies, also on American English, have concentrated on demographic differences among speakers and listeners and the correlation to ethnic identification. Haley (1990), Hawkins (1993) and Foreman (2000), for example, reported differences in the accuracy rates of ethnic identification among listener groups. The existence of this large body of perception studies, amongst others, demonstrates a strong sustained interest in the discriminability of ethnicity in voice quality.

Research on the topic of discriminability of ethnicity in speakers of Singapore English (SgE) has also received some attention over the past three decades, but in the form of only three published works by Platt, Weber, and Ho (1984), Lim (2000) and Deterding and Poedjosoedarmo (2000), not including a couple of unpublished Honours' theses in the 1980s (e.g. Lim 1989; Ooi 1986). While most researchers on SgE tended to use the majority ethnic group, i.e. the Chinese-Singaporeans, in their investigation on SgE (e.g. Deterding 1994; Low 1994, 1998; Low and Grabe 1999), some other researchers have found specific ethnic prosodic patterns in the SgE of the three major ethnic groups in Singapore, showing that ethnic differences are manifest in SgE (e.g. Lim 1996, 2000; Tan 2001, 2002, 2010).

If ethnic differentiation in SgE exists, then the question would be whether listeners were able to perceive ethnicity in the speech of SgE speakers. Lim's (2000) and Deterding and Poedjosoedarmo's (2000) studies show that ethnicity in SgE can be perceived with high degrees of accuracy, contrary to the study by Platt, Weber, and Ho (1984), where their test on telephone switchboard operators showed that these operators could not identify the ethnicity of young Singaporeans beyond the fact that they were Singaporeans. There are two points to note in these three above-mentioned studies. Firstly, all three studies were carried out in the 1980s and 1990s, which means that there has not been any study on ethnic identification in SgE done in the past 10 years. In terms of data collection procedures, all three studies made use of different techniques, from a survey in Platt, Weber, and Ho (1984) to perception tests in Lim (2000) and Deterding and Poedjosoedarmo (2000). The informants were also vastly different; Platt, Weber, and Ho (1984) used telephone switchboard operators and Lim (2000) and Deterding and Poedjosoedarmo (2000) used local undergraduates. Test stimuli ranged from read sentences to spontaneous speech.

Methodological differences in these studies, which will be discussed further in the next section, created a few gaps that will form the main points of inquiry in this study. Firstly, the dearth of research on this topic in the last 10 years means that the current situation of ethnic identification in SgE remains unknown. The question then arises: can Singaporean speakers today hear ethnic variations in SgE? Furthermore, as noted earlier, the three above-mentioned studies had contradictory findings, which could reflect a change in Singaporeans' perception of ethnic accent over time, or it could simply be the consequence of different experimental techniques employed. If it were the former, then one would need to show if Singaporeans of different age groups show differences in ethnic perception. If it were the latter, then there would be a need to create a perception test that can balance out the differences in the experimental techniques of the above-mentioned studies.

In view of the above, this study seeks to answer two research questions. First, can listeners distinguish the ethnicity of the speakers on the basis of voice quality alone? Second, do demographic differences among the listeners affect discriminability?

Research on identification of ethnicity in SgE

Research has shown that there are specific segmental and prosodic patterns in the SgE spoken by the three major ethnic groups in Singapore, showing that ethnic differences are manifest in SgE (e.g. Lim 1996, 2000; Tan 1982, 2001, 2002, 2010). Descriptive studies have managed to pin down the phonetic features that contribute to ethnic differentiation in SgE. Most of these descriptive studies focus on the segmental features of SgE that are characteristic of each ethnic group. Tay (1982), for example, points out that features such as the absence of /v/-/w/ distinction is characteristic of the speakers of the Indian ethnic group and the absence of /r/-/l/ distinction as a feature of the Chinese speakers of SgE. Researchers working on the prosody of SgE have also found unique features in intonation and stress that are associated with the ethnic varieties of SgE. Lim's (1996, 2000) acoustic analysis, for instance, reveals that the most significant difference between the three ethnic varieties that may have contributed to the distinctiveness of each ethnic variety is peak alignment, which is the alignment of the highest pitch to the syllable. Lim found evidence showing that speakers of the ethnic subvarieties of SgE have the pitch peak aligned to different points of the same syllable, and in some cases, even different syllables. Tan (2010), also looking at ethnic differences in the intonation of SgE further, finds that each ethnic variety has its own unique global curve and tonal patterning. In addition, analysing the Mandarin, Malay and Tamil spoken by the same group of speakers, the unique features in each ethnic variety of SgE are found to be directly correlated with the other languages that these speakers spoke. For instance, Tan reports that a distinctive rise–fall tone that is found consistently in Tamil and the sentence-final positions in declaratives and interrogatives are also found in the same position of the same sentence types in the Indian variety of SgE.

Since such ethnic features exist in the ethnic varieties of SgE, it should be logical that these differences are perceptible by ear, and that they should serve as cues for ethnic identification. Research on the topic of ethnic identification in SgE, as mentioned earlier, with the exception of Platt, Weber, and Ho (1984), has successfully shown that ethnic identification can be achieved with high levels of accuracy. Lim (1996, 2000) reports a high accuracy rate of 80% for the Chinese speakers, 75% for the Malay speakers and 65% for the Indian speakers. Deterding and Poedjosoedarmo (2000) also confirm a high accuracy rate for ethnic identification, and this is especially so in more informal contexts. They further point out that 'it would . . . be extremely naïve to assume that young Singaporeans all sound alike when they speak English' (2000, 1).

