AN INSTRUMENTAL ANALYSIS OF DIPHTHONGS IN MALAYSIAN ENGLISH

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Abstract

This paper demonstrates an instrumental analysis of Diphthongs in Malaysian English (MalE) diphthongs. The establishment of comparison between MalE and Singapore English (SgE) was made with an aim to investigate if there were any significant differences between all the diphthongs of both, the postcolonial Englishes which are now at different phases.

Specifically it addresses the following research questions: (1) This study aims to examine the qualities of English diphthongs produced by Malaysian English and Singapore English speakers. (2) To what extent are English diphthongs produced similarly in Malaysian English and Singapore English? In order to address these questions, data was recorded with a total of twenty female speakers from both Malaysia and Singapore to establish a valid comparison. Two groups of respondents consisting five Malay and five Chinese undergraduates aged 18 to 26 each were recruited to do a voice recording. A total of 20 participants completed 2 tasks. Task 1: Each respondent recited a word list of the embedded tokens which contains the eight diphthongs (Bayed /beɪd/, Bode /bəʊd/, Bide /baɪd/, Boyd /bɔɪd/, Bout /baʊt/, Beard /bɪəd/, Bear /beə(r)/, Poor /pʊə(r)/). Task 2: A picture was given as an instrument to prompt the respondents on the target words which contained the eight diphthongs in the natural connected speech via an interview. With the audio files recorded, waveforms and spectrograms of the files were generated using PRAAT. Based on the data analysis and examinations of the waveforms and spectrograms of the selected words, the first two formants (F1 and F2) of the vowel pairs were identified. The values were subsequently averaged and converted to the auditory Bark scale and thus graphs of F1-F2 in Bark were plotted for both MalE and SgE to enable comparisons in terms of the acoustic descriptions.

The findings suggest that both MalE and SgE have all the eight diphthongs. However, there is a great deal of variations in the production of all the diphthongs for both MalE and SgE. Generally, Singaporean speakers produce all the diphthongs with a greater diphthongal movement compared to Malaysian speakers. Monophthongization is reported in /əʊ/ of MalE in Task 2 which involves the natural speech during the interview. /eə/ of MalE is also found to have the smallest diphthongal movement in Task 1 which involves the citation word, *Bear*.

The findings presented in this paper are preliminary in nature. Thus, the researcher hopes it makes a small contribution to the growing body of research in the context of production of diphthongs in these two varieties of English.

Abstrak

Kertas kajian ini merupakan satu analisasi instrumentasi bagi diftong-diftong Bahasa Inggeris Malaysia (MalE). Perbandingan antara MalE and Bahasa Inggeris Singapura (SgE) ini adalah berdasarkan satu tujuan, iaitu untuk menyiasat sama ada terdapatnya perbezaan yang ketara di antara diftong bagi kedua-dua jenis Inggeris pasca-kolonial yang kini berada di tahap yang berlainan.

Secara khususnya, soalan-soalan kajian bagi kertas ini adalah seperti yang berikut: (1) Kajian ini bermatlamat untuk mengkaji ciri-ciri diftong Bahasa Inggeris yang disebutkan oleh para penutur Bahasa Inggeris Malaysia dan Singapura. (2) Sejauh manakah persamaan didapati dalam diftong Bahasa Inggeris Malaysia dan Singapura? Untuk menangani kedua-dua soalan kajian ini, data telah dikumpul dan dirakamkan dengan dua puluh orang penutur wanita dari kedua-dua Malaysia dan Singapura bagi mewujudkan perbandingan yang sah lagi kukuh. Terdapat dua kumpulan responden yang terdiri daripada lima orang mahasiswa Melayu dan Cina yang berumur 18 ke 26 tahun masing-masing telah dijemput untuk membuat rakaman suara. Seramai 20 orang peserta yang terlibat untuk menyempurnakan tugasan ini. Tugas 1: Setiap responden diminta membaca satu senarai perkataan yang mengandungi kesemua lapan diftong (Bayed /beɪd/, Bode /bəʊd/, Bide /baɪd/, Boyd /bɔɪd/, Bout /baʊt/, Beard /bɪəd/, Bear /beə(r)/, Poor /pʊə(r)/). Tugas 2: Sekeping gambar dibekalkan sebagai medium untuk mendorong para responden supaya menyebutkan perkataan-perkataan sasaran yang mengandungi kesemua lapan diftong dalam ucapan tabii melalui temu bual dengan penyelidik. Selepas itu, fail audio yang telah dirakamkan digunakan untuk menghasilkan gelombang serta spektrogram dengan bantuan Praat. Kedua-dua forman

(F1 dan F2) dikenalpastikan melalui analisasi data dan ujian yang dilakukan dengan bantuan gelombang dan spektrogram bagi perkataan-perkataan yang terpilih. Nilai-nilai yang didapati dipuratakan lalu ditukarkan kepada bentuk skala Bark dan seterusnya, graf-graf F1-F2 diplotkan bagi kedua-dua MalE dan SgE untuk membuat perbandingan dari segi penerangan akustiknya.

Hasil kajian ini menunjukkan bahawa kedua-dua MalE dan SgE mempunyai kesemua lapan diftong. Namun demikian, kedua-dua MalE dan SgE terdapat banyak variasi dalam penyebutan kesemua lapan diftong-diftong ini. Secara umumnya, penutur Singapura menyebut kesemua diftong-diftong ini dengan gerakan diftong yang lebih besar berbanding dengan penutur Malaysia. Pemonoftongan dilaporkan dalam penyebutan /əʊ/ bagi MalE dalam Tugas 2 yang melibatkan ucapan tabii yang dirakamkan dalam temu bual. /eə/ yang disebut sebagai, *Bear* bagi MalE merupakan diftong yang menghasilkan gerakan diftong yang paling kecil dalam Tugas 1.

Hasil kajian yang dibentangkan dalam kertas ini merupakan satu titik permulaan pada peringkat awal sahaja. Oleh yang demikian, penyelidik berharap agar kertas ini dapat memberikan sumbangan yang kecil kepada badan pnyelidikan yang kini makin pesat berkembang dalam konteks penyebutan diftong di dalam kedua-dua jenis Bahasa Inggeris ini.

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List of Abbreviations

AmE	American English
ASEAN	Association of Southeast Asian Nations
AusE	Australian English
BM	Bahasa Malaysia
BrE	British English
BrunE	Brunei English
Cambridge ESOL	University of Cambridge English for Speakers of Other Languages Examinations
COMEL	Corpus of Malaysian English
EFL	English as a Foreign Language
Eng	English
ENL	English as a Native Language
ESL	English as a Second Language
F1/F_1	First formant
F1/F_2	Second formant
HKE	Hong Kong English
HKIEd	Hong Kong Institute of Education
IDG	Indigenous populations
IE	Indian English
L1	First language
L2	Second language
L3	Third language
LE	Liverpool English
LPC	The Burg Linear Predictive Coding algorithm
MalE	Malaysian English
MBMMBI	Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris
MC1	Malaysian Chinese speaker (Subject 1)
ME II	Malaysian English Type 2
MM1	Malaysian Malay speaker (Subject 1)
MUET	Malaysian Universities English Test
NIE	National Institute of Education
NWS	North Wind and the Sun
NZE	New Zealand English
PCEs	Postcolonial Englishes
PMR	Penilaian Menengah Rendah

PPSMI	Pelaksanaan Dasar Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris
ROC	Rate of change
RP	Received Pronunciation
SAfE	South Africa English
SC1	Singaporean Chinese speaker (Subject 1)
SgE	Singapore English
SM	Standard Malay
SM1	Singaporean Malay speaker (Subject 1)
SPM	Sijil Pelajaran Malaysia
STL	Settlers
STPM	Sijil Tinggi Pelajaran Malaysia
TSLN	Thinking Schools, Learning Nation
UPSR	Ujian Pencapaian Sekolah Rendah

List of Symbols

wolf	citation words are italicized
/ɔ/	phonetic symbols
‘rhotic’	terms are enclosed in single quotes
“xxxx”	quotes are enclosed in double quotes

CHAPTER ONE
INTRODUCTION

1.0 Introduction

As English is regarded as the principal international language in the world, it is widely used all over the world. The global variations and changes due to numerous factors led to formation of "New Englishes" gradually. Pride (1982) and Platt, Weber and Ho (1984) introduced the tag "New Englishes", which acquired vast attention from many scholars. Jenkins (2003) regards, "New Englishes" as the varieties of English that have developed mainly as a result of colonization of Asia and Africa. "New Englishes" have evolved into many varieties and serve a full range of purposes with their own characteristics with regard to pronunciation, grammar, vocabulary or idiom and discourse style (Jenkin, 2003). "New Englishes" in South East Asia where English is mainly used as a second language in Malaysia, Singapore and Philippines are gaining recognition and developing unique variations in the structural characteristics (phonological, lexical, syntactic, discourse) of their own (Bautista & Gonzalez, 2009).

Being classified as Malaysian English (henceforth, MalE), it is a variety that fulfils the criteria suggested by Platt, Weber and Ho (1984) in their effort to show the diversity, systematic and legitimacy of New Englishes. MalE has developed through the local education system where English has been taught as a subject and currently English is also the medium of instruction for Mathematics and Science. Secondly, the speakers and learners of MalE use it in communication, administrations, education, commerce and media. In addition, it has become 'localized' or 'nativized' by adopting some

language features of its own as regards sounds, intonation patterns, sentence structures, words and expressions.

Schneider then (2007) introduced the label of “Postcolonial Englishes” (henceforth, PCEs), which is more neutral but focusing precisely on several aspects of the varieties throughout the evolutionary process from their colonial and postcolonial history to recent development. In his framework, he argues that the seven case studies (Fiji, Hong Kong, Malaysia, the Philippines, Singapore, Australia and New Zealand) are now positioned at different points along the developmental cycle that he suggested. He marked out that MalE is definitely a prominent representative in “New Englishes” due to its unique indigenization and structural consequences throughout the development and stabilization process in Baskaran’s book (2005). In the book, she further affirmed that English is thoroughly a Malaysian language now which enjoys a strong status, and it is “here to stay" (Baskaran, 2005).

To the researcher’s knowledge, previous work on MalE is mostly auditory impression. In 1980, Platt and Weber did a perceptual study on the linguistic features of Malaysian English Type 2 (ME II), which was very much a second language variety at that time and at present, Malaysian English (MalE) still is. Nevertheless, with the increasing awareness of the importance of English, there has been a slight increase in the learners of English as the first language with the significant growth of English-medium international schools in Malaysia. This could be due to the increasing demand for English-speaking education and the abolishment of the Teaching of Science and Maths in English policy (PPSMI). In 1997, Zuraidah conducted an auditory analysis of 20 distinctive vowels based on audio-recordings of 20 utterances and 100 words from 12

native speakers of Malay. In 2006, Rajadurai did a phonological analysis of 20 hours of naturalistic speech of three proficient Malaysian speakers on a few aspects such as segmental aspects, phonotactic considerations, suprasegmental features and intelligibility. At linguistic level, the study of MalE typically involves a description of distinctive features at the levels of phonology (accent), lexis (vocabulary), grammar (morphology and syntax) (Baskaran, 1987, 2004, 2005; Gill, 2002 & 2007; Gill & Pakir, 1999; Lim, 2007; Menon, 2006; Phoon, Abdullah & Maclagan, 2013; Phoon & Maclagan, 2009; Pillai, 2008; Pillai, Zuraidah, Knowles & Tang, 2010; Rajadurai, 2007; Tan & Low, 2010; Wong & Liu, 2006; Zuraidah, 1997). The body of work done for the pronunciation of MalE is still growing.

In a perceptual analysis of Phoon & Maclagan (2009), consonant cluster reduction is also found especially the omission of /d/ and /t/ at the final position of the clusters. The consonant realizations of Malay-influenced (MME), Chinese-influenced (ChME) and Indian-influenced (IME) MalE were further studied to investigate the phonological patterns exhibited by the three ethnic groups (Malay, Chinese and Indian speakers) (Phoon, Abdullah and Maclagan, 2013). In the study, the findings reported seven phonological features that are shared and six consonant features that are not shared across MME, ChME and IME (Phoon, Abdullah and Maclagan, 2013). Baskaran (2005) also states that there is a general tendency to reduce the contoidal clusters to one or two elements less than is necessary in MalE. Particularly, the reduction from three to two or two to one phoneme is mostly obvious at the final position of the words. Rajadurai (2006) too discovered that the aspiration of the voiceless plosives in MalE is weak.

In terms of suprasegmental, word stress and stress-position of MalE are the commonly raise issues by the researchers (Baskaran, 2005; Gaudart, 1997; Zuraidah, 1997). Rajadurai (2006) states that nuclear and lexical stress are both imperative and further future research is very much desired. Zuraidah (1997) states that vowel reduction resulted in the placing of the stress on a wrong syllable compared to the word stress of Received Pronunciation (henceforth RP) by the native speakers of Malay in general. Gaudart (1997) mentioned that native speakers found that the intelligibility of weaker students is lower due to stress and rhythm as some students tend to pronounce some words without any differences in stress for words like "*petrol*" and "*patrol*". In addition, some less proficient speakers tend to place the stress at the wrong syllable or pronounce the words like "photography" without the main stress (Gaudart, 1997). Baskaran (2005) further affirms the variation of stress-patterns in MalE to RP. She points out a few stress-patterns of MalE speakers like the wrong position of primary stress in which words like exercise is often realized as /eksəˈsaiz/ instead of /ˈeksəsaiz/. Another example of wrongly placed position of stress for polysyllabic words is that /ˌɪntəˈlektʃuəl/ is often realized as /ˈɪntəˌlektʃuəl/ by MalE speakers. Apart from these, the reduction or addition of stresses for some polysyllabic words is found to be a common phenomenon in MalE. For instance, the secondary stress in "*manufacture*" is frequently omitted by MalE speakers from /ˌmænjuˈfætʃə/ to /mænjuˈfætʃə/. In some scenarios, words like "*generalization*" which has a primary stress and two secondary stresses, /ˌdʒenrəˈlaɪˌzeɪʃn/ becomes the opposite, /ˈdʒenrəˈlaɪˌzeɪʃn/.

To date, there are more impressionistic studies on vowels than diphthongs in MalE. Zuraidah compared the realization of vowels of Malay speakers of MalE with RP vowels (Zuraidah 1997). Baskaran (2005) highlights the shortening of long vowels and

the lengthening of short vowels especially in medial position. Phoon and Maclagan (2009) identified the vowel inventories of MalE by examining 206 words read by five male and five female ethnically Chinese Malaysians. In the attempt, the use of full vowels in unstressed syllables, the lack of vowel length distinction and also the simplification of diphthongs were identified (Phoon & Maclagan, 2009).

