Social correlates of /r/ in Singapore English

In rhotic varieties of English, /r/ occurs wherever there is an <r> in the spelling in word final positions, e.g. *car* and before a consonant, e.g. *cart*. The /r/ in rhotic varieties is referred to as post-vocalic /r/. In contrast, non-rhotic varieties only allow /r/ to occur before a vowel (Crystal 2003: 400). Intrusive /r/, usually found in non-rhotic varieties, occurs when there is no orthographic <r> present, e.g. *claw*/r/*ing* and *ma*/r/ (Hay and Maclagan 2010). The use of intrusive /r/ is phonologically conditioned, usually occurring only after non-high monophthongs, or after diphthongs with non-high offglides. However, as Hay and Maclagan (2010) observe, in New Zealand English, young speakers are also beginning to use intrusive /r/ after /au/, e.g. *now*-/r/-*and then*, or *plough*/r/*ing*.

SgE has been described to be a non-rhotic variety of English (Low and Brown 2005; Deterding 2007; Sharbawi and Deterding 2010). Interestingly, Tan and Gupta (1992) and Poedjosoedarmo (2000) observe some degree of rhoticity in SgE. Tan and Gupta (1992) in addition suggest that the use of postvocalic /r/ is a prestige feature for some speakers. It is unclear from these studies if there is any correlation between the socioeconomic status of the speakers and the use of post-vocalic /r/ in SgE; and if one can see any similarities to Labov's classic 1966 work. There has also not been any study so far on intrusive /r/ in SgE. Furthermore, there is to date no study on the perception of /r/ in SgE. In other words, one does not know if the post-vocalic /r/ and intrusive /r/ are in fact perceptually salient. One also has no information about the attitudes of SgE speakers on the use of post-vocalic and intrusive /r/ in SgE. This paper therefore seeks to answer the following research questions:

1) Do speakers of SgE use post-vocalic and/or intrusive /r/?
2) If so, who are the speakers, and is there a correlation between the speakers' socioeconomic status/educational level and the use of post-vocalic and/or intrusive /r/?
3) What are the attitudes of SgE speakers to the use of post-vocalic and/or intrusive /r/ in SgE?

To answer research questions (1) and (2), 15 SgE speakers were recorded. As /r/-intrusion is relatively difficult to elicit in spontaneous speech, participants were asked to read aloud a set of 50 sentences which were designed with phonological environments for the occurrences of post-vocalic /r/ and intrusive /r/. The speakers recorded were female and were aged 18-25. As the variables are socioeconomic status and educational level, I controlled gender and age in this experiment. The participants were all Chinese-Singaporeans and were English-Mandarin bilinguals. Because the participants were relatively young, social class was also assessed by considering the socio-economic status of the participants' parents. The 15 participants were split into three groups of 5 participants each, corresponding loosely to high, middle and low class. Table 1 shows the breakdown of the participants' background and respective groupings:

	Participants' educational level	*Parents' educational level*	*Parents' socioeconomic status*	*Languages spoken at home*
Group 1 (high)	University /undergraduate	University	Professional jobs/ high income	English and Mandarin
Group 2 (middle)	Vocational diploma	Vocational diploma	Typically middle-class	Mandarin only
Group 3 (low)	High school	High school	Non-professional jobs/ Low-income	Mandarin & other Chinese languages

Table 1. Breakdown of the participants' background and respective groupings

Each utterance recorded was given a binary analysis, indicating whether an /r/ was produced in the target word or not. For those tokens which were analyzed as containing an intrusive or post-vocalic /r/, acoustic analysis using Praat was carried out to measure the lowest point of F3 during the /r/ as F3 is the most salient acoustic correlate of /r/.

Results show that there is a tendency for some Group 2 and Group 3 participants to use both post-vocalic and intrusive /r/, showing a correlation to socioeconomic status and educational levels. While there are some instances of post-vocalic /r/ produced by Group 1 speakers, intrusive /r/ is however never produced. The results corroborate with Labov (1966) on the use of postvocalic /r/ in New York City, as well as Hay and Maclagan's (2010) study on intrusive /r/ in New Zealand English.

Besides the production test as mentioned, a perception and attitudinal test was carried out on 50 undergraduates to answer research question (3). The 50 participants were played 30 utterances selected from the recordings earlier. For each utterance, the participant was asked a series of questions to elicit judgments on the speaker's naturalness, localness and educational level. The results show that speakers who do not produce post-vocalic and intrusive /r/ are judged to be most natural. Utterances with post-vocalic /r/ are however perceived to be produced by highly educated speakers, though they score poorly in terms of naturalness. Speakers with intrusive /r/ are judged to be the least educated and the least natural. Regardless of the occurrences of /r/, all the utterances are perceived to sound local.

There is clearly a correlation between socioeconomic status/education level and the production of post-vocalic and intrusive /r/ in SgE, though there is a mismatch between what is produced by the speakers, and what is perceived by the listeners. The results perhaps imply that sociophonetic methodologies need to couple both production and perception tests.

References
Crystal, David. 2003. *A Dictionary of Linguistics and Phonetics*. 5th ed. Malden, Oxford: Blackwell.
Deterding, David. 2007. *Singapore English*. Edinburgh: Edinburgh University Press.
Hay, Jennifer and Margaret Maclagan. 2010. Social and phonetic conditioners on the frequency and degree of 'intrusive /r/' in New Zealand English. In Dennis Preston and Nancy Niedzielski (eds.) *A Reader in Sociophonetics*. Berlin and New York: Mouton de Gruyter, 41-70.
Labov, William. 1966. *The Sociolinguistic Stratification of English in New York City*. Washington, D.C.: Center for Applied Linguistics.
Low, Ee Ling and Adam Brown. 2005. *English in Singapore: An Introduction*. Singapore: McGraw-Hill.
Poedjosoedarmo, Gloria. 2000. The media as a model and source of innovation in the development of Singapore Standard English. In Adam Brown, David Deterding and Low Ee Ling (eds.), *The English Language in Singapore: Research on Pronunciation*. Singapore: Singapore Association for Applied Linguistics, 112–120.
Sharbawi, Salbrina and David Deterding. 2010. Rhoticity in Brunei English. *English World-Wide* 31(2):121-137.
Tan, Chor Hiang and Anthea Fraser Gupta. 1992. Post-vocalic /r/ in Singapore English. *York Papers in Linguistics* 16: 139–52.