Some elaboration on the methodological issues in these three above-mentioned studies is warranted. The Platt, Weber, and Ho (1984) study using telephone switchboard operators relied solely on a survey of the informants. Aside from the fact that the informants were telephone switchboard operators, variables such as age, gender or ethnic group of the informants were not controlled. There was also no way of knowing or controlling the callers, nor verifying their identity (and therefore ethnic group), and it remains unclear how accurate the informants were in perceiving the ethnic groups of the callers. Given that the telephone switchboard operators were

doing a job, the informants' inability to recognise ethnicity in the voices of the callers could be because they were listening out for more important information as required by their job, rather than paying particular attention to the ethnic group of the caller. As such, it was perhaps not their inability to perceive ethnicity of the callers, but circumstances made it impossible for these informants to do so. More importantly, telephone recordings lack accuracy because higher frequencies of speech, which are known for distinguishing between speakers, are lost through the telephone signals (Peterson 1952; Sheffield et al. 1999), and this is especially so given the telephone technologies of the 1980s. The entire study was therefore in fact not a perception test with designed stimuli, nor was it one with some control of variables such as the ethnic group or age group of the informants and the callers. In view of the later studies, Platt, Weber, and Ho's assertion on Singaporeans' inability to distinguish ethnicity in voices needs to be verified with more rigorous experimental techniques.

The data collection process in Lim (1996, 2000) and Deterding and Poedjosoe-darmo (2000) was in the form of designed perception tests. Lim made use of long sentences of more than 30 seconds on a small pool of 12 informants in a controlled environment. Her informants consisted of Singaporean undergraduates of all three ethnic groups. Because the ethnic identification part of her work was only to supplement the main point on the intonation patterns in the ethnic varieties of SgE of her piece, her pool of informants was therefore smaller than desired. Deterding and Poedjosoedarmo performed two sets of perception tests on a much bigger pool of informants, one using controlled stimuli and the other using spontaneous speech, also on Singaporean undergraduates of all three ethnic groups. In terms of the composition of the informant pool, both Lim and Deterding and Poedjosoedarmo used undergraduates at the local universities as informants. This means that there has not been any study conducted on informants of other age groups and education levels. As such, one does not know if demographic differences among listeners would have any effect on ethnic identification. Both Lim and Deterding and Poedjosoe-darmo also used stimuli that were either based on spontaneous speech and/or were fairly substantial in length (more than 30 seconds). As such, the high accuracy rate in ethnic identification as presented in their findings could be attributed to a large number of factors, such as pronunciation or choice of lexical items, and not just simply voice quality.

This study hopes to be able to address the above methodological gaps by using a perception test consisting of short stimuli, such that other factors, be it phonological, lexical or contextual, can be minimised. The perception test will be described in more detail in the later section. The perception test was performed on informants of the three major ethnic groups in Singapore, across three age groups. Before moving into the details of the study, the next section will present an overview of the ethnic composition in Singapore to highlight the ethno-linguistic situation in this country, which will provide a better picture of the characteristics of the informants used in this study.

A multi-ethnic Singapore

As early as Boas (1911) and Sapir (1921), it has already been shown that there is no inherent genetic link between ethnicity and language, but it remains true that language is an important or even necessary component of ethnic-group membership

(Fought 2006; Rampton 1995). As Trudgill (1974, 59) remarks, 'linguistic characteristics may be the most important *defining* criteria for ethnic-group membership'. Trudgill (1974, 60–61) further elaborates that the separate identity of ethnic groups can be signalled by different varieties of the same language, with characteristic linguistic features functioning as important group-identification tools.

There is no doubt that there is some variance with respect to the parameters of 'ethnic'-grouping and how they are understood in different polities. Singapore has its own set of criteria in the definition of ethnic groups, and in addition to that, the languages that are deemed to belong to these ethnic classifications. Singapore's population stands at 5.08 million, of which only 3.2 million are citizens. The Singapore citizen population consists primarily of three major ethnic groups – broadly classified as the Chinese, Malay and Indian. The Chinese is the dominant group, with 76.8% of the population belonging to this group, followed by the Malays at 13.9% and the Indians at 7.9% (Singapore 2010 Census of Population 2010). These ethnic classifications have direct relevance to the languages a school-going child has to acquire. Corresponding to the three ethnic classifications is the 'Mother Tongue' of each ethnic group. The 'Mother Tongue' is the 'superordinate language' (Gupta 1998, 117) of one's official ethnic group, as the official languages of Mandarin, Malay and Tamil are assigned to the official ethnic groups correspondingly. Therefore, if one is ethnically classified as 'Chinese', then one's 'Mother Tongue' is deemed to be Mandarin, that of a 'Malay', Malay and that of an Indian, 'Tamil' (1998, 117). The term 'Mother Tongue' in Singapore therefore does not reflect the linguistic reality. Very often, especially for the Chinese and Indian speakers, the assigned 'Mother Tongue' is not their actual mother tongue. Mandarin, for example, is a state-imposed language chosen to represent the Chinese community due to certain historical and political reasons, despite the fact that the large majority of Chinese in Singapore originally spoke other Chinese languages such as Hokkien and Cantonese. Similarly for the Indians, Tamil is the language chosen to represent the Indian community for the sole purpose of providing a common link between the different Indian groups, despite the fact that at best only half of the Indians in Singapore speak the language. In fact, according to the census data of 1957, a total of 33 mother tongues were spoken in Singapore including Malayalam, Punjabi, Telugu, Hindi, Urdu, Bugis and Javanese; and just within the Chinese community, which made up 75.4% of the population then, more than 13 Chinese languages were spoken (Bokhorst-Heng 1998, 288). Only with the coming to power of the current government in 1959 did English become the official working language in Singapore, and this now serves as the lingua franca between Singaporeans of different ethnic groups.