There are also acoustic studies done in examining the vowels of MalE (Wan Aslynn, 2005; Tan & Low, 2010). In 2005, Wan Aslyn conducted an instrumental analysis on two sets of vowels and examined the vowels length distinction and qualities of the vowels. In the study, five ethically Malay speakers who were assumed as proficient speakers of MalE were requested to read a list of 20 words and a short text with the targeted words embedded in the sentences. In 2010, Tan and Low examined the full range of vowel quality of 10 ethnically Malay speakers of MalE via the reading of the "Wolf" passage and token embedded sentences. Pillai, Zuraidah, Knowles and Tang (2010) also contributed to the body of research by completing a more systematic acoustic analysis of vowels of 47 female Malaysia undergraduates who were all in English language majors and thus assumed to be proficient in English. The respondents were presented with token embedded sentences and a list of 11 words with targeted vowels. The few studies found that the quality and duration of vowels differ slightly from one another. Pillai, Zuraidah, Knowles and Tang (2010) admitted that further research is required to ascertain the findings if they could be generalized to the vowel system such as diphthongs. Tan (2011) also conducted an acoustic investigation of the segmentals and suprasegmentals of MalE. In her segmental study, the acoustic characteristics of vowels, initial stop consonants and variations in stop closure voicing are covered. For her suprasegmental study, she investigated rhythm and also lexical

stress of Malay speakers of MalE. However, little attention has been given to diphthongs. Baskaran (2005) found that there is a slight phonological variation in MalE in contrast with the Standard British English (BrE) and MalE does not have the full range of diphthongs.

The research on the quality of diphthongs using instrumental analysis in MalE is still in its infancy. A few researchers have started to analyze the acoustic characteristics of vowels as well as diphthongs. The scarceness of the published acoustic research on the diphthong quality highlights the need for an instrumental analysis study like the present one to ascertain if there is a full range of diphthongs in MalE as well as to further validate the perceptual studies conducted by other researchers.

1.1 Statement of the Problem

MalE is nativizing and gradually developing steadily with its own pronunciation characteristics (Phoon & Maclagan, 2009). Its pronunciation features and phonetic characteristics have been studied by a growing number of researchers, linguists and even language pathologists. The current phenomenon of changes in the realization of diphthongs is expected to reveal more in the process of investigating the instrumental analysis of diphthongs in MalE in relation to SgE. To the researcher's knowledge, although there are a number of perceptual studies done on the pronunciation of MalE, there is still a lack of published work on the acoustic study of diphthongs in MalE. This study is aimed to bridge the research gap by examining the acoustic qualities of diphthongs, namely /eɪ/, /əʊ/, /aɪ/, /ɔɪ/, /aʊ/, /ɪə/, /eə/ and /ʊə/.

1.2 Research Objectives

This study is aimed to bridge the research gap by exploring the characteristics of the five closing diphthongs, namely /eɪ/, /əʊ/, /aɪ/, /ɔɪ/, /aʊ/ and three centring diphthongs, namely /ɪə/, /eə/ and /ʊə/ by ethnically Malay and Chinese Malaysian and Singaporean English speakers based on an acoustic analysis. The result of this study is expected to help to determine the distinctive variations of phonetic properties for both groups of speakers.

1.3 Research Questions

With reference to the purpose above, this study aims to answer the following question:

1. This study aims to examine the qualities of English diphthongs produced by Malaysian English and Singapore English speakers.

2. To what extent are English diphthongs produced similarly in Malaysian English and Singapore English?

These questions aim to examine if there is any evidence of difference in the production of diphthongs by the speakers of MalE in comparison with the speakers of SgE.

1.4 The Hypothesis of the Study

Two major hypotheses have been presented in this study by the researcher. Firstly, the Malaysian English and Singaporean English speakers will produce the eight diphthongs with diphthongal vowels movements. However, the researcher anticipates that there might be variations in the production of the diphthongal vowels. Secondly, the researcher will look into the realization of the diphthongal vowels in which many researchers have found that under certain circumstances, the diphthongal vowels may be pronounced as monophthongs in the different varieties of Englishes (Baskaran, 2005; Deterding, 1996; Foulkes & Docherty, 2007; Gargesh, 2006; Hung, 2007; Johnstone & Kiesling, 2008; Kerswill, Torgesen & Fox, 2006; Kiesling & Wisnosky, 2003; Leimbruger, 2011; Lim & Low, 2000; Maxwell & Fletcher, 2010; Rajadurai, 2004; Roach, 2000; Salbrina, 2009).

1.5 Significance of the Study

It is hoped that the findings of this study will complement the current descriptions of the full range of all MalE diphthongs realized by MalE speakers. The large body of acoustic work on SgE (Deterding, 1996, 2000, 2005, 2007; Lee & Lim, 2000; Heng & Deterding, 2005; Lim & Low, 2005; Tan & Low, 2010; Leimbruger, 2011) is used as a reference to further explore if there are any differences between the realization of diphthongs in MalE and SgE. It is also hoped that this study will contribute to the body of knowledge of MalE. Thus, from the past studies and findings from the present study, the researcher hopes to be able to shed some light on the quality of diphthongs, which may be typical for most Malaysian speakers generally.

1.6 Limitations of the Study

1.6.1 Subjects

Due to the limited resources, there are only ten subjects in this subjective observation study for each group of speakers. A more precise work with analysis based on a corpus of data and a larger number of participants would possibly provide a more reliable and thorough description of the outcome. This study was also limited to female speakers to avoid the issues of gender. This has become a challenge for the researcher as it is often suggested that female speech may be more difficult to analyse than male speech (Deterding, 1996). However, having both the female and male's speech would possibly provide a well-generalized result to represent Malaysian English as an entity. In addition, this study includes only the Malay and Chinese MalE and SgE speakers with similar demographics background. A larger scale of participants with a wide spread of proficient English speakers which consist of the main three races of Malay, Chinese and Indian would possibly provide a more distinctive result as Malaysia and Singapore are both multi-racial cultural pots. The comparison would be more reliable if all the speech of all ethnic groups was being studied. This is due to the accessibility and availability of the resources the researcher could reach out for. Therefore, the findings cannot be generalized to all speakers of Malaysian English speakers in the realizations of diphthongs. Looking at the other dimension of sub varieties of MalE based on ethnolects would possibly provide a better description of MalE as MalE can be further divided into sub varieties of Malay-influenced (MME), Chinese-influenced (ChME) and Indian-influenced (IME) MalE (Phoon, Abdullah & Maclagan, 2013). The impact of

linguistic features of the mother tongues of Malays, Chinese and Indians on the production of MalE can be further studied to provide a more comprehensive overview of the pronunciation features of MalE.

The linguistics background of the subjects can be further analyzed too as the influence of the phonological input from other languages may carry weight into the result of the study such as monolingual, bilingual or multilingual English speaking adult. This is due to the encouragement of multilingual environment and education in Malaysia as learners learn at least two languages from young. It is also important to take into account the development process of the second language acquisition and also different dialects that have influenced the respondents. Besides that, the influences of local languages or dialects, education background of the subjects and the variety of English that they are being exposed to may bring changes in the result if the researcher were to analyze it in a detail manner. The proficiency level of the participants in English is not well tested in this study. This is due to the lack of time constraint and limited resources to design and develop a proficiency test for the subjects. Hence, a simple online English language test is adopted to evaluate the proficiency level of the respondents generally.

In this study, the researcher has limited resources to reach out for the native speakers of English to provide a better contrast in the diphthongal vowels movements. Having the British speakers as the experimental group, this would possibly provide a better insight of the study as officially, as MalE uses the same pronunciation system as BrE, which is also substantially influenced by AmE (Phoon & Maclagan, 2009) and other factors.

1.6.2 Data Collection and Implications for Future Research

In order to reduce the phonological awareness of the speakers during recording, the recording was not done in a phonetics laboratory, which is noise-proof and well-structured. Therefore, there are some limitations to the quality of the sound files recorded. The available resource that the researcher could get in the context of MalE also limits the selection of words. Furthermore, the selected words are based on a recent published study by Pillai (2014) and not specifically designed for this study. Furthermore, the subjects were allowed to use any intonation that they were comfortable with and this has to take into future enhancement consideration as a consistent falling intonation would reduce the chances of the data differs. This study is limited to examining the acoustic correlates of the diphthongs and their formant frequencies. Thus, the suprasegmental, lexical, syntactic and discourse sections of the recording are disregarded.

All the acoustic measurements work out reasonably well for all the diphthongs in this study as the graphs manage to provide only a basic idea of the degree of diphthongal movement as the number of tokens for every diphthong in this study might not be sufficient to provide a more reliable result. Some diphthongs like /ɪə/ and /ʊə/ for Task 3 has got only one token taken from every subject as the researcher finds it was a great challenge to elicit the tokens which contain the two diphthongs from the subject during the interview.

A comparison between auditory and acoustic measurements for both the varieties is proposed for future enhancement to improve the reliability and accuracy of the results. This would be able to provide a better picture of the degree of diphthongal movement and to further affirm the quality of the diphthongs. In addition, more tokens of the same diphthong is advisable for future research as it is expected to have a more generalized final result for the group of targeted subjects by increasing the frequency of the variants. The number of subjects could be added too to improve the preciseness of the result for a better analysis.

In conclusion, many factors are not taken into the consideration during the word analysis such as the degree of retraction of tongue movement, the context and formality of the situation and so on. The tendency of rhoticity of the speakers when pronouncing the tokens could be taken into consideration for future enhancement, as there could be a possible transfer effect from other languages in which the speakers are too comfortable in rhotacizing their speech for everyday use.

CHAPTER TWO

LITERATURE REVIEW

2.0 Literature Review

2.1 Introduction

The previous chapter provided the background as well as the use and status of English in both Singapore and Malaysia. In this chapter, a literature review will be made to identify the gap between the acoustic researches done in Malaysia to the objective of this study.

Languages change over time and space with the social adaptation and changes within its geographical contexts. The traditional English speaking countries and societies can no longer claim sole ownership of English (Subramaniam, 2007). This is due to the constant development of the local varieties of English in many countries towards the formation of new identities.

In postcolonial contexts, understanding the integral features that lead to the formation of the new Englishes is essential. For instance, the historical reasons of the initiation of bilingualism in English; the factors that motivated the retention of English after the end of the colonial period; the sociolinguistic profile of the variety and the parameters that resulted in the nativization of English (Kachru, 1992 cited in Subramaniam, 2007). This will then be further explored in Section 2.2 and Section 2.3.

The mix of the structural nativization features in Malaysia's socio stylistic contexts gives MalE its distinctive character (Schneider, 2007). Among all, some of the structural changes are the phonological features like vowel mergers or accents shifts, suprasegmental features like intonation or syllable-timed rhythm, the omission of single coda consonants and final consonant cluster reduction (Schneider, 2007). Similar distinctions are found in SgE. However, Schneider (2007) stated that SgE has characteristics features on all levels of language organization, which are increasingly noted, analyzed and also accepted. These features will be further observed in Section 2.4 to provide a better insight to the process of ongoing progression for both the varieties.

2.2 Malaysian English

Our fascinating historical background includes the social changes brought by the British colonization and the change in the attitude towards languages over the years has resulted in the variation of our local variety of English, MalE. Malaysia gained its independence from Britain in 1957. From then on, English has emerged with the influence of the British colonial and traditional Malay royal families' history. In 1963, the Federation of Malaya was formed and comprised of eleven states of the peninsula, Sabah, Sarawak and also Singapore.

Before 1957, the earlier education system was inadequate due to the colonial administration as well as the local aristocracy during the British colonization. There were originally only primary level schools for the major ethnic groups like the Malay, Chinese and Tamil medium schools (Baskaran, 2005). Then, elementary and secondary levels of English schools were established by the Straits Settlements in 1872. By 1900's, more and more schools and colleges were set up for English education due to its growing importance in social prestige, brighter employment opportunity and higher demand in commercial sectors. The learners under the English education system were well versed and highly competent in English as the teachers, professionals and education officers were mainly from Britain. Prior to independence, the Razak Report of 1956 recommended that both Malay and English to be compulsory subjects in all schools (Baskaran, 2005). Next, another attempt of educational reform took place in 1960 in which the Rahman Talib Report further emphasized Malay as the medium of instruction. Initially, Malaysian English speakers fall under two main categories of

MalE. Firstly, they are the English-medium educated older Malaysians and secondly, the younger Malay-medium educated Malaysian (Platt, Weber & Ho, 1984). The first group was educated under the English-medium school before 1960s and the later was educated in the environment of English as a second language after 1960s.

In order to build up our own national identity, the primary education was then taught in ethnic schools in three main languages for the three main ethnic groups, Malay, Chinese and Indians with the aim to unify the national system of education and to draw the multi-ethnic groups together. The local nomenclature for the Malay language was changed from Bahasa Melayu (Malay) to Bahasa Malaysia (BM) in 1969 (Baskaran, 2005). This is to strengthen the national identity of one language for all especially for the non-Malay citizens. The Language Act of 1967 relegated English from an alternate, official language to a compulsory second language (Subramaniam, 2007). By 1970, English was phased out and replaced by Malay as the medium of instruction in all primary schools. After the transitional phase, all the former English medium secondary schools were then converted to National Schools where BM was the medium of instruction in Peninsular Malaysia (Solomon, 1988). The local universities are also now using BM for most of the subjects. The change of the national education policy has resulted in the dwindling of competency in English and has produced more monolinguals like graduates who are more fluent in Bahasa Malaysia. However, English-taught education became the prevailing mode for tertiary education nowadays (Bautista & Gonzalez, 2009). This is only for private institutions like colleges, university colleges and universities. Those who are fluent in both BM and English are at distinct advantage especially their competency in English and the marketability of their

courses over those graduates from public universities. This has made them the preference in the job market typically in the private sector.

With globalization, new policies were then made to ensure Malaysians are internationally competitive enough to face the challenges. In 2000, the Malaysian Universities English Test (MUET) was introduced and was made compulsory for all the students of pre-university classes like Sijil Tinggi Pelajaran Malaysia (STPM) if they were to enter local universities. On 11 May 2002, the former Prime Minister, Tun Dr. Mahathir Mohamed, introduced the drastic and sudden change in the medium of instruction for Science and Mathematics (Pelaksanaan Dasar Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris, PPSMI) to English in 2003 for the primary education (Gill, 2007). This has made a significant contribution to the increasing number of competent multilingual speakers in Malaysia. In the interview of Gill (2007) on 16 June, 2005 with Tun Dr. Mahathir bun Mohamad (the former Prime Minister), he said:

"Our education system is like any other education system. It's meant to enable us to acquire knowledge […] so if you want knowledge, you have to acquire the language in which the knowledge is available. […] If we have the knowledge available in the national language, by all means, go ahead but the fact is that in science the research that is being done is moving at a very fast pace. Everyday literally thousands of papers on new research are being published and practically all of them are in English. To translate English into Bahasa (Bahasa Malaysia), would require a person with three skills. Skills in the two languages and skill in the subject that is to be translated and we don't have very many people who are qualified to do that or who wish to do that. That is why it is

easier if you learn English and the students can have direct access to all the knowledge that is available in English."