The mode of instruction in education also saw some changes over the years. Prior to their closures between 1970 and 1984, there were the Chinese-, Malay- and Indian-medium schools that provided education in Chinese, Malay and Indian languages. They were mostly attended by children whose parents were not considered elite enough to be considered for the English-stream schools. English has since become the primary language of instruction in all schools, with the assigned 'Mother Tongue' as the second compulsory language to be learnt by all school-going children. The average bilingual Singaporean therefore is a product of a state-engineered bilingual education programme, which Pakir (1991, 111–20) describes as 'English-knowing' bilingualism. One's ethnic identity is then determined by both the official ethnic group membership and the 'Mother Tongue' that one speaks. The 'ethnicity' of the

participants in this study is their membership to this state-designated official grouping of 'Chinese', 'Malay' and 'Indian'. Similarly, the language of ethnicity for them is the state-imposed 'Mother Tongues' of Mandarin, Malay and Tamil, respectively, for the three ethnic groups.

The study

The perception test involves participants listening to a set of test stimuli and identifying the ethnic group – namely Chinese, Malay or Indian – of the speaker(s) in the stimuli. The informants are from the same three ethnic groups of Singapore, and these informants are broadly classified across three different age groups. The aim is to find out how accurate ethnic identification is based solely on short utterances, and if there is a difference in accuracy across the different ethnic and age groups.

The informants

A total of 325 Singaporeans formed the pool of informants in this study, of which 128 were Chinese-Singaporeans, 99 were Malay-Singaporeans and 98 were Indian-Singaporeans. Table 1 shows the breakdown of the informants' ethnic group and age group.[1]

All the informants were English speakers and had at least 12 years of formal education. They were born between 1943 and 1989, or aged, at the time of data collection, between 19 and 65 years. As many Singaporeans, especially those from the Chinese and Indian communities, would have come from different linguistic backgrounds, some care was taken in the choice of informants, as their linguistic repertoires may possibly affect the identification study. All the Chinese informants were proficient speakers of Mandarin, although many of the older informants also spoke other languages such as Hokkien, Teochew, Cantonese or Bazaar Malay. All the Malay informants were speakers of Malay, and some of them indicated that they also spoke languages such as Javanese. As the Indian community in Singapore consists of different Indian linguistic groups, only Indian informants who spoke Tamil were used in this study. The reason for choosing Tamil speakers in this study is because they form the majority in the Indian community in Singapore, and Tamil also happens to be the official designated 'Mother Tongue' of the Indian community.

Education level of the informants was not controlled, as the key criterion for informants was English-speaking bilinguals. As such, in terms of education level, 95.7% of the informants aged between 19 and 29 years had a university education. In contrast, only 68.89% of the informants aged between 30 and 49 years and 18.09%

Table 1. Breakdown of informants' ethnicity and age group.

Age (years)	Ethnicity		
	Chinese-Singaporean	Malay-Singaporean	Indian-Singaporean
19–29	66	40	35
30–49	30	29	31
50–65	32	30	32

of those aged 50 years and above were tertiary-educated.[2] The informants also came from varied occupations. While most of the older informants had already retired, they previously held jobs in business, education, manufacturing and service industries. The rest of the informants, besides the current undergraduates, were mostly teachers or held service-related jobs.

The banding of the age groups was not entirely arbitrarily done. The categorisations in the age groups were loosely based on some landmark events in the history of language policy in Singapore. As mentioned earlier, the linguistic ecology before language management policies took place in 1965 was far more diverse, with myriad languages spoken and used, and Bazaar Malay serving as the lingua franca. This would mean that the informants who were born before 1965 were most likely to be multilingual (beyond the four official languages of Singapore) and would have experienced their childhood in a linguistically diverse community. These informants would be in their fifties and sixties, which forms the third age-band of 50–65 years. In the same vein, informants born in the 1960s and 1970s (age band 30–49 years) can be said to have experienced their childhood in the transitional phase of the education policy – where there were still schools in the Chinese, Malay and Indian mediums, but dominated by English-based schools. This group of informants would most likely have had more exposure to English than Bazaar Malay (since English had become the official language), compared to the older group of informants. Singaporeans of the youngest age group, however, would have undergone (or be undergoing) their education within the well-oiled bilingual education machinery of the current system. It seems highly plausible then that the oldest group of informants would have been exposed to many different languages. Meanwhile, the youngest group would be effectively bilingual in both English and their 'Mother Tongues', but have much less contact and exposure to other languages since English serves as the common tongue.

Perception test stimuli

The test stimulus comprises 20 short utterances, each utterance of no longer than 5 seconds. This is done so that informants are given just enough speech data for them to make an identification, with less chance to be influenced by other phonological, lexical or grammatical details. The sentences also required no contextual information and were culturally, ethnically and emotionally neutral.

These 20 short utterances were made up of four sentences – one declarative, one WH-question and two yes–no questions. Each sentence would appear five times, each time by a different speaker. These sentences are:

(1) I remember the melody.
(2) Why did you borrow the umbrella?
(3) Do you remember the melody?
(4) Will you be having dinner?

The stimuli were based on recordings of 10 tertiary-educated Singaporean males, aged 20–25 years (Tan 1999). Of these 10 Singaporean males, three were English–Chinese bilinguals, three were English–Malay bilinguals and four were

English–Tamil bilinguals. All 10 stimulus-speakers were proficient bilingual speakers in that they use both languages at ease, both in the home and school/work environment. All 10 stimulus-speakers went through the Singapore education system, and none had lived abroad.

Besides the fact that the recordings provided utterances of suitable length and quality, the main reason why the test stimuli were taken from this set of recordings is that Tan (1999), using this set of recordings, established that there were ethnic differences to be found only in the intonation of the English–Mandarin, English–Malay and English–Tamil bilingual Singaporean speakers. This is crucial, as it provides linguistic evidence for the existence of 'ethnic' traces in these utterances. Should the ethnic identification accuracy rates be low, it would not be due to the homogeneity of the stimuli, but for some other reasons. In addition, as intonation was found to be the only distinguishing feature that was different across these three groups of speakers, this reduces the possibility of other phonological factors playing a part in the ethnic identification process.

Of the 20 utterances used as stimulus, seven utterances were produced by the three Chinese-Singaporean speakers, six utterances by the three Malay-Singaporean speakers and another seven utterances by the four Indian-Singaporean speakers. The first two utterances in the stimulus were disregarded, and the rest of the utterances were randomised. The results based on six utterances each from the Chinese, Malay and Indian speakers were taken for analysis, which made a total of 5850 tokens.

Data collection

The data were collected within a three-month period by the author of this study as well as five undergraduate research assistants between August and November 2008. All the informants aged between 19 and 22 years were undergraduates at the author's university. All the other informants were contacted via the author's and the research assistants' network of family and friends.

Each utterance from the test stimuli was played three times to each participant from a computer speaker in a quiet environment (e.g. a quiet room in informant's house or the phonetics laboratory in the university). Informants were given a questionnaire and asked to indicate, for each utterance, if the speaker was (1) Singaporean, and if so, (2) if the speaker was Chinese, Malay or Indian. The informant was also asked to indicate where he/she thought the speaker of the utterance was from if the speaker was thought to be non-Singaporean. Figure 1 shows an example from the questionnaire.

Utterance 18:   I remember the melody.

Q1	Do you think this speaker is Singaporean?	YES / NO
Q2	If you answered 'YES' to Q1, which ethnic group do you think this speaker belongs to?	CHINESE / MALAY/ INDIAN/ Can't tell
Q3	If you answered 'NO' to Q1, please indicate where you think this speaker is from.	

Figure 1.   An example from the questionnaire.

The entire process, including filling out the questionnaire and listening to the sound files, took no more than 15 minutes. The process was kept short to minimise participant fatigue and also because the author and the research assistants had to rely on the goodwill of the informants to participate in the survey. The following section presents the results of the perception test in terms of the rate of accuracy of ethnic identification. In addition, a one-way ANOVA multivariate test and the Tukey post-hoc test were also performed to ascertain if the differences in accuracy across the three ethnic groups and three age groups are statistically significant.

Results

As one of the research questions of concern in this study is whether listeners of different ethnic groups and age groups show differences in their identification of ethnic accents, the results will be presented in terms of the rate of correct ethnic identification, comparing across the three ethnic groups and age groups. The findings will be organised in four subsections. The first subsection will present the results of the correct identification of the Singapore–Chinese accent, across the three ethnic and age groups. The second section will do the same, except that it will focus on the results of the correct identification of the Singapore–Malay accent; and the third section, on the results of the correct identification of the Singapore–Indian accent. The fourth section presents a view of the 'mistakes' or 'misidentifications' of each ethnic accent and the correlation of these misidentifications to ethnic groups and age groups.

Correct identification of the Singapore−Chinese accent

Figure 2 shows the informants' rate of accurate identification of the Singapore–Chinese accent, across all three ethnic groups and all three age groups.