The above draws the issue of translation and the struggles of the national language in to keep pace with the proliferation of knowledge in English (Gill, 2007). After the first batch of the students under PPSMI was produced, the government announced a new policy. On 8 July 2009, the government decided to abolish PPSMI through a soft landing abolition mechanism and it will be replaced by the new strategy, to uphold Bahasa Malaysia and to strengthen English Language (Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris, MBMMBI) (Ministry of Education Malaysia, 2010). With effect from 2010, both the Science and Mathematics are to be taught in two languages, Bahasa Malaysia in National Schools (Sekolah Kebangsaan) and vernacular languages in National-type Chinese Schools (Sekolah Jenis Kebangsaan Cina) and National-type Tamil Schools (Sekolah Jenis Kebangsaan Tamil). MBMMBI will be imposed through gradual phasing out of English from 2010 to 2016. The teaching and learning of Science and Mathematics will be carried out bilingually or existing students of PPSMI until the last batch completed their public examinations of UPSR in 2016 and SPM in 2015.

The rationale for the implementation published by the Ministry of Education in its strategic proposal (2010) was that the result of the science subject in the primary school achievement test, Ujian Pencapaian Sekolah Rendah (UPSR) for the year of 2008 showed deterioration in the achievement of ABC grades. These students were the first batch of students who went through the full PPSMI in all primary schools. Besides that,

it was shown in the proposal that the results of all three public examinations, UPSR, the lower secondary assessment, (Penilaian Menengah Rendah - PMR) and the Malaysian Certificate of Education, (Sijil Pelajaran Malaysia – SPM), showed that the students would do better if Science and Mathematics were taught in Bahasa Malaysia. It is stated that the implementation of PPSMI has widened the gap of achievement between schools and its achievements in both subjects in the urban and rural areas. In addition, the lack of qualified teachers (only 25%) who are excellent or good in using English to teach Science and Mathematics has also affected the teaching and learning process. Furthermore, studies by local universities showed that English proficiency among the students remained at nominal level and has an improvement rate of 3% only during the implementation of PPSMI.

This decision has reversed the whole teaching and learning process back to the starting point before the year of 2002. The reduction of the total learning time in English and the slower pace in translating the latest education and research resources might soon curtail and weakens the command of English for the new batches of coming generation. In addition, the issue of unemployment rate of the ethnic Malays who are mostly monolingual might continue growing as well.

Today, MalE is used in a multitude of accents characterizing different ethnic groups, socio-economic, education, language and geographical backgrounds (Pillai, 2008). Hence, it comprises sub-varieties, which can be placed on a lectal continuum due to its unique linguistic patterns (Baskaran, 1998 cited in Wan Aslynn, 2005). The continuum proposed by Baskaran (1987, 2005) comprises of three varieties of MalE. The three

sociolects are acrolectal, mesolectal and basilectal which display varying features in the syntactical, lexical and phonological levels (Gill, 2002). According to Baskaran, (1987, 2005), the acrolectal variety is the prescribed pedagogical norm which is "*near-native*" compared to RP but with some indigenized lexical and phonological features. This variety is highly intelligible to other speakers and is used in formal contexts, printing and media. A tolerable degree of local languages has influenced its linguistic features and this is proven over time from the headings, captions and articles of the local dailies like '*Still in tune with Malaysia-lah*' (Au-Yong, 2011), '*Malaysia-the oklah land'* (Citrin, 2011*)* and *'The 'Ma and Pa' shops something special'* (Soo, 2011). It can be seen clearly that the Malaysian way of talking is instilled in the headings especially the commonest particle, '*lah'* is used by most typical Malaysians.

At times, the acrolect speakers switch to mesolect or basilect form of MalE to fit in with the social context when they are talking to their friends due to the informality, familiarity and solidarity among them. The mesolect is an informal spoken variety that is used by MalE speakers for intra-groups communication. In this variety too, Malaysian culture is predominantly featured and therefore it is widely used by Malaysians especially for daily discourse. Lastly, the basilect variety is also known as patois or bazaar MalE. It is also sometimes referred to as '*broken English'* as it is a stigmatized form of MalE, which has intense variation that it is fairly intelligible to other speakers of MalE only. The influence from other languages like Bahasa Malaysia, Mandarin and Tamil together with local language items like particles of 'what', 'meh', 'one', 'ar' and 'lah' is deeply instilled in it. It is widely used by less educated or uneducated speakers as a communicative tool such as the men-on-the-street, taxi drivers

and noodles-sellers (Baskaran, 2005). Table 2.1 shows the tabulated description of all sociolects in Baskaran (2005).

Table 2.1 : Linguistic Features of All Sociolects of Malaysian English

Linguistic Features	Official MalE	Unofficial MalE	Broken MalE
	▪ Acrolect ▪ Formal use ▪ Spoken & written ▪ International intelligibility	▪ Mesolect ▪ Informal use ▪ Spoken & written ▪ National intelligibility	▪ Basilect ▪ Colloquial use ▪ Spoken only ▪ Patois intelligibility & currency
Phonology	Slight variation tolerated as long as it is internationally intelligible.	More variation is tolerated including prosodic features especially stress and intonation.	Severe variation of both segmental and prosodic, with intonation so stigmatized that it is almost unintelligible internationally.
Syntax	No deviation tolerated at all.	Some deviation is acceptable although it is not as stigmatized as broken English and still intelligible.	Substantial variation or deviation. It is nationally intelligible.

Lexis	Variation acceptable for words not substitutable in an international context (to provide a more localized context).	Lexicalizations quite prevalent even for words having international English substitutes.	Major lexicalizations, heavily infused with local language items.

(Baskaran, 2005, p.22)

2.3 Singapore English

Singapore has a similar British colonial history and was also once one of the states of Malaysia in 1963 before it withdrew from the alliance in 1965. Like most post-colonial nations, Singapore chose to retain the use of English for administration, education and commerce after its independence (Cheah, 1994). Having English well established during the colonial era, English continues to tap into international trades and propel the economy in Singapore.

SgE is a variety of New English that has gradually been increasing and expanding its functions and importance in Singapore to a native or near native language for most of its speakers (Platt, Weber & Ho, 1984). Its growing importance is expanding from English as a second language to English as a native language. The following scale of "The Role of English" is provided by Platt, Weber and Ho (1984):

EFL ESL ENL

decrease in functions increase in functions (SgE)

EFL = English as a foreign language

ESL = English as a second language

ENL = English as a native language

Tay (1979) also further affirmed the status of English in the Singapore context that it is never referred to as a "foreign" language. English is now the language that most Singaporeans become literate in first (Cheah, 1994). Thus, it is culturally loaded as an

integral part of the national identity among the different ethnic groups and also the emergence of its social changes. Tay (1979) identified the six main uses of English in Singapore as the following:

1. English as an official language.
2. English as a language of education.
3. English as a working language.
4. English as a lingua franca.
5. English as a language for the expression of national identity.
6. English as an international language.

The establishment of the first English medium school in 1824 marked the start of English education in Singapore (Cheah, 1994). Singapore's education system has gone through numerous political changes as it interweaves with the political history of Singapore from the colonial era to the formation of a self-governing colony and finally an independent nation after 1965 to the present. The early education policy was built on the principle of equality of educational opportunity where the British government declared the new policy of providing free education to all races after the Pacific War in 1945 (Lee, 2008). It also emphasized on the attainment of a national identity, unity above the diversified origins. In 1997, the philosophy of 'Thinking Schools, Learning Nation' (TSLN) was adopted as the Singapore's vision in education (Department of Statistics Singapore, 2011). This is to gear the education system towards the aims to nurture every child and help all students discover their talents, realize their full potential, and develop a passion for life-long learning (Department of Statistics

Singapore, 2011). Furthermore, the education system of Singapore today is focusing on nurturing a spirit of Innovation and Enterprise (I & E) among the students and also the teachers to prepare a thinking nation for the challenges of the future.

Singapore has four co-official languages, which are English, Mandarin, Malay and Tamil. The early education model in Singapore was provided in a four-language model using all four languages, which resulted in four different education systems. Consequently, the increasing enrolment in English education gave rise to the coalescence of four systems into a unified national English medium school system in 1987 (Cheah, 1994). Thus, English is regarded as the medium of instruction across all levels of education, and the other three official languages are placed under the compulsory learning of mother tongues. The switch of medium instruction from Mandarin to English at Nanyang University in 1975 indicated the growing importance of English in tertiary education (Tay, 1993).

Singapore is regarded as a successful multilingual island nation in Southeast Asia which embraces an officially bilingual education by adopting English as the medium for all-content-area education and simultaneously, all students have to study one of the other three official languages. The implementation of bilingual policy allows each child to learn English followed by his mother tongue, which could be Malay, Chinese or Tamil, to the best of his abilities (Department of Statistics Singapore, 2011). It aims to enable the children to be proficient in English as it is the language of commerce, technology and administration and simultaneously their mother tongue, the language of their cultural heritage (Department of Statistics Singapore, 2011). The bilingual education

policy was instituted in 1956 under the All Party Report on Chinese Education and the compulsory learning was enforced in 1966. The education then becomes more flexible and diverse as the students are given options, which are enhanced from time to time. From 2004, mother tongue is taught in module system for students who are not able to cope with it as the government came to recognise that little progress has been made under the policy earlier. This is because many children from English-speaking homes have difficulty learning their mother tongue. In 2011, bilingual education in Singapore was given another boost with the setting up of Lee Kuan Yew Fund for Bilingualism (Ministry of Education Singapore, 2011). The teaching and learning of English was further affirmed as well as the mother tongue languages to strengthen the Singaporeans in the globalised world while reinforcing the links to the Asian heritage. Given the status and prestige as the first and official language, English has continued to develop well and nativized from the native model into the local cultural and linguistic context of Singapore. With the rise in the level of English literacy, the usage of English as a home language became more prevalent to Singaporean Chinese (52%) and Indians (50%) (Department of Statistics Singapore, 2011). In addition, there is a significant increase from 9.4% in 2000 to 26% for Singaporean Malays.

English is the dominant working language in Singapore in which one can find that even the Singapore identity card and driving license are in English. Regardless civil or private sector, those who are highly competent in English have a greater opportunity in getting a job successfully during an interview. However, Mandarin is commonly used in some small enterprises or Chinese firms. Thus, competence in English is an important criterion in recruitment and even in promotion (Tay, 1993).

After independence, Singapore recognised its educational objective was to inculcate patriotism and national identity among the young students so as to achieve a 'multiracial, multicultural and multilingual society' (Lee, 2008). The openness and westernized English education in Singapore strives to promote a national identity among the different ethnic groups, but at the same time, it also encourages the nurturing of separate ethnic identities (Cheah, 1994). These objectives help to establish a teaching and learning environment with a unique Singaporean identity. In addition, it also encourages the development of national values such as multiculturalism of all ethnic groups. The ethnic-based bilingual policy is one of the echo-efforts, which stresses on the learning of one's own culture and communitarianism (Cheah, 1994). Today, the majority of the citizens consider themselves primarily Singaporeans rather than Chinese, Malay, Tamils or the others (Schneider, 2007). This has shown that they have achieved the ethnic neutrality with one nation identity. The exceptional status of English also marks that the education policy of Singapore has been significantly successful.

SgE has been described as a speech continuum with three varieties, namely, acrolect, mesolect and basilect (Platt & Weber, 1980; Tay, 1993; Cheah, 1994). This model is similar to the continuum of three sociolects of MalE (Baskaran, 1987, 2005). Acrolect is the idealized rhetorical form with the highest intelligibility and it is used widely in formal occasions and daily life for some of the speakers. Nevertheless, the acrolect of SgE differs from the RP in terms of pronunciation features such as rhythm, intonation, stress patterns, vowels, diphthongs, consonants and voicing (Tay, 1993). The different pitch patterns of individual speakers resulted in various intonation patterns. In addition, the ethnic difference and home language such as English, Mandarin or dialects bring an

influence to the rhythm and intonation too. The stress patterns of acrolect speakers differ from RP pronunciation in a few ways. Firstly, there is no distinctive difference between the primary and secondary stress. For instance, the acrolect speakers pronounce the words like *anniversary* /ænɪˈvəː(ə)rɪ/ as /ænɪvəːs(ə)rɪ/ with equal stress throughout the syllables (Tay, 1993). The different part of speech is frequently not obvious with the absence of stress for words such as *increase (verb)* /ɪnˈkriːs/ and *increase (noun)* /ˈɪnkriːs/ which is pronounced as /ɪnkriːs/ (Tay, 1993). In some circumstances, the stress is placed at a different syllable. For example, the acrolect speakers often pronounce *advantageous* as /ˌædˈvænteɪʤəs/ instead of /ˌædvænˈteɪʤəs/ (Tay, 1993). In addition, the vowel length and quality produce by acrolect speakers are not fully realized too. The contrast of vowel production in the matter of tongue position (front vs. back) and vowel length (short vs. long) are made except for tenseness (tense vs. lax) (Tay, 1993). Subsequently, some diphthongs are reduced to monophthongs and full vowel qualities of Schwa vowel /ə/ are found in polysyllabic words like *computer, official, ability and approach* (Heng & Deterding, 2005). A full vowel tends to occur when there is an ‘o’ or ‘a’ in the word when the first syllable is unstressed. Lastly, the deletion or half-release of final stops fricatives such as /p, t, k, b, d, g, tʃ/ and /dʒ/ at the end of a word is found to be common too (Tay, 1993).

Being in the same geographical region, the comparison of these two varieties is valid. In addition, some speakers in Singapore have English as their first language (occasionally their only language) (Jenkins, 2003). Soentato (2009) also mentioned that there has been an increase in the number of Singaporean English speakers who use English for a wide range of purposes and English has been the medium of instruction in the schools

since 1987. These reflect the fast growing importance of English in Singapore as the official language used in government, administration, education and informal context. The increasing status position of English in Singapore makes it more interesting to see how evident the result of the comparison for these two varieties is. Besides the geographical factor and immigration of Malaysian to Singapore over the years, Singapore and Malaysia share certain similarities among their English speakers. It has also been found that SgE and MalE share some of the features of pronunciation such as vowels (Deterding, 2007). All these factors have drawn the attention of the researcher to study any potential variations between the two groups of speakers based on the diphthongs produced by the MalE and SgE speakers.