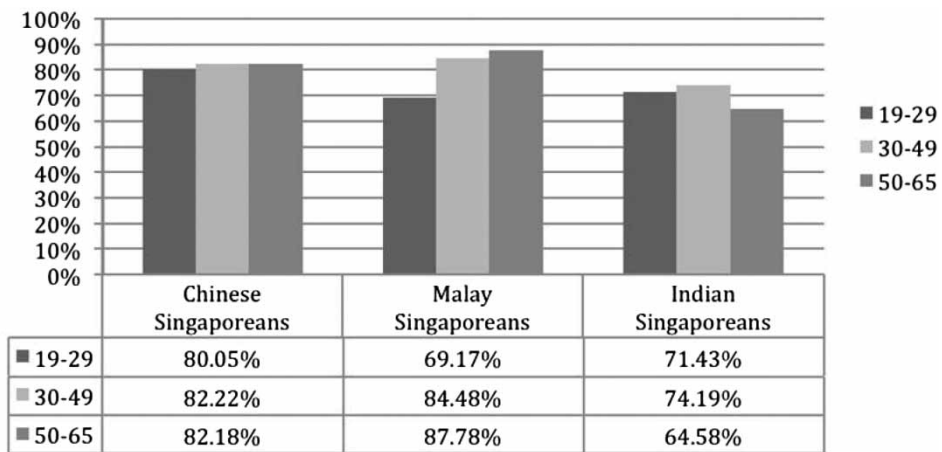|	Chinese Singaporeans	Malay Singaporeans	Indian Singaporeans
■ 19-29	80.05%	69.17%	71.43%
■ 30-49	82.22%	84.48%	74.19%
■ 50-65	82.18%	87.78%	64.58%

Figure 2. Correct ethnic identification of the Singapore–Chinese accent.

Chinese informants on the identification of the Singapore–Chinese accent

As can be observed from Figure 2, the Chinese informants across all three age groups have a high accuracy rate of above 80% in the identification of the Singapore–Chinese stimuli. This is perhaps not surprising, given that there is a tendency for in-group identification to take place. The accuracy rate across the three age groups falls within a small range of 80–82%, and the multivariate test confirms that the means of the correct responses between the three age groups are not significantly different at $p < 0.05$ ($F = 2.637$, $p = 0.076$, df = 2).

Malay informants on the identification of the Singapore–Chinese accent

The oldest group of Malay informants has an accuracy rate of 87.78%, and the accuracy rate drops to 84.48% for informants in the 30–49 age group, and further dropping to 69.17% for informants in the youngest group. The multivariate test confirms that the means of the correct responses between the three age groups are significantly different at $p < 0.05$ ($F = 23.1$, $p = 0.0001$, df = 2). The post-hoc test, in addition, shows that the mean of the correct responses in the 19–29 age group is significantly different to that in the 30–49 age group as well as the 50–65 age group at $p < 0.05$.

Indian informants on the identification of the Singapore–Chinese accent

Quite unlike what has been observed in the Chinese and Malay informants, there seems to be less of a consistent pattern in the responses of the Indian informants. The overall accuracy rate (between 64 and 74%) is lower than what has been observed in the Chinese and Malay informants. The oldest informants have the lowest accuracy rate at 64.58%, and this is inconsistent with the pattern observed in the Malay informants. The accuracy rate increases to above 70% with the younger informants in the next two age brackets. The multivariate test shows that the means of the correct responses between the three age groups are significantly different at $p < 0.05$ ($F = 18.31$, $p = 0.0004$, df = 2). The post-hoc test also shows that the mean of the correct responses of the informants in the 30–49 age group is significantly different to that of the 50–65 age group at $p < 0.05$.

Correct identification of the Singapore–Malay accent

Figure 3 shows the informants' rate of accurate identification of the Singapore–Malay accent, across all the three ethnic groups and age groups. As compared to the high rate of correct identification of the Chinese speaker, the accuracy rate of the Malay speaker identification is low across the informants of all three ethnic groups.

Chinese informants on the identification of the Singapore–Malay accent

As can be observed from Figure 3, the Chinese informants who are aged above 50 years have the highest accuracy rate of 60.34%. The accuracy rate drops for younger informants, with 57.78% for informants in the 30–49 age group and 39.39% for informants in the youngest group. The multivariate test confirms that the means of the correct responses between the three age groups are significantly different at

	Chinese Singaporeans	Malay Singaporeans	Indian Singaporeans
■ 19-29	39.39%	59.17%	40.00%
■ 30-49	57.78%	66.09%	56.45%
■ 50-65	60.34%	68.33%	59.90%

Figure 3.   Correct identification of the Singapore–Malay accent.

$p < 0.05$ ($F = 22.195$, $p = 0.00001$, df $= 2$). The post-hoc test shows that the mean of the correct responses in the 19–29 age group is significantly different to that of the other two age groups at $p < 0.05$.