2.4 English in Malaysia and Singapore

SgE and MalE started growing since the colonial era. Both are sharing a considerable political and history and expected to be similar to each other (Phoon, Abdullah & Maclagan, 2013). In the early 1810s, Singapore-Malayan English (henceforth, SME) was developed through the British type of English education (Platt & Heidi, 1980). There were a few factors that led to the formation of a distinctive SME such as the establishment of English-medium schools in Singapore and Federated Malay States, the increasing importance of SME as a more prestigious variety at home and the use of SME in the employment domain (Platt & Heidi, 1980). After 1965, there were changes in the educational and language policies for both the Federation of Malaysia and the Republic of Singapore (Platt & Heidi, 1980). In Clause 1 & 2 of Article 152 of the Federal Constitution, Bahasa Malaysia is the national language, and English is an

official language for up to ten years (Noraini, 2008). Malay replaced English as the prestige variety in government, administration and education in Malaysia. This choice was to mark the formation of a Malaysian identity using Malay. The conversion process took place between 1970 and 1982 (Platt, Weber & Ho, 1984). Malay then replaced English as the medium of instruction in all primary and secondary levels. Consequently, there was an acknowledged decline in the general level of proficiency in English among educated Malaysians (Lim, 2001). English is becoming more a 'foreign' language in Malaysia as it is being used less and less in most situations (Platt, Weber & Ho, 1984).

In contrast, English is becoming more dominant and its importance gradually increased as it later became the first language which is used daily in natural communicative situations in Singapore. Singaporeans learn English for a pragmatic reason, to obtain better jobs and social mobility and an objective, which is reflected in the educational aims (Cheah, 1994). Kingsley,in his survey of a range of issues relating to English across Asia as well as approaches to localized varieties of Asian Englishes, highlighted that Malaysia has approximately 32% of English speakers which is equivalent to 8 million whilst Singapore has 50% of English speakers which is 2.2 million. The higher percentage of English speakers consequently shows a remarkable growth of the spread of English especially among the middle class in Singapore. Thus, it has become a marker of middle class identity as well as a means for young generation to gain an internationally competitive education and employment (Kingsley, 2008).

Since then, SME was referred as SgE and MalE respectively. Nevertheless, researchers found that these two varieties are very much similar (Platt, Weber & Ho, 1984;

Deterding, 2007; Salbrina, 2009; Tan & Low, 2010). Schneider (2007) stated that MalE shares its structural nativization on all levels of language organization with Singapore which is in close geographical proximity. The majority of Malaysians and Singaporeans are multilinguals as they are able to communicate with more than two languages. For instance, a bilingual Malaysian Malay would be fluent in the official BM, Malay regional dialect (e.g. Kelantan or Kedah dialect) and English. A young Malaysian Chinese may be fluent in English, BM, Mandarin and a dialect (e.g. Hokkien, Hakka or Cantonese). Some Malaysian Tamils would be fluent in Tamil, BM and English. Some multilingual Malaysian Malay and Tamil are fluent in Mandarin too if they attended National-type Chinese Primary School. The same would be valid for the Singaporeans except for that the fluency of English is generally above Mandarin and BM. In the Census of Population 2010, 80% of Singapore residents were literate in English and the literacy of Singapore residents in two or more languages rose from 56% in 2000 to 71% in 2010 (Department of Statistics Singapore, 2011).

The close bond between these two countries resulted in similarities of pronunciation in comparison with RP. For vocoids, the long and short vowel pairs of both varieties are often neutralized in terms of its distinction in quality as well as length. For instance, /iː/ and /ɪ/, /ɑː/ and /ʌ/, /ɔː/ and /ɒ/, and /uː/ and /ʊ/ are frequently pronounced the same in SgE (Deterding, 2005). Consequently, pairs of words like *'seat'* and *'sit'*, *'cart'* and *'cut'*, *'caught'* and *'cot'* as well as *'fool'* and *'full'* are similar in terms of their pronunciation. Generally, there is almost no difference between the vowels uttered by the three main ethnic groups of Singapore (Deterding, 2007). However, due to many factors, there might be a slight pattern for different ethnic communities. For instance,

/iː/ and /ɪ/ are close together especially for Chinese and Malay Singaporeans and /uː/ and /ʊ/ are also close together especially for the Malays (Deterding, 2007). Deterding (2007) also discovered that /ɑː/ and /ʌ/ have little distinction. For MalE, there is a general tendency of shortening of long vowels and lengthening of short vowels too. The common pattern of variations are like /iː/ ↔ /ɪ/, /ɑː/ ↔ /ʌ/, /ɔː/ ↔ /ɔ/, /uː/ ↔ /ʊ/ and /əː/ ↔ /ə/. For example, a word like *'field'* may be pronounced as /fild/ instead of /fiːld/ while *'fish'* may be pronounced as /fiːʃ/ instead of /fiʃ/ and similarly, *'half'*, /hɑːf/ may be pronounced as /hʌf/ while *'run',* /rʌn/ may be pronounced as /rɑːn/(Baskaran, 2005). In Tan and Low's (2010) study, it was reported that /iː/ and /ɪ/ vowels for both MalE and SgE appear to be much conflated into one vowel for male and female speakers. There is also much overlap in the vowels as both display a similar trend in the vowel plots. For /e/ and /æ/, there is some overlap shown in the vowel plots for both male speakers of both the varieties. For female speakers, the vowel plot of both /e/ and /æ/ are very close to each other with /æ/ slightly lower and fronted compared to /e/ (Tan & Low, 2010). The vowel quality of /ɑː / and /ʌ/ produced by the female speakers of both varieties shows no separation between the two vowels except for /ɑː / of male speakers which appears to be generally higher with some overlap for MalE (Tan & Low, 2010). For /ɔ/ and /ɔː / in MalE, vowel quality is not differentiated for both male and female speakers (Tan & Low, 2010). The vowel length for these two vowels appears to have no difference in vowel length too (Tan & Low, 2010). For SgE, /ɔ/ and /ɔː / appear to be more back for both male and female speakers (Tan & Low, 2010). For /ʊ/ and /uː/, the vowel plots for both male and female speakers of both the varieties show that they are very similar as there was also a great deal of overlap in the realization of the two vowels (Tan & Low, 2010).

Pillai, Zuraidah, Knowles and Tang (2010), found that there is a lack of contrast between /ɪ/ and /iː/, /e/ and /æ/, /ʌ/ and /ɑː/ for MalE. There is more contrast found for back vowels, /ʊ/ and /uː/ and /ɔ/ and /ɔː/ in MalE. This finding is similar to SgE (Deterding, 2003) with the exception of /ɔ/ and /ɔː/ which showed less contrast in the study. In all, the vowels of MalE appeared to occupy a smaller vowel space and this is similar to SgE (Salbrina, 2006).

For diphthongs, there is a tendency of reduced quality of a two-vowel entity in both the varieties. In SgE, /eɪ/ in *'face'* and /əʊ/ in *'nose'* are often reduced as [eː] and [oː] (Deterding & Hvitfeldt, 1994). Leimgruber (2011) published an article on SgE. In his paper, he further affirmed the presence of monophthongals, /eː/and /ɔː/ which in RP are /eɪ/ and /əʊ/ respectively in many parts of British Isles (northern England, Scotland, Ireland), USA, India and also other Southeast Asian varieties of Englishes (Leimgruber, 2011).

In MalE, the /eɪ/ and /əu/ are pronounced as /e/ and /oːᵘ/ respectively (Baskaran, 2005). Other examples are like /uə/ in *'cure'*, /kjuə/ may be monophthongized as /kjɔ/ and /ɛə/ in *'there'*, /ðɛə/ is frequently monophthongized as /ðɛ/.

2.5 The Theoretical Framework

A number of scholars investigated and developed a variety of approaches to new Englishes from both general and scientific perspectives. Among the comprehensive models of Postcolonial Englishes, the first of the models was built upon three classes namely, countries with English as a Native Language (ENL), English as a Second Language (EFL) and English as a Foreign Language (EFL) (Schneider, 2007). This model has been adopted and promoted widely. However, there are limitations in the context of the complex realities. For instance, pidgins and creoles do not fit neatly into any one of the categories (Jenkins, 2003). Furthermore, the group of non-native speakers, whether indigenous or immigrants are not included and some countries such as South Africa cannot be categorized clearly as either ENL or ESL (Schneider, 2007). In addition, it does not take account of the countries with bi- or multilingual in which involving the code mixing and code switching of English such as "Manglish" in Malaysia or "Singlish" in Singapore (Jenkins, 2003).

In the early twenty-first century, one of the most frequently cited models of the spread of English is Kachru's three-circle model of World Englishes, which introduced the terminology of "World Englishes". Thus, his followers and other scholars venture into the development of English around the world under this label. It has then become the most influential model for the spread of English, which consists of the three concentric circles namely, the Inner Circle, the Outer Circle and the Expanding Circle (Jenkins, 2003). Figure 2.1 is the three-circle model of World Englishes by Kachru.

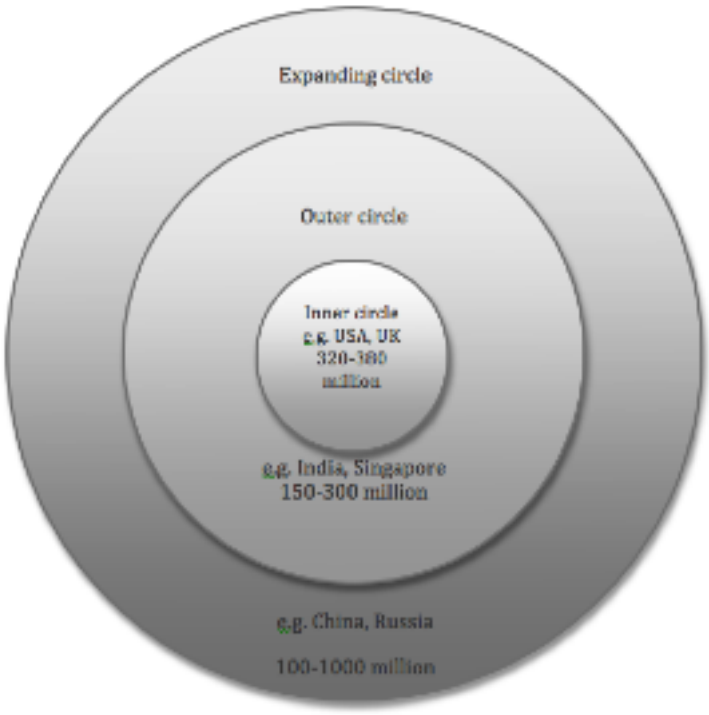

Figure 2.1 : Kachru's "Three Circles" Model (Schneider, 2007, p.13)

The three circles represent the types of spread, the patterns of acquisition and the functional allocation of English in diverse cultural contexts', as the language travelled from the Inner Circle to the Expanding Circle (Jenkins, 2003). He emphasizes that norms and standards should no longer be determined by Inner Circle but English language belongs to all the speakers (Schneider, 2007). Nevertheless, Kachru focuses more on the Outer and Expanding Circles. He is less concerned in microlinguistic and descriptive approaches. In addition, countries like South Africa or Malaysia does not fit into any of the categories convincingly (Schneider, 2007). For countries with many bilingual or multilingual speakers like Malaysia or Singapore, there is a difficulty in determining the repertoire of L1, L2 and so on for the speakers. It is also found that this model implies that the level of speakers is uniform for all the countries in the circle regards of its linguistic diversities in the course of time. Moreover, this model is mainly

based on geography and genetics than the type of speakers and their use of English (Jenkins, 2003). Consequently, Malaysia and Singapore are both in the Outer Circle despite English being widely used with a higher status in Singapore. In addition, this classification is later found to be less useful in some regions as English is now the official language of the Association of Southeast Asian Nations (ASEAN) (Kirkpatrick, 2009). Thus, the growing importance of the role of English for the members of ASEAN such as Brunei, Malaysia and Singapore over time would need to be reviewed and updated. Most importantly, this model also fails in its attempt to acknowledge the gap of the increasing grey area between the circles especially for countries, which are in transition period.

Thirdly, Melchers and Shaw (2003) propose a more complex but flexible classification along two main dimensions namely, "attention to linguistic structure" and " level of generality" (Schneider, 2007). It classifies the varieties in informative ways using sociolinguistic criteria such as standardization (standard or nonstandard dimension), the degree of codification including its use in writing and prescriptive attitudes, by the type of prestige (overt or covert prestige, acrolect-mesolect-basilect) (Melchers & Shaw, 2003). It also classifies texts by the degree of standardization, by political functions, through countries by domains of English use and proportion of efficient speakers, via types of speakers and scope of proficiency for speakers (Melchers & Shaw, 2003). Four approaches have been arranged along the two dimensions. Firstly, the "theoretical" approach focuses more on the fundamental nature and linguistic theories (Schneider, 2007). However, the sociolinguistic and linguistic scenarios of Englishes have evolved with time due to numerous factors such as the change of language policy or other

political changes. Secondly, the "political" approach is driven by the uses of language(s) in the society provided that there are macro-sociolinguistic issues in the postcolonial countries (Schneider, 2007). Thirdly, the "descriptive" approach gives a detail investigation of the language in the correlation of micro-linguistic but in need of a constitution of prerequisite for generalizations and applications of all kinds (Schneider, 2007).

A recent theory for the evolution of new Englishes by Schneider (2007) is highly relevant for the present study. The proposed model focuses more on the shared underlying process, which drives the formation of the varieties than regarding them as individual linguistics entities (Schneider, 2007). This is a unified systematic approach of the emergence of a new variety of English from the former colonial status, which is also known as the Postcolonial Englishes (henceforth, PCEs) (Schneider, 2007). It also describes the developmental process and the constituent element and suggests characteristic modifications (Schneider, 2007). The whole process leads from the transplanting of English undergoing social and linguistic transition to a newly stabilized emerged variety. Schneider (2007) posits the development of New Englishes as a progression of five characteristic stages as shown in Figure 2.2.

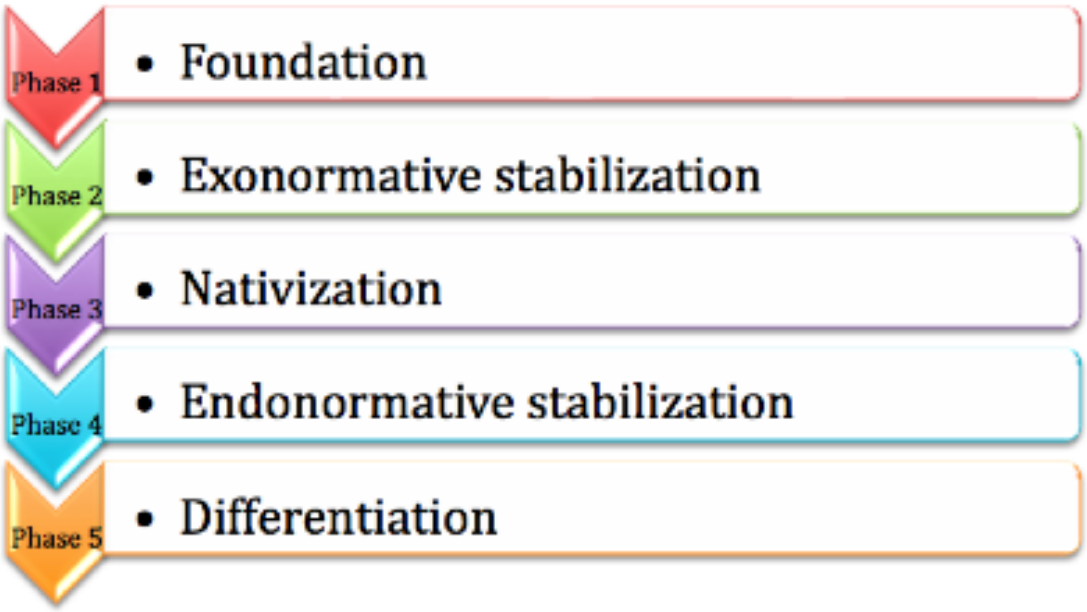

Figure 2.2 : The Developmental Cycle of New Englishes by Schneider (2007).

The initial stage, "Foundation" is where English is brought in by a significant group of settlers (STL) into a new non-English-speaking territory when colonial expansion took place such as trading, military outpost, missionary activities and so on (Schneider, 2007). The co-existence of the STL and the indigenous populations (IDG) establishes some subsequent modifications due to the complex contact of different linguistic ecologies (Schneider, 2007). Thus, linguistic effects such as koinéization, incipient pidginization and toponymic borrowing are observed at the beginning. The newly emerging contact between the STL and IDG resulted in a mutual adjustment of pronunciation and lexical level to deliver message across effectively. Consequently, it is found that similar toponymic borrowing occurred under some circumstances, which are geographically or historically far apart such as Maori place names are found in New Zealand (Schneider, 2007). This shows that some collaborative communication between the STL and IDG had taken place.

Next, the increasing contact of both the STL and IDG in the stage of phase two, "Exonormative Stabilization" expands the establishment of English in more territories from administration, education to the legal system and so on. The "British-cum-local" identity starts to emerge with a positive attitude toward the use of English (Schneider, 2007). However, the variety of English imported by the STL is providing the linguistic model as the standard and norms such as the Standard BrE for Brunei, Hong Kong, Malaysia and Singapore (Kirkpatrick, 2009). The movement of English from a spoken form toward a local language variety is promoting more linguistic transfer. Grammatical innovations begin and the English spoken by the locals are frequently classified as "fairly good" or "broken" (Schneider, 2007). Thus, more linguistic effects take place such as the coinage of names for places, flora and fauna (Schneider, 2007). Subsequently, structural features start to emerge with local characteristics such as grammatical and phonological innovations. The population group starts to shift to a new language.

The third phase, "Nativization", is the most significant stage for the intersection of cultural and linguistic transformation for both the groups. The establishment of a new identity begins by reducing the gap between the STL and IDG in a single territory (Schneider, 2007). The number of bilingual and multilingual speakers is increasing rapidly and more inputs are imported into the grammatical nativization in PCEs. Some of the interesting grammatical features are hybrid compounds, localized collocations, varying prepositional usage, innovative assignments of verb complementation patterns to individual verbs and so on (Schneider, 2007). In addition, the emergence of the new variety of English also sparks the widespread of code switching in the environment.

This is commonly found in bilingual or multilingual communities in which the speakers play around with the languages to show distinctions in politeness, status differences and so on. It is very interesting as the native language of the IDG is still rooted in the country and English coexists with prominence. This happens in some cases such as Philippines, Hong Kong and Malaysia (Schneider, 2007).

In phase four, "Endonormative Stabilization", the IDG is now losing their stigma as the new language norms are gradually accepted and adopted (Groves, 2009). The newly established and locally rooted identity is now giving a greater prominence and understood to be permanent in the shared territory (Schneider, 2007). Schneider (2007) labeled the recognition of a new variety of English as "English in X" which will later be coined as "X English". For instance, "English in Malaysia" has evolved and become "Malaysian English". It has evolved from a variant without a discrete character to the status of a distinct type with acceptance of new indigenous identity, which integrated local linguistic norm in both formal and informal contexts. At this stage, a higher degree of linguistic independence is achieved and the status of the variety is conceptualized. Consequently, the local variety is imposed in a range of formal domains, education and oral usage (Schneider, 2007).

The fifth and final phase, "Differentiation", is the stage of a new variety birth. At this stage, the new national language variety has emerged with self-independence politically, culturally and linguistically (Schneider, 2007). The new variety of English is free from the external dominant source of power and orientation (Schneider, 2007). Thus, it does not need to seek for comparison with other variety of Englishes and is able

to define itself as a new established entity, which reflects the local identity and culture with the springing up of new social dialects. Nevertheless, the differences between STL and IDG strand varieties are likely to resurface as the markers of ethnic identity (Schneider, 2007). In addition, the new national language variety might coexist with other indigenous languages. For instance, the IDG strand appears as ethnic L1 dialects for some speakers or L2 varieties of English especially in multilingual countries such as Singapore, Canada or South Africa (Schneider, 2007).

Nevertheless, there are variations on the basic pattern or along the road due to various possible changes and reasons such as the existence of unequal duration times and overlapping characteristics of different phases (Schneider, 2007). In addition, there could be unexpected "catastrophic" changes of direction in history and policy, which will then lead to changes in the linguistic and social developments (Schneider, 2007). Malaysia is one example. In all, this model has a wider applicability for the PCEs compared to other models but not all countries will go through all the five phases (Peter, 2005).

The first two stages, foundation and exonormative stabilization of English in Malaysia (1786 - 1957) started and gradually took place after the British force took over Malacca from the Dutch Governor, Abrahamus Couperus (Perpustakaan Negara Malaysia, 2009). The power and influence of the British resulted in the establishment of the colony of Penang in 1786 and it also marked the emergence of IDG strand bilingualism. In 1826, Penang with Province Wellesley, Malacca and Singapore were joined together to form the Straits Settlements (Perpustakaan Negara Malaysia, 2009). The increasing

demand of English gave rise to the establishment of English-medium schools in the Straits Settlements. These institutions were built by the government in most towns and they were initially run by the Christian Missions like the Brothers' Schools and Anglo-Chinese Schools (Perpustakaan Negara Malaysia, 2009). Gradually, English-medium education became a representation of power, prestige and also privilege to those of higher status for the IDG group like the children of the Malay rulers. The education policy established has a great impact to the current education system. It has created interethnic bonds and a value system that thereafter paved the way to the independence of the Federation of Malaya (Schneider, 2007). Most of the Malays and the Aboriginal groups, which are also known as 'Bumiputra' after independence, remained in the rural area. Chinese who worked in the tin mines and Indians who worked as labourers in the rubber plantations are both groups that typically adopted English as their vernacular more readily than the Malays (Schneider, 2007). English was conserved as a co-official language in addition to BM and it lasted for ten years before BM took over the status as the sole official language in Malaysia. The linguistic effects of English such as koin ézation, incipient pidginization and toponymic borrowing in the community could be observed even in place names such as *Georgetown, Barrack Road (Jalan Barrack), Birch Road (Jalan Birch), Campbell Street (Lebuh Campbell) and Cockcrane Road (Jalan Cochrane).*

MalE is now at Stage Three, nativization in which it is undergoing structural nativization in terms of its characteristics and new identity via the coupling of the variety spoken by the STL and local or IDG (Kirkpatrick, 2007). The pronunciation system is not fully stable but there is a steady increase of competent bilingual L2

English speakers from the IDG group. Bilingualism or multilingualism is common among the speakers and it is now undergoing a structural nativization with gradually embedded lexis, grammatical and phonological innovations. In most urban environments, English is widely used and now deeply rooted in the country (Schneider, 2007). MalE has undergone structural nativization on all levels of language organization and its features are shared with other varieties, which are in close geographical proximity like Singapore.

The strategic location of Singapore attracted the attention of the British East India Company to exploit its potential to attract traders and eventually made it the major port in that region. Thus, Phase 1 began in 1819 when Sir Thomas Stamford Raffles arrived at Singapore as an agent of the British East India Company (Schneider, 2007). In 1867, Singapore as a part of the Straits Settlement became a Crown Colony directly under the control of the Colonial Office in London. Consequently, the transition to Phase 2 took place with the growing importance of the port as an international trading center (Schneider, 2007). The opening of Suez Canal in 1869, the advent of steam ships and the fast growing rubber trade due to the increasing demand in the automobile industry resulted in a higher demand for English-medium schools.

In the early stage, Malaysia and Singapore were assumed to be homogenous and principally in line with the general assessments of the Dynamic Model, have ethnicity-based group alignments, have a shared koinéization of local lexicon, involves toponymic borrowing and spreading of bilingualism. Nevertheless, SgE is now at Stage Four, endonormative stabilization. SgE is no doubt the most advanced variety among

the new Englishes with a rapid development in less than 200 years (Mukherjee & Gries, 2009). It has a well-established pronunciation system and emerged with generally accepted local norms. The variety is now focusing more on homogeneity, codification and stabilization. The two varieties of new English with closely related historical background was once part of the other but now in different stages.

This study is aimed to shed some light in ascertaining the current status of the two varieties by investigating the differences in the characteristics of the diphthongs which is expected to differ as they are now at different stages. At the end of this study, depending on the findings, the result is to be used to discuss whether MalE and SgE are in the respective phases as proposed by Schneider (2007).

2.6 Subjects

Malaysia has a population of 28.3 million of which 91.8 % are Malaysian citizens and 8.2 % are non-citizens (Department of Statistics Malaysia, 2011). Malaysia citizens consists of the main ethnic group, Malays (67.4%), followed by Chinese (24.6%) and Indians (7.3%); whilst Singapore has a population of 5.08 million of which 74.3% are resident population and 25.7% are non-resident population. Of the resident population in the 2010 census, 85.7% are Singapore citizens and 14.3% are permanent residents (Department of Statistics Singapore, 2011). Of the total 3.77 millions of residents, the main ethnic group is Chinese (74.1%), followed by Malays (13.4%) and Indians (9.2%).

As the dominant group in Malaysia, the Malays consist of the indigenous Austronesian speakers in West Malaysia, the Kadazans of Sabah and the Dayaks of Sarawak in East Malaysia and the Austroasiatic speakers (the Aboriginal tribes) (Baskaran, 2005). The researcher is focusing on the indigenous speakers in West Malaysia particularly in the central region of Peninsula Malaysia. However, the diversity of Malay dialects is taken into consideration in selecting the participants. In a study of Asmah (1977), Malay dialects are categorized into two. The first is the variety spoken in the central and southern regions of Peninsula Malaysia. In this variety, the orthographic “a” in word-final position is realized as schwa [ə] and [r] is absent. Secondly, in the variety spoken in the northern states of Peninsula Malaysia and East Coast, the orthographic “a” in word-final position is realized as low central vowel [a] and alveolar trill [r] in word-final positions is realized as alveolar trill [r] (Asmah, 1977). In addition, Platt and Weber (1980) also classified the typical verbal repertoire of ethnically Malay Malaysian

in two. The first variety is the standard form of Bahasa Malaysia or Malay in which the younger Malaysian learn in schools. However, the older age groups may not have great competence in it due to the lack of education in their early years. The second variety is the regional Malay dialect such as Kelantan dialect or Kedah dialect, which show considerable variation in structure and pronunciation from the standard form of Bahasa Malaysia. Therefore, only the Malay participants from the central region of Peninsula Malaysia were taken into account.

The Chinese forms the second biggest portion of the settler population in Malaysia with the main dialectal groups such as the Hokkien, Cantonese, Hakka, Teochew and Hainanese (Baskaran, 2005). Hokkien is widely used in Penang, Kedah, Malacca and Johor whilst Cantonese is mainly spoken in Kuala Lumpur (Lim, 2007). Nevertheless, Mandarin is the official Chinese language widely used across all occasions and media. In order to minimize the possible variations due to the different dialectal background, only the Chinese participants from the central region of Malaysia were involved in this study. The language spoken at home was taken into consideration in filtering the subjects involved in order to minimize the phonological transfer from the dialects to their MalE pronunciation. The details of their language background were collected to ensure a comparable set of data.

Like the Chinese community, the Indian community in Malaysia has a number of sub-groups. However, the majority of this heterogeneous group uses Tamil and others speak Telegu, Malayalam, Punjabi, Bengali, Gujerati, Urdu, Sindhi and Sri Lankan Tamil (Baskaran, 2005; Lim, 2007).

Code switching is very common for Malaysians, be it inter-group communication (with other main races) or intra-group communication (sub-groups). Most of the Malays prefer to use the national language, Bahasa Malaysia for intra-group communication except for the educated elite Malays who would opt for English (Baskaran, 2005). For inter-group communication, the Malays would still prefer the use of Bahasa Malaysia if they were allowed to whilst others are mostly communicating in English. In the Chinese community, Mandarin or English is the main language used for intra-group communication (Baskaran, 2005). Sometimes, dialects becomes the intra-group preferred option depending on the dialect used by the majority of the region like Cantonese is commonly used in Kuala Lumpur and Hokkien is the common dialect in Penang. English is a preferred choice of inter-group communication for Chinese with other non-Chinese counterparts. Knowing the growing importance of English, many educated elite Chinese uses English at home as the main communicating language in the family domain especially with the children from young. Intra-group communication among the sub-groups of Indian is either Bahasa Malaysia or English (Baskaran, 2005). Sometimes, when Tamil is found to be the language in common, they would speak Tamil instead. As for inter-group communication, the Indian would prefer either Bahasa Malaysia or English in both official and unofficial occasions. Both the less educated or not educated Chinese and Indian use Bahasa Malaysia in inter-group communication.

Similar to Malaysia, the sociolinguistic profile of Singapore is diversified with different ethnic groups in which each has got their own unique characteristics too. The dominant group in Singapore, the 74.1 % of Chinese consists of Singaporean Chinese of origin such as Hokkiens, Teochews, Cantonese, Hakkas, Hainanese, Hockchias, Foochows,

Henghuas and Shangainese (Department of Statistics Singapore, 2010). Therefore, apart from Mandarin, the Singaporean Chinese uses Chinese dialects such as Hokkien, Cantonese and Hakka. However, many of the young Chinese nowadays are not fluent in their Chinese dialects and thus English and Mandarin are more widely used in intra-ethnic communication among the Chinese (Tay, 1993). The same change in language choice is also observed in its inter-ethnic communication where Chinese Singaporean is more likely to use English when they are communicating with a Malay or Indian (Tay, 1993).

The Malay is the second biggest group of ethnic group in Singapore. The group comprises Malay or Indonesian origin such as Javanese, Boyanese and Bugis (Department of Statistics Singapore, 2010). Followed by the third group is Singaporean Indians, which consists of Indian, Pakistani, Bangladeshi or Sri Lankan origins such as Tamils, Malayalis, Punjabis, Bengalis and Singhalese (Department of Statistics Singapore, 2010). Lastly, other ethnic groups constitute residents such as Eurasians, Europeans, Arabs and Japanese (Department of Statistics Singapore, 2010).