Malay informants on the identification of the Singapore–Malay accent

The Malay informants across all three age groups have an accuracy rate of about 65% in the identification of the Malay speakers in the test stimuli. While this figure is relatively low, the Malay informants have fared the best in the correct identification of the Malay speakers as compared to the Chinese and Indian informants. This is again perhaps due to in-group identification. What is consistently showing itself again is the fact that even with the effect of in-group identification, the accuracy rate is higher for the informants in the older age brackets. The oldest informants have the highest accuracy rate of 68.33%, and the accuracy rate drops for the younger informants, with 66.09% for informants in the middle age group, to 59.17% in the youngest group. The multivariate test confirms that the means of the correct responses between the three age gr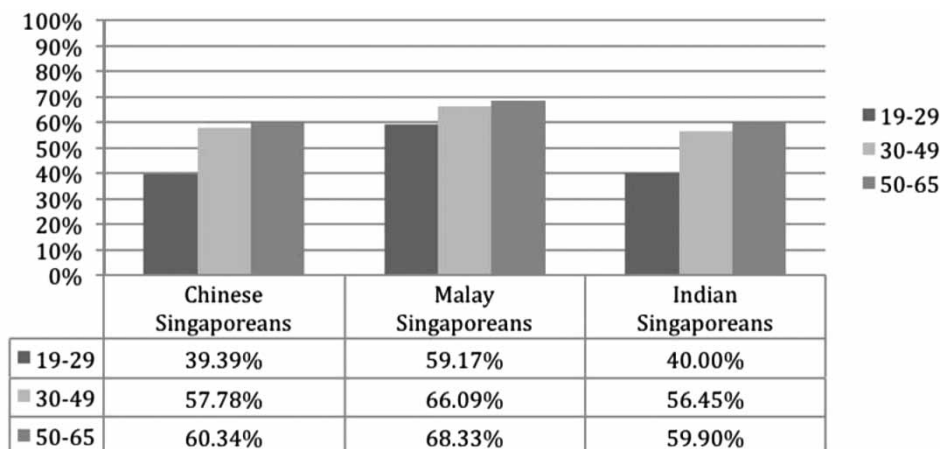oups are significantly different at $p < 0.05$ ($F = 5.502$, $p = 0.008$, df $= 2$). The post-hoc test shows that the mean of the correct responses of the informants in the 19–29 age group is significantly different to that of those in the 50–65 age group at $p < 0.05$.

Indian informants on the identification of the Singapore–Malay accent

Similar to what has been observed in the Chinese and Malay informants, for the Indian informants, the accuracy rate of the ethnic identification of the Malay speaker also declines for the younger informants. The rate of accuracy drops from 59.90% for informants in the 50–65 age group to 56.45% for informants in the 30–49 age group, further dropping to 40.00% in the youngest group. The multivariate test confirms that the means of the correct responses between the three age groups are significantly different at $p < 0.05$ ($F = 41.284$, $p = 0.00001$, df $= 2$). The post-hoc test shows that the mean of the correct responses of the informants in the 19–29 age group is

significantly different to that of the two older age groups at $p < 0.05$. This seems to suggest that the age of the informants has a clear effect on the accuracy rate in the identification of the Singapore–Malay accent.

Correct identification of the Singapore–Indian accent

Figure 4 shows the informants' rate of accurate identification of the Indian speaker, across all the three ethnic groups and age groups. As can be observed from Figure 4, the rate of correct identification of the Indian accent is the poorest compared to the Chinese and Malay speakers. The accuracy rate of the Indian speaker identification is low for all the informants across the three ethnic groups, and for some groups of informants, the accuracy rate falls below 40%.

Chinese informants on the identification of the Singapore–Indian accent

A consistently recurring pattern, the Chinese informants again show that the accuracy rate of ethnic identification is lower for the younger informants. In the identification of the Indian speaker, the oldest informants once again have the highest accuracy rate of 64.37%. The accuracy drops to 41.11% for informants in the 30–49 age group, and 33.08% in the youngest group. The multivariate test confirms that the means of the correct responses between the three age groups are significantly different at $p < 0.05$ ($F = 5.741$, $p = 0.004$, df $= 2$). The post-hoc test shows that the mean of the correct responses of informants in the youngest age group is significantly different to that of the informants in the other two older age groups at $p < 0.05$.

Malay informants on the identification of the Singapore–Indian accent

As expected, for the Malay informants, the accuracy rate of the identification of the Indian speaker is also lower for the younger informants. The rate of accuracy drops, from 62.78% for informants in the 50–65 age group to 49.43% for informants in the 30–49 age group, further dropping to 32.08% in the youngest group. The multivariate test confirms that the means of the correct responses between the three age groups is

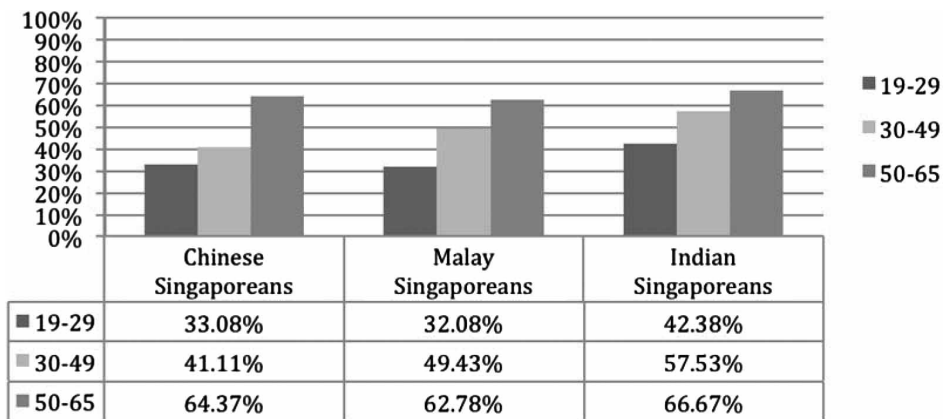|	Chinese Singaporeans	Malay Singaporeans	Indian Singaporeans
■ 19-29	33.08%	32.08%	42.38%
■ 30-49	41.11%	49.43%	57.53%
■ 50-65	64.37%	62.78%	66.67%

Figure 4.   Correct identification of the Singapore–Indian accent.

significantly different at $p < 0.05$ ($F = 34.865$, $p = 0.00001$, df = 2). The post-hoc test shows that the mean of the correct responses of the informants in the youngest age group is significantly different to that of the informants in the two other age groups at $p < 0.05$. In addition, the mean of the correct responses of the informants in the 30–49 age group is also significantly different to that of those in the 50–65 age group at $p < 0.05$.