Likewise in the Malay and Indian communities, Malay and Tamil are still being used in most families especially those who are less educated. The increasing use of English in education and other situations has encouraged the young generation to use English widely in their intra-ethnic communication. For inter-ethnic communication too, English is widely used when the Malays are communicating with Singaporean Chinese or Indian. Some parents of Malay and Indian descent send their children to schools where English is taught as a first language and Mandarin as a second language (Tay,

1993). Thus, some of the young Malays or Indians use English and Mandarin in both intra- and inter-ethnic communication (Tay, 1993).

In this study, the researcher decided to consider both the main ethnic groups, Malay and Chinese in recruiting the respondents, as they form the majority of the population in both countries. Although the number of subjects is relatively small for each variety of English, it is expected that the result produced by two socially and geographically homogenous group of speakers would be able to reflect a substantial part of the possible variations of the variety respectively. In order to keep the variable of gender consistent, a total of twenty female speakers were selected from both countries to have a valid comparison. Two groups of participants consisting five Malay and five Chinese undergraduates aged 18 to 26 were recruited for a voice recording.

The first group of participants were undergraduate students from a local university, University of Malaya. They were five Malay Malaysian and five Chinese Malaysian females. Secondly, another group of undergraduates from Nanyang Technology University were invited for the recordings. They were five Malay Singaporean and five Chinese Singaporean females. The recording session was done in Singapore by the researcher.

Before the recording process, all the Malaysian and Singaporean participants were required to fill in a questionnaire on their background to ensure homogeneity of speech and language background. In order to ensure that the participants were Malay and

Chinese speakers of MalE and that they had not been overly influenced by native speakers, the researcher ensured that none of them

(1) had spent more than four consecutive months in any English speaking countries,
(2) had been formally educated in schools directed by native speakers of English, and
(3) had ever lived with English speaking families or groups.

From Smith, 1983.

During the data gathering stage, the researcher required the subjects to claim that their English proficiency level is as least the same as or better than their proficiency in Malay or Mandarin.

A general English proficiency test paper was given to each subject to evaluate their English proficiency level. The test was adopted from the website of University of Cambridge ESOL Examinations (Cambridge ESOL) which is the largest educational assessment organization and also the leader in the field of language assessment. The organization is consistently and reliably delivering a quality and comprehensive programme of test development, quality assurance and research (Cambridge, 2011). The test paper is a quick and free online test to give the subjects the idea of their most suitable English level in the Cambridge ESOL exam around the world (Cambridge ESOL, 2011). There are 25 multiple-choice questions in the paper and the result places the subjects according to the levels as shown in Figure 2.3.

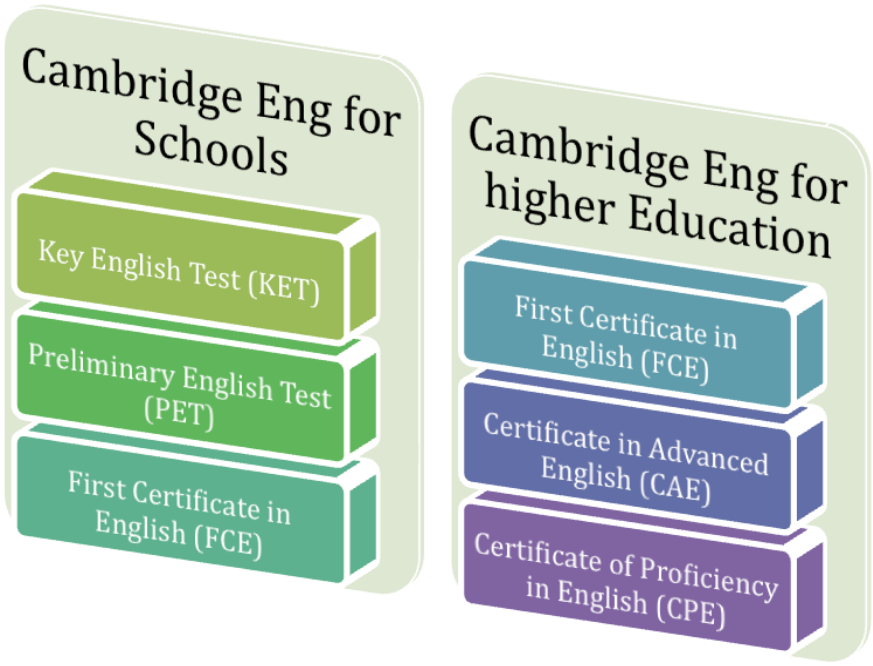

Figure 2.3 : The Framework of Levels for Cambridge English for Schools and Cambridge English for Higher Education.

The test is not a proof of a formal language qualification and the result is very approximate (Cambridge ESOL, 2011). From the test scores, the subjects are placed under the same level were expected to have similar English proficiency level. Thus, it helps the researcher to group the subjects into the different levels as a guide to the subjects' English proficiency level.

In addition, the same gender of speakers resolved the issue of the influence of gender in this study. For instance, women and children generally have smaller vocal tracts and thus, this will result in higher formant frequencies compared to men (Hayward, 2000). Therefore, only female speakers were included to minimize the magnitude of difference, which varies due to individuals, different pairs of vowels and other factors. The female speakers were required to fill in their personal data. Subjects were told that the purpose

of the study was to examine pronunciation but it was not revealed that the focus of the study was diphthongs. In order to ensure that the data collected is reliable, both speakers of MalE and SgE claimed to be fully proficient in English and believed themselves to be educated speakers of their variety of English, each speaker was required to speak clearly, and recite the embedded sentences (Smith & Nelson, 2009) and the content of the topic and the speed of delivery were approximately the same for every interview. The familiarity of the content, topic and the national variety influence of the listener were also considered.

2.7 Acoustic Phonetics

2.7.1 Introduction

There are a few levels of analysis of speech production. Most of the previous research on MalE is at perceptual level. In perception studies, the analysis concerns the registration by the perceiver of sensory data such as the auditory system and sense of hearing for both the speaker and listener (Laver, 1994). In detail, other relevant types are such as the sense of touch, pressure, muscle-tension and joint-position but these depend on how the speakers control and monitor the actions of their vocal apparatus in the production of speech (Laver, 1994). Therefore, it is meant to convey the result based on the perceiver's impression of the sound without the assistance of technology.

There are four perceptual domains relevant to the human auditory system. The four attributes are the domains of perceptual quality, duration, pitch and loudness (Laver, 1994). Under these domains, it includes the ways of how a speaker can control the production of sounds that determines the perceptual quality, the ways of how the units of speech can differ in terms of the temporal characteristics (duration, rate and continuity) and the prosodic attributes (pitch and loudness) of speech (Laver, 1994). A competent, internally experienced and highly skilled phonetician would be able to provide a detailed impressionistic transcription (Hayward, 2000). However, such methods sometimes resulted in stereotypical descriptions of MalE and may not be precise enough to capture the variations in data significantly (Pillai, 2008).

The closest level of speech production analysis to the nature of speech is the acoustic level (Laver, 1994). With the aid of an instrumental acoustic analyzer, the distinct evidence of the difference in terms of quality or timing for two speech events can be registered and identified (Laver, 1994). This is also part of the experimental phonetics in which it includes any investigations of speech by means of instruments (Hayward, 2000). The instruments help to visualize the speech event and expand the range of context for acoustic analysis. However, experimental phonetics is built on the foundations of impressionistic phonetics (Hayward, 2000). Therefore, the basic framework and methodology of impressionistic phonetics are essential for the study of experimental phonetics as experimental phonetic includes at least some aspects the study of both speech production and speech perception (Hayward, 2000).

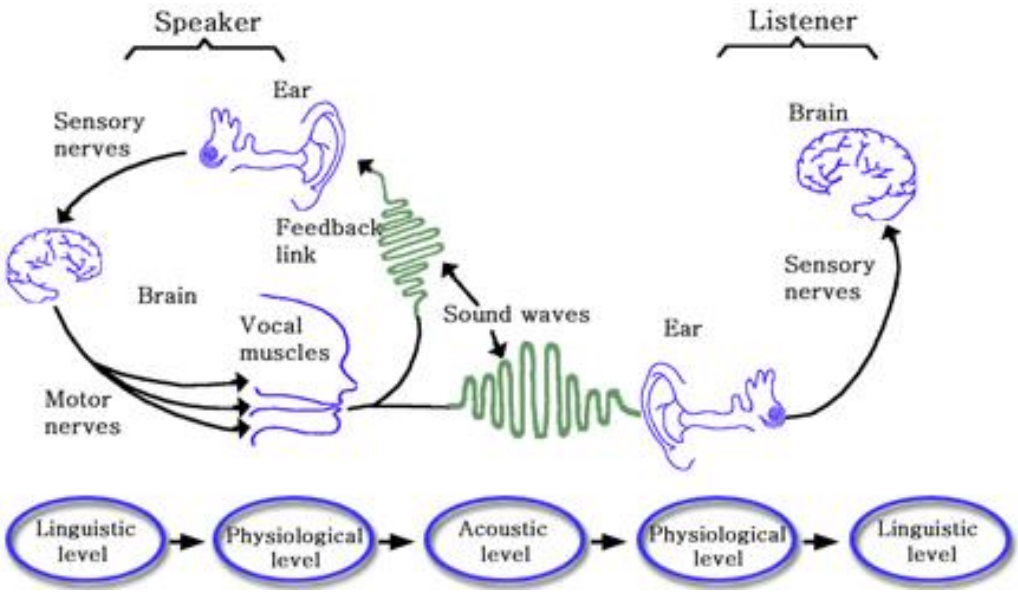

Figure 2.3 : The Speech Chain by Dene and Pinson (1993).

From MIT OpenCourseWare, Massachusetts Institute of Technology. Retrieved from http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-542j-laboratory-on-the-physiology-acoustics-and-perception-of-speech-fall-2005/syllabus/.

The nature of a sound is visualized in waveform at acoustic level. Referring to Figure 2.3, the speaker who is also the voice source first conceives his or her message. Then, the message is encrypted in linguistic form. The linguistic form is then translated into a set of motor commands, which activated the requisite muscles at the necessary intervals and the vibrating vocal folds produces sound wave as the end product of the motor activity (Hayward, 2000). The sound wave is often referred to as acoustic signal, which is featured at the centre of the speech chain as shown below (Hayward, 2000).

In order to provide an overview of the single voice, which is produced by a collection of individual instruments, the waveform is presented as a single entity evolving through time, the spectrum. Figure 2.4 is a graphical representation of a periodic continuous sound wave of diphthong /uə/ pronounced by a female Malaysian speaker. From the spectrogram, the word *Poor* is segmented with the help of the formants shown. The beginning of the red bar shows the release of the plosive, /p/ and the quick transition from the consonant to the first vowel, /ʊ/ and lastly, the smooth gliding movement towards the second vowel, /ə/.

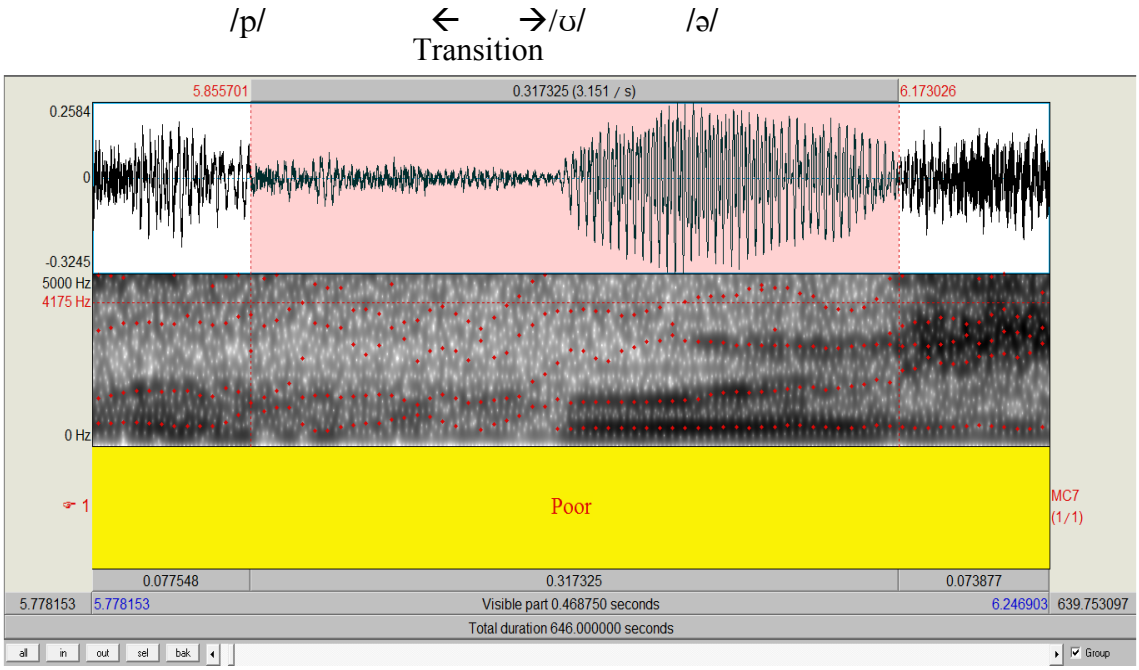

Figure 2.4 : Screenshot of waveform and spectrogram and annotations

During the sound production, the vocal tract acts as a filter that determines the performance of the frequency response curve. The speech organs also have the function of resonators in which they filter, enhance and dampen properties of waves, which is recognised as the speech sounds (Mlinar, 2011). The behaviour of the vocal tract results in the variations of resonant frequencies, which is also known as the formant frequencies. The formants are the visible peaks of acoustic power in a diagram of the output spectrum (Brosnahan & Malmberg, 1970). Therefore, they are the most prominent elements of energy distribution in speech sound (Mlinar, 2011).

In 1942, one of the most influential researches conducted by Chiba and Kajiyama with a solid insight in resonator theory and introduced the multi-formant spectral patterns of

vowels even though they lacked of modern practical tools for calculating each resonance mode of a vowel, the F-pattern, F_1, F_2, F_3 and F_4 (Fant, 1960 cited in Fant, 2001). However, it managed to establish the fundamental of the modern acoustic theory of speech science. In the study, they collected the physiological data and measured the area function of the three-dimensional vocal tract shape using the most advanced technologies at the time, X-ray imaging device (Arai, 2004). Subsequently, they calculated the resonance frequencies from the data and further introduced the electrical circuit theory (Arai, 2004). Thus, the acoustic theory of vowel production was established. As a conclusion, the study suggested that the shape of vocal tract determines the acoustic nature of vowels (Arai, 2004).

Fry (1979) stated that there is a correlation between formant frequency and articulatory configuration. Hence, most experimental phoneticians quantified vowel quality with adequate precision and validity by measuring the center frequency of the lowest resonance of the vocal tract (F_1), which corresponds closely to the articulatory and/or perceptual dimension of vowel height (high vs. low vowels or close vs. open vowels) despite the relationship is not linear (Van de Weijier & Los, 2006). In 1996, Kent and Read conducted an overview of the formants predictions. From the summary of the overview, all formants frequencies are lowered by labial constriction and all three formant frequencies are raised by a constriction near the larynx (Kent & Read, 1996). Lastly, the curve for F_2 has a negative region corresponding to the tongue constriction for /ɑ/ and a positive region corresponding to the tongue constriction for /ɪ/ while the curve for F_3 has negative regions corresponding to constriction at the lips, palate and

pharynx (Kent & Read, 1996). Hence, F_2 and F_3 are generally lower with the lip rounding vowels as the vocal tract is lengthened.

The lowest peak is also known as the first formant (F_1), provides an adequate estimate of the degree of jaw opening and the second formant (F_2) correlates with the degree of tongue advancement (Hayward, 2000). In detail, F_2 reflects the place of maximal constrictions during the production of the vowel, which is the front vs, back dimension (Van de Weijier & Los, 2006). Based on a study of formants of the pure vowels of British English conducted by Wells (1962), Fry (1979) concluded that vowel sounds that form a progression from a close front to an open front articulation produces a wide spacing between F_1 and F_2. Hence, the difference of F_1-F_2 is large. When the articulation moves from front to back, both the F_1 and F_2 were lower and there was a reduction in the difference of formants relatively (Fry, 1979). The progression from open to close back vowel articulation too produces a gradual reduction in F1 and the sequence for F2 is less regular as the lip rounding in articulating the back vowels (Fry, 1979). Lastly, the difference of formants for the central vowels was intermediate between the front and back vowels.

In this study, by measuring and identifying the formants of F1 and F2, the researcher anticipates to find a significant correlation in the analysis to discriminate the formant contours of both Malaysian and Singapore speakers.

2.7.2 Acoustic Characteristics of Diphthongs

Diphthongs are produced as pairs of vocalic sounds through the vibrating or constricted vocal folds in the larynx. The tongue moves in order to produce the one vowel quality followed by another, hence modifying the size and shape of the articulatory cavities and generates the vocalic sounds. The size and tract of different speakers vary principally by the positioning of the tongue and lips (Clark & Yallop, 1994). Thus, the perceived phonetic quality of the vocalic sound is altered as the tract is varied (Clark & Yallop, 1994). Specifically, the shape and position of the tongue, the shape and degree of protrusion of the lips are the two most fundamental articulatory manoeuvres to define the phonetic quality of the vocalic sounds (Clark & Yallop, 1994). The tongue determines the geometry of the oral and pharynx cavities, the lips control the shape and area of the front of the vocal tract and the protrusion of the lips helps to extend the overall length of the vocal tract (Clark & Yallop, 1994).

All the vowel pairs in this study are studied via spectrographic representation to investigate the presence of the vowel pairs at its first and second formant frequency levels. A spectrogram is used to capture the shape of resonant properties of the articulatory cavities of the different vowels (Ball & Rahilly, 1999). The variations in tongue height, tongue advancement and lip-rounding are the three main features to classify the vowels (Ball & Rahilly, 1999). The transition of the tongue movement will be shown in the spectrogram via formant patterns for the eight vowel pairs of MalE and SgE in Section 4.2.1 for Task 1 and Section 4.2.2 for Task 2. The direction of diphthongs is analyzed to study the direction of the diphthongal movement in the F1/F2 acoustic vowel space.

The vowel height is inversely proportional to F1 value, thus the high or close vowels have lower F1 values than low or open vowels (Ball & Rahilly, 1999). Tongue advancement is reflected in F2 values where the front vowels will have higher F2s then back vowels (Ball & Rahilly, 1999). Nevertheless, the correlation between the second formant frequency and the degree of backness is not as good as the correlation of the first formant frequency and the vowel height (Ladefoged, 2006). This is due to the degree of lip rounding and the vowel height, which considerably affect the second formant frequency. Lip rounding is generally characterized by the lowering of second and third formants and in this study; the second formant frequency is expected to be substantially affected. As all the speakers have their own articulatory setting and characteristics, the auditory quality of the recordings is expected to vary according to the conditions for every diphthong but the relative positions of the vowels from onset to offset are expected to be similar.

The articulation of diphthongs involves a change in quality from one vowel to another (Ladefoged, 2006). The movement is usually from the more prominent vowel to the other vowel. An acoustic energy is produced through the conversion of the kinetic energy by virtue of the moving air stream (Brosnahan & Malmberg, 1970). The acoustic quality of this energy depends on its formant structure in which each vowel contains a number of different pitches simultaneously. The changes of formant frequencies are characterized by the vibration of air to the different shapes of the vocal tracts for different vowels. It is found that each vowel had three formants and three overtone pitches (Ladefoged, 2006). However, Brosnahan and Malmberg (1970) stressed that the formant pattern of a particular sound is the outcome of the acoustic character of the

whole tract working as one resonant system. Hence, it is not justifiable to assign any one formant to a particular part of the vocal tract and the formant frequencies are interdependent since the lengthening of one section of the tract implies the shortening of the other (Brosnahan and Malmberg, 1970). This is important for diphthongs as the glide of one vowel to another involves high interdependency between the two vowels. The tongue movement of one vowel to another is not a complete change but it gives rise to a more or less rapid switching from one set of formants to another (Brosnahan and Malmberg, 1970).

In general, most scholars mark the lowest formant as F_1, which could be heard and produced by a low creaky voice without a significant pitch by itself. F_1 is found to be relatively low for high vowels like /u/ of /ʊə/ and high for low vowels such as /a/ of /aʊ/ (Deterding, 1996). Followed by the second formant, F_2, which could be heard more clearly and corresponds to tongue backness and lip rounding. Lastly, the third formant, F_3, which is less evident but it adds to its quality distinction (Ladefoged, 2006). Clemont (1993) contributes a new, three-dimensional (F_1-F_2-F_3) perspective on the acoustic characteristics of the vocalic transition of Australian English diphthongs. However, the focus of the study was citation forms of data. The present study aims for close-to natural and conversational speech. Hence, F_3 tracks are not taken into consideration.

Using the same methodology as Maxwell and Fletcher (2010) as well as Deterding, Wong and Kirkpatrick (2008), F_1 and F_2 frequencies in this study were used to track the diphthong trajectories. The first two formants were taken at two positions in each

vowel, one towards the beginning of the vowel and one towards the end before the start of the offglide and visible transition towards the consonantal gesture. The readings were carefully taken for measurement to avoid any formant transitions (Deterding, Wong & Kirkpatrick, 2008). The trajectories were linearly interpolated and time was normalized with average formant frequencies plotted onto the Bark scale for analysis.

To date, there is no established standard approach in measuring diphthongs to provide the best description of diphthongs acoustically. This is particularly difficult for natural connected speech in order to characterize the complex vowel pairs' quality. Some researchers have proposed the different approaches to describe diphthongs acoustically. Ren (1986) makes a detailed measurement of F2 trajectory in the diphthongal syllable at various points. In 2010, Maxwell and Fletcher presented the time normalized average formant F1/F2 trajectories for the diphthongs at various points while Clermont (1993) suggests that the third formant, F3 is to be taken into consideration in the spectro-temporal description of diphthongs as proposed. However, these studies used only citation forms or a word list as their data. Thus, they are not fit to be adopted for the current study as it involves natural connected speech in its Task 2.

Gay (1968) recommended the measurement of the rate of change (ROC) for the formant frequencies of diphthongs. This approach has been used by a number of scholars (Deterding, 1996, 2000; Lee & Lim, 2000) in the studies of vowels. It involves the difference of F_1 and F_2 dividing by the duration. This approach proposed by Gay (1968) is adopted for the present study to provide in-depth acoustic features of the diphthongs. The value of ROC demonstrates the diphthongal movement for the transition. Thus, a

larger value indicates a greater diphthongal movement. Relatively, the formants are stable and unchanged when they are realized as monophthongs (Deterding, 1996).

In the current study, the diphthongs are analyzed in three categories mainly due to their direction of tongue movement. The closing diphthongs, /eɪ/, /aɪ/, /ɔɪ/, /əʊ/ and /aʊ/ are sub-divided into two categories. They are the fronting diphthongs, /eɪ/, /aɪ/ and /ɔɪ/ and the backing diphthongs, /əʊ/ and /aʊ/. Generally, the closing diphthongs are produced when the tongue of a speaker rises and closes the space between the tongue and the roof of the mouth (Collins & Mees, 2006). The traditional RP speakers had a closer starting-point for /eɪ/, a more front starting-point for /aɪ/ and a more open starting-point for /ɔɪ/ (Collins & Mees, 2006). On the contrary, the centring diphthongs, /ɪə/, /eə/ and /ʊə/ are produced with the tongue moves towards the central vowel /ə/. For fronting diphthongs, the glide of the vocalic sounds are moving towards a close front vowel /ɪ/ while the backing diphthongs are moving towards a close back vowel /ʊ/. The lip shape for fronting and centring diphthongs is that it is lip-spread throughout the articulation (Collins & Mees, 2006). For backing diphthongs, it moves from lip-spread to lip-rounded (Collins & Mees, 2006).

2.7.3 Diphthongs in Other Varieties of English

A large body of studies has been conducted on diphthongs (Holbrook, 1962; Lehiste & Peterson, 1961; Gay, 1968; Fry, 1979; Ladefoged, 2006; Deterding, 1996; Lee & Lim, 2000; Hayward, 2000; Leimgruber, 2011). Thus, there are a few ways to regard a diphthong as described by the scholars. Fry (1979) claims that a diphthong consists of a syllable that presents a combination of two pure vowels. Hayward (2000) describes a diphthong as a representation of a sequence of two vowels, the first representing the starting point and the second representing the ending point. These were questioned by some scholars, as there is no consistency in the steady state of two end-to-end vowels.

Ladefoged (2006) marked that a diphthong involves movements from one vowel to another within a single syllable. However, a syllable may be made up by a semi-vowel and a pure vowel sounds like a diphthong too such as /ju:/. Ladefoged (2001) listed /ju:/ in his list of 20 vowels in British English. Neverthelesss, the status of /ju:/ as a vowel in English is uncertain (Deterding, 2004). Lehiste and Peterson (1961) identified a diphthong by measuring the duration of the onglide from the consonant release to the steady state of the steady state to the end of the offglide. In addition, Gay (1968) suggested that a diphthong is governed by the rate of change (ROC) of the formant transition rather than the onset or offset target positions. In all, this is adopted as it is supported by many findings that the formant ROC remains constant even when there is considerable variation in the onglide and offglide positions (Gay, 1968; Deterding, 1996; Lee & Lim, 2000).

There is a tendency of producing the diphthongs as monophthongs in many varieties of English. For some varieties of Englishes at Phase 5, Differentiation in the developmental cycle of new Englishes proposed by Schneider (2007), there are studies that reported the tendency of monophthongization in British English (BrE) (Roach, 2000; Kerswill, Torgesen & Fox, 2006; Foulkes & Docherty, 2007), American English (AmE) (Kiesling & Wisnosky, 2003; Johnstone & Kiesling, 2008;), Australian English (AusE) (Trudgill & Hannah, 1985) and New Zealand English (NZE) (Trudgill & Hannah, 1985).

In a study of Kerswill, Torgesen and Fox in 2006, they looked into the innovation in inner-London teenage speech from inner and outer London boroughs. 16 elderly Londoners and 105 teenagers (17 year-old) were involved in the study. Free interviews were conducted in pairs and the result was then compared to the findings from the London Peripheral of South-east England (Milton Keynes, Reading and Ashford) ten years ago. In Hackney, one of the Northern London boroughs, it was found that the monophthongization of /eɪ/ FACE, /aɪ/ PRICE and /əʊ/ GOAT is centred in the inner city and it is rare in the London peripheral as a result of the contact of the speakers with British Caribbean English and their L2 Englishes (Kerswill, Torgesen & Fox, 2006).

Foulkes and Docherty (2007) conducted a study on the phonological variation in England by providing a comprehensive descriptive survey of the last twenty years work. In the summary, it is revealed that the traditional local forms of /ɪə/ and /ʊə/ are becoming restricted to older males, and are virtually absent in the speech of women. A wide distribution of young speakers over the north of England are opting instead for

monophthongal variants [eː] and [oː]. In the monophthongization study of Kiesling and Wisnosky (2003), a speech telephone survey was carried out. It was found that in all the three age groups, men monophthongize more than women generally (Kiesling and Wisnosky, 2003). The study also further investigated the factors of monophthongization such as age, occupation and birth city (Kiesling and Wisnosky, 2003). The result of the study reported that the younger speakers were generally much less likely to monophthongize the diphthong /aw/ compared to the older speakers (Kiesling and Wisnosky, 2003). They also found that the monophthongization is more likely to take place in the speech of the speakers of working-class males born in Pittsburgh than the others. The speakers who were born in the city tend to favour monophthongization too (Kiesling and Wisnosky, 2003).

In 2007, Watson discussed about Liverpool English (LE) in one of his articles related to LE. The article provides a descriptive detail on LE based on the data the researcher gathered in his Ph. D. Dissertation (Watson, 2007). The perceptual study included only one subject, a 21 year-old working class female speaker. The speaker was born in the north of Liverpool, Netherton and has been living there. She claimed herself to have a 'broad' Liverpool accent. The speaker read the passage of North Wind and the Sun (NWS) and it was then transcribed and analyzed. In the article, it was stated that the most distinctive difference of LE with other northern English varieties is that /eɪ/ and /əʊ/ are realized as diphthongs whilst other northern English varieties have the tendency of monophthongization. Generally, /ɔɪ/, /aɪ/ and /aʊ/ are also realized as diphthongs in LE. Nevertheless, some speakers may monophthongize diphthongs like /aɪ/ before certain consonants like /t/ and /f/.

For Phase 4, Endonormative stabilization, some researchers have reported same tendency of monophthongizing the diphthongs in varieties such as SAfE (Trudgill & Hannah, 1985) and SgE (Deterding, 1996; Deterding, 2000; Brown & Deterding, 2005). In 1985, Trudgill and Hannah made a comparison of the phonetic differences of AusE, NZE and South African English (SAfE) from RP. This study involves the varieties of Englishes at two different phases in the developmental cycle of new Englishes. As a result, they found some distinctive differences compared to RP. The diphthongs of AusE are wider than RP and thus the diphthongs tend to be 'slower' in which the first element or vowel tends to be longer (Trudgill & Hannah, 1985). The study also reported a tendency for diphthongs such as /aɪ/ to be monophthongized and the tendency towards the monophthongization of /aɪ/ is less strong in NZE among the three varieties (Trudgill & Hannah, 1985). In addition, the tendency of monophthongization is found to be much stronger in SAfE than in AusE for diphthongs such as for /ɪə/ and /eə/ (Trudgill & Hannah, 1985).

In Phase 3, Nativization, there is also a tendency for diphthongs to be monophthongized in Brunei English (BrunE) (Salbrina, 2009), Hong Kong English (HKE) (Hung, 2007), Indian English (IE) (Trudgill & Hannah, 1985; Maxwell & Fletcher, 2010; Gargesh, 2006) and MalE (Rajadurai, 2004; Baskaran, 2005; Leimbruger, 2011).

An instrumental analysis, which was supported by a perception test, was carried out by Hung (2007) to investigate the qualitative differences between vowels. In the study, it was found that HKE speakers produce 8 diphthongs contrasts as in RP in general. It was also mentioned that HKE varies from many Asian varieties of English, such as SgE or

IE, which have a simpler inventory of true diphthongs. Nevertheless, the diphthongs have undergone modifications in different phonological environments. For instance, the diphthongs in HKE are regularly shortened when followed by a [+stop] consonant. The sample data is as below:

(i) /eɪ/ was shortened to /ɪ/, *pain* /peɪn/ → /pɪŋ/

(ii) /əʊ/ was shortened to /o/, *joke* /dʒəʊk/ → /dʒok/

(iii) /aʊ/ was shortened to /ɑ/, *town* /taʊn/ → /tɑŋ/

(iv) /ɔɪ/ was shortened to /ɔ/, *point* /pɔɪnt/ → /pɔnt/

In a study of the pronunciation of HKE by Deterding, Wong and Kirkpatrick (2008), an interview was conducted with fifteen English-major female teacher trainees at Hong Kong Institute of Education (HKIEd) with an open-ended question, "Can you tell me what you did on your last vacation?" asked by an expatriate academic professor, Kirkpatrick who is also a RP British speaker. The same question being asked by an expatriate male speaker of RP British in another study of SgE is to ensure that the recordings are directly comparable with the data of NIE Corpus of Spoken Singapore English (NIECSSE) (Deterding & Low, 2001; Deterding, 2003). The fifteen speakers were aged between 22 and 24. Cantonese is their home language and most of the speakers regarded English as their second language while Mandarin is their third language. In the analysis of the results, the researchers investigated the extent of influence of American accent in the data. Next, the consonants and vowels of HKE were discussed followed by the rhythm and stress placement. For diphthongs, the quality of /eɪ/ and /əʊ/ was measured. The first two formants of 65 tokens of /eI/ and 57

tokens of /əʊ/ were measured and the rate of change (ROC) of the diphthongs was carefully studied and compared. In the result, it was found that the ROC of HKE is much closer to BrE than SgE. The trajectories have shown that there are no significant differences between HKE and BrE for /eɪ/ and there is only marginally significant difference for /əʊ/. However, the differences are highly significant for both /eɪ/ and /əʊ/ in HKE and SgE.

In an acoustic investigation of the segmental features of educated BrunE speech, Salbrina (2009) conducted a comparison between auditory and acoustic analysis for the diphthongs, FACE and GOAT. SgE was used as a comparison to assess the relationship between BrunE and SgE. As a result, she found that both BrunE and SgE showed the tendencies to have a monophthongal vowel in /eɪ/ FACE and /əʊ/ GOAT. In this study, Salbrina (2009) used an ROC value of -600 Hz/sec as the threshold and any values that fall below this value; the vowel pair will be regarded as being monophthongal. Her previous study on the vowels of Brunei English (Salbrina, 2006) and Deterding's (2000) study on the measurement of the /eɪ/ and /əʊ/ vowels of the young English speakers in Singapore are used as the benchmark for this study.

In an acoustic analysis of English diphthongs produced by three L1 speakers of Hindi and four L1 speakers of Punjabi by Maxwell and Fletcher (2010), it was found that none of the speakers produced a full set of diphthong vowels. Only the /aɪ/, /ɪə/ and /ʊə/ vowels were realized as diphthongs by all the speakers. Generally, the Hindi speakers monophthongized the /eɪ/, /əʊ/ and /ɔɪ/. On the other hand, the Punjabi speakers monophthongized the /eɪ/, /əʊ/, /ɔɪ/ and /aʊ/. Thus, neither the Hindi nor the Punjabi L1

speakers produced a complete set of rising diphthongs and there was a great deal of variations in the realization of the diphthongs among the speakers.

Some significant features of South East Englishes such as IE and Pakistani English were highlighted by Gargesh (2006), such as the /eɪ/ and /əʊ/ are realized as monophthongs instead of diphthongs, as in RP or AmE. It is also highlighted by Trudgill and Hannah (1985) that IE tends to have a reduced vowel system to RP. For instance, some RP diphthongs, /eɪ/ and /əʊ/ tend to be pronounced as monophthongal /eː/ and /oː/ respectively.

In all, most of the varieties have shown that the tendency of monophthongization exists whether the vowel pairs are more or less diphthongal. In this study, the researcher is very concerned with the current description of diphthongs in MalE and to what extent the vowel pairs are diphthongal.

2.8 Diphthongs in Malaysian and Singapore English

For SgE, Tay (1979) found that the variety of SgE differs from RP in its pronunciation features for diphthongs with the following:

(i) /eɪ/ was shortened to /eː/, in words like *day*

(ii) /əʊ/ was shortened to /oː/, in words like *go*

(iii) /ɔə/ was shortened to /ɔː/, in words like *four*

(iv) /eə/ was shortened to /3ː/, in words like *there*

The words were reduced to pure long vowels without the glide in the diphthongs (Mary, 1979).

Deterding (1996) also found that Singaporean speakers have a smaller average diphthongal movement for both /eɪ/ and /əʊ/ than the British speakers in the study. Thus, the use of the relatively monophthongal realization of /eɪ/ and /əʊ/ by the Singaporeans might be regarded as a distinctive characteristic of their local speech. In a sociolinguistic study of Singapore English by Leimgruber (2009), it was highlighted that the five diphthongs, namely, /ɔɪ/, /aɪ/, /aʊ/, /ɪə/ and /ʊə/ are phonologically identical to RP's, but much narrower. This is referring particularly to the two centering diphthongs, /ɪə/ and /ʊə/. In addition, Lee and Lim (2000) measured that out of the ten Malay Singaporean speakers and ten Chinese Singaporean speakers, the Chinese exhibited a slightly greater diphthongal movement for /eɪ/. Despite that, the difference is small but marginally significant. Therefore, it has shown that Singaporeans produce less diphthongal /eɪ/ and /əʊ/ than the diphthongs in standard BrE.

To the researcher's knowledge, most of the studies involving the pronunciation of MalE are based on auditory impression. For instance, Rajadurai (2006) conducted a case study involving three proficient Malaysians. 20 hours of naturalistic speech was recorded through interviews with the speakers. The observation and analysis focused on the speech adjustments the speakers modified in order to accommodate to different speakers and attain greater clarity and intelligibility. In the analysis, diphthongs, /ɪə/, /aɪ/, /aʊ/, /ɔɪ/ and /ʊə/ was found to be consistently realized. However, /eɪ/, /əʊ/ and /eə/ were substituted with /ɜː/, /ɔː/ and /əː/ without intelligibility being compromised. In 2007, Rajadurai further studied the phonological characteristics from the sociolinguistics perspective. This perceptual study involved only one Malaysian Chinese adult male. A number of features were discussed in the study such as the production of dentalised plosives [t] and [d] in place of [u] and [W], the coalescence of /&/ and /e/ and also the loss in vowel length distinctions. In 2009, Phoon and Maclagan conducted a perceptual analysis to identify the characteristics of the consonant and vowel inventories of MalE as well as phonetic realizations of the phonemes. In 2013, Phoon, Abdullah and Maclagan describes and discussed the consonantal features which are shared and not shared by Malay-influenced Malaysian English (MME), Chinese-influenced Malaysian English (ChME) and Indian-influenced Malaysian English (IME). Nevertheless, diphthongs were not included in the studies.

Platt and Weber (1980) observed that diphthong, /eɪ/ in words like *take* or *made* was reduced to /ɜː/ and /ɜ/ in ME II. In a study of Malay speakers of English, Zuraidah (1997) carried out an auditory analysis to describe the pronunciation of "Malay English", a variety of MalE whose realization is greatly influence by Malay, the mother tongue of Malays. It was found that some of the subjects reduced the diphthongs /eɪ/

and /eə/ to [o], a monophthong with Malay-like qualities. In addition, out of the 12 native speakers of Malay aged 20 to 23, some pronounced /əʊ/ as /ɔ/. Baskaran (1987, 2004, 2005) also did several perceptual studies on the area of diphthongs too such as the quality of the two-vowel entities and the identical sequence of occurrence of the diphthongs in single words. It was reported that the RP diphthongs /eɪ/, /əʊ/, /eə/ and /ʊə/ do not have the full quality of a two-vowel entity in MalE. In the instances of monophthongization in MalE, the first vocoid of the monophthongs is stronger but the second vocoid is almost absent (Baskaran, 2005). In the first example of (i), /eə/ was shortened to /ɜ/ in which the presence of the second vocoid /ə/ was not found after monophthongization.

(i) /eə/ was shortened to /ɜ/, *there* /ðeə/ → /ðɜ/

Other samples of data are as below:

(ii) /eɪ/ was shortened to /e/, *mail-train* /meɪl-treɪn/ → /mel-tren/

(iii) /əʊ/ was shortened to /oː^{ʊ}/, *photo* /fəʊtəu/ → /foto/

(iv) /eə/ was shortened to /ɜ/, *there* /ðeə/ → /ðɜ/

(v) /ʊə/ was shortened to /ɔ/, *pure* /pjuə/ → /pjɔ/

In addition, the first occurrence of diphthongs, which occur recurrently in a word, is also monophthongized to a long vowel (Baskaran, 2005). Here are some sample data:

(i) /ɪə, ɪə/ were shortened to /iː, ɪə/, *serious* /sɪərɪəs/ → /siːrɪəs/

(ii) /ɪə, ɪə/ were shortened to /iː, ɪə/, *material* /mətɪərɪəl/ → /mətiːrɪəl/

As a result, it is suggested that there would still be a tendency of monophthongization by Malaysian speakers in the production of diphthongs. However, the previous descriptions of the diphthongs of MalE to date may not be accurate as a more systematic analysis is required to produce a better description of MalE pronunciation which is hoped to be contributed to the identification of the local norms here.

CHAPTER THREE

DATA AND METHODOLOGY

3.0 Methodology

3.1 Test Materials and Procedures

The interest in investigating the emerging Asian variety of Englishes has been growing considerably in recent years (Zuraidah, 2006; Pillai, Zuraidah, Knowles & Tang, 2010; Deterding & Low, 2001). Spoken English is to be included of real value for research projects as it is necessary to identify the model of pronunciation of the learners (Zuraidah, 2006). Gearing towards this direction, the researcher collected samples of spoken language by Malaysian and Singaporean undergraduates in the effort to provide some comparative insights to the current model of pronunciation in the context of both variety of Englishes.

Ladefoged (2001) listed 20 vowels in BrE. However, /ʊə/ was omitted as he believed that /ʊə/ is no longer widely used by most speakers (Ladefoged, 2001). Instead, he listed /juː/ in as one to be noted if the status is a vowel, a rising diphthong. In spite of this, the status of /juː/ remains uncertain and therefore it is not taken into the account of diphthongs in this study. Malaysian English is greatly influenced by BrE due to its historical background as a part of the British colony. Therefore, the eight RP diphthongs were chosen in this study rather than the five diphthongs in AmE.

The selection of words containing the eight diphthongs was done based on a forthcoming research on monophthongs and diphthongs of MalE in the postcolonial context (Pillai, 2014). The present study focuses on diphthongs for MalE, which is currently nativizing in its evolution as a variety of PCE. It is interesting to see the result of both studies in a similar context. Thus, the word list was adopted to have a valid comparative point. In addition, the words were carefully selected and it consists of six words in CVC context and two CV words with an ending "r". This will help to increase the accuracy of the result, as Malaysians are non-rhotic speakers who do not realize "r" clearly generally. Unlike most AmE speakers who pronounce /r/ followed by a vowel sound in the same prosodic unit. This is also to eliminate exceptions from words such as the targeted words with vowels followed by segments such as */l/,* which would have a substantial influence on the location of the first formant (Lee & Lim, 2000). According to Collins and Mees (2006), a dark */l/* after the closing diphthongs might result in a change of the final element from /ɪ/ to /ə/. For example;

(i) *ale* /eɪl/ → /eəl/

(ii) *mail* /meɪl/ → /meəl/

(iii) *oil* /ɔɪl/ → /ɔəl/

The /ʊ/ element may also be minimal or lost entirely before a dark */l/* (Collins & Mees, 2006). Some of the examples are:

(i) *pole* /pəʊl/ → *pearl* /pəl/

(ii) *whole* /həʊl/ → *hurl* /həl/

3.1.1 Task 1

In this study, the choice of the eight diphthongs selected are based on the standard lexical set of Well which is used in most studies done on MalE (Baskaran, 2004; Tan & Low, 2010). The eight diphthongs are shown as below:

Table 3.1 : The standard lexical set of Well.

FACE	/eɪ/
GOAT	/əʊ/
PRICE	/aɪ/
CHOICE	/ɔɪ/
MOUTH	/aʊ/
NEAR	/ɪə/
SQUARE	/eə/
TOUR	/ʊə/

In Task 1, the subjects were given a word list in citation form which contains the following eight words (Pillai, 2014):

Table 3.2 : List of Citation Words that Contains the Eight Diphthongs (Pillai, 2014).

Bayed	/beɪd/
Bode	/bəʊd/
Bide	/baɪd/
Boyd	/bɔɪd/
Bout	/baʊt/
Beard	/bɪəd/
Bear	/beə(r)/
Poor	/pʊə(r)/

With reference to the previous studies, the procedure is as below (Deterding, 2000; Gay, 1968; Phoon & Maclagan, 2009):

Carrier Frame 1:

Citation word.

Carrier Frame 2:

Say citation word, please.

In Carrier Frame 1, the subjects were requested to read out the citation words containing diphthongs only. This is to test the subject on reading out the citation words given at a fast rate. In Carrier Frame 2, the subjects were required to read out an identical carrier, "Say citation word containing diphthongs, please." This enables the researcher to have more control of the consistency in the readers' speaking rate, pitch levels, stress and phonological environment for comparison. For the full list of the carrier frames, please refer to the appendix. As a result, there were 2 instances each for every diphthong, resulting in a total of 320 tokens collected from both Malaysian and Singaporean subjects in Task 1.

3.1.1 Task 2

In Task 2, the subjects were given a picture as an instrument for the test. The picture (Appendix) is specially designed and drawn to prompt the subjects on the targeted words, which contains the eight diphthongs through natural connected speech. An interlocutor frame was