Indian informants on the identification of the Singapore–Indian accent

The Indian informants across all the three age groups have an accuracy rate of around 56% in the identification of the Indian speakers in the test stimuli. While this figure is low, the Indian informants have fared the best in the correct identification of the Indian speaker as compared to the Chinese and Malay informants. Again, this can be attributed to the effect of in-group identification. What is consistently showing itself again is that the accuracy rate is still higher for informants in the older age brackets. The oldest informants have the highest accuracy rate at 66.67%, and accuracy rate drops to 57.53% for informants in the middle age group, dropping further to 42.38% in the youngest group. The multivariate test confirms that the difference is significant at $p < 0.05$ ($F = 40.873$, $p = 0.00001$, df = 2). The post-hoc test also shows that the mean of the correct responses of the informants in the youngest age group is significantly different to that of the two older age groups at $p < 0.05$. In addition, the mean of the correct responses of the informants in the 30–49 age group is also significantly different to that of those in the 50–65 age group at $p < 0.05$. Once again, similar to the case of the young Malay informants on the Malay accent, this confirms that the identification of one's own ethnic accent has become weaker for younger Indian speakers.

'Chinese' as the default Singaporean accent?

This section presents the 'mistakes' of the informants in their identification tasks, the purpose of which is to find out if there is a tendency for the informants to over-classify the test-stimuli speakers in one ethnic group or another. Table 2 shows the results of the misidentifications, organised by ethnic group and age group.

As can be seen from Table 2, what is striking is the consistent pattern of misidentifying the Malay and the Indian speakers as 'Chinese', particularly for the

Table 2. Results of the ethnic misidentifications, organised by ethnic group and age group.

Misidentifications (years)	Chinese as Malay (%)	Chinese as Indian (%)	Malay as Chinese (%)	Malay as Indian (%)	Indian as Chinese (%)	Indian as Malay (%)
Chinese (aged 19–29)	8.08	1.01	**16.16**	15.45	**20.20**	15.40
Chinese (aged 30–49)	7.20	5.56	6.68	12.20	11.67	25.00
Chinese (aged 50–65)	9.77	6.90	4.02	17.82	13.79	19.55
Malay (aged 19–29)	7.08	5.42	**6.90**	8.35	**23.33**	20.00
Malay (aged 30–49)	3.45	2.87	6.25	17.24	12.07	16.09
Malay (aged 50–65)	2.78	1.67	3.89	17.22	16.11	10.56
Indian (aged 19–29)	7.14	5.24	**19.05**	10.00	**15.24**	14.29
Indian (aged 30–49)	8.06	5.38	10.20	5.90	11.80	16.67
Indian (aged 50–65)	9.90	7.29	7.81	8.33	13.02	8.33

youngest group of informants (bolded in Table 2 for easy reference). When compared across the informants of the three different age groups, it can be observed that the youngest group of informants, across all three ethnic groups, has a higher tendency to label an accent incorrectly as 'Chinese' as compared to informants of the other two older age groups. For example, 16.16% of the youngest Chinese informants incorrectly labelled the Malay speaker as 'Chinese', as compared to 6.68% of the informants in the 30–45 age group, and 4.02% for the oldest group. Similarly, 20.20% of the youngest group of Chinese informants labelled the Indian speaker as 'Chinese', as compared to only 11.67% and 13.79% in the two older age groups. The same pattern is observed in the Malay informants, that is, 23.33% of the youngest Malay informants incorrectly labelled the Indian speaker as 'Chinese', as compared to 12.07% of the informants in the 30–45 age group, and 16.11% for the oldest group. This is the same with the Indian informants. 19.05% of the youngest group of Indian informants labelled the Malay speaker as 'Chinese', as compared to only 10.20% and 7.81% in the two older age groups.

What this suggests is that the youngest groups of informants are perhaps taking the 'Chinese' accent as the default one, given the Chinese community's dominance in the country, such that every voice that did not strike them as having any distinguishing ethnic feature is 'Chinese'. The informants of the older age groups, however, are less ready to do so, as compared to the young informants.

Conclusion

The results show that the Chinese speaker is the most identifiable, with the highest rate of correct identification, and this is true across informants of all three ethnic groups and age groups, followed by the Malay speaker and the Indian speaker, respectively. This in fact corroborates with the findings of Lim (1996) and Deterding and Poedjosoedarmo (2000). This can perhaps be explained by the ethnic population distribution in Singapore. Given that the Chinese make up more than 75% of Singapore's population, the Singaporean-Chinese speaker is bound to be the most heard and therefore most identifiable in Singapore. In the same vein, since the Indian population is the smallest at 8%, the frequency of contact and interaction with the Indian community – and thus the exposure to the Indian speakers – is much reduced. In other words, experience and exposure to speakers of different ethnic groups may contribute to the accuracy of ethnic speaker identification.

The results also show that listeners of different age groups identify the ethnicity of speakers with different rates of accuracy, and this is especially so for the Malay and Indian speakers, where the rate of accuracy is highest with the oldest group of informants and lowest with the youngest group of informants. Again, one can suggest that experience and exposure to speakers of different ethnicities may have an effect on the accuracy of ethnic speaker identification. The older generation, having lived more years, would have had more years of exposure and experience to different languages compared to the young. In addition to that, the older generation informants grew up in a time of more diverse and multilingual linguistic ecology before this current English-dominated governance. The multilingual setting then would have created more opportunities for inter-ethnic communication to be based on one another's languages. In other words, people probably had to try to learn a smattering of each other's languages to get by. This, undoubtedly, would have increased the

exposure and knowledge of languages other than English and one's own, which would explain the increased sensitivity to speakers of different ethnic backgrounds.

A more interesting question, however, arises from the results of the younger generation Singaporeans. Young Singaporeans do not seem to be able to perceive ethnic accents as accurately as the older Singaporeans. Is there something else at work here, besides experience and exposure to accents? In other words, are young Singaporeans deaf to ethnic traces in speech, and if so, why?

Young Singaporeans seem to present themselves as imperceptible to ethnic nuances and variations. This is not only true for other ethnic accents – these young Singaporeans do not compare well to the older Singaporeans at identifying their own ethnic accents, the case in point being the Malay and Indian youths. This might be a testament to the successful national campaign of inculcating the Singaporean identity 'regardless of race, language and religion' (a line from the Singapore pledge). As the national policies build in these young Singaporeans a sense of national identity rather than ethnic identity, they may perhaps have moved their sense of national identity to the perceptual, recognising a national Singaporean accent, rather than one that is coloured by ethnic traces. To borrow Fishman's (2010) term, the 'ethnic consciousness' of the youths seems to be weakening.

Interestingly though, all of the young Singaporeans (regardless of ethnic group) achieve high accuracy scores when perceiving the Chinese accent. Of course, this can be explained by the Chinese community's dominance in the country, making the Singapore–Chinese accent the most often heard accent. However, as young Singaporeans build a national identity *sans* ethnic identity, perhaps this could be a sign that the dominant community's accent is taken to be *the Singaporean accent* by default. If most young listeners called every voice that did not have any distinguishing characteristics 'Chinese', this would result in a high accuracy in this category and a much lower accuracy in the others, which is indeed what we see.

Of course, one could argue that SgE has become homogeneous, and that would explain why ethnic differences cannot be perceived as accurately. This however does not explain how the same speech stimulus drew out different results across informants of different age groups. The crux lies in the informants and not the stimulus. One possible explanation lies in the education level of the informants. It is possible that the more educated one is, the more difficult it is for one to differentiate ethnicity. This study did not hold education of the informants as a constant and is therefore unable to ascertain if education has a role to play in ethnic identification. As to the question of whether SgE has become homogeneous across the years or not, this study cannot claim to provide an answer. Future work can take this further by running the ethnic identification test not only on Singaporeans of different ethnic and age groups, but also have the test stimulus be made up of speakers of different age groups and ethnic groups.[3]

As this study has shown how there are age-related differences in the perception of ethnic accent, one wonders if there can in fact be a link between perception and the construction of ethnic identity. When one is deaf to ethnic accents, does that signal an end to one's ethnic consciousness and ethnic affiliation? As far as the results in this study show, in the case of Singapore, the ethnic melodies are heard by some not only because they can hear, but perhaps because the melodies live in their sonic memories. To others, ethnic melodies can continue to play but will fall on deaf ears.

Notes

1. See Table A1 in Appendix for the actual age of the informants and their average age per group.
2. See Table A2 in Appendix for the education levels of the informants.
3. The author is indebted to the reviewer for this suggestion.

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Appendix

Table A1.   Age of informants and average age per age group.

	Age	No. of informants		Age	No. of informants		Age	No. of informants
Age group 19–29	19	35	Age group 30–49	30	2	Age group 50–65	50	5
	20	40		31	1		51	6
	21	25		32	5		52	8
	22	21		33	9		53	9
	23	10		34	7		54	12
	24	2		35	5		55	9
	25	3		36	7		56	6
	26	3		37	6		57	8
	27	0		38	5		58	9
	28	1		39	7		59	6
	29	1		40	6		60	8
				41	8		61	2
				42	3		62	3
				43	2		63	1
				44	3		64	1
				45	2		65	1
				46	3			
				47	2			
				48	5			
				49	2			
Average age: 21.9			Average age: 38.5			Average age: 55.7		

Table A2. Number of informants with university education.

	Age	No. of informants with uni. education		Age	No. of informants with uni. education		Age	No. of informants with uni. education
Age group 19–29	19	35	Age group 30–49	30	2	Age group 50–65	50	1
	20	45		31	1		51	1
	21	25		32	5		52	2
	22	19		33	8		53	2
	23	8		34	6		54	2
	24	1		35	5		55	2
	25	3		36	5		56	3
	26	2		37	4		57	2
	27	0		38	3		58	1
	28	1		39	5		59	0
	29	1		40	4		60	0
				41	6		61	0
				42	1		62	1
				43	1		63	0
				44	1		64	0
				45	0		65	0
				46	2			
				47	1			
				48	2			
				49	0			
	Total	135		Total	62		Total	17
	%	95.70%		%	68.89%		%	18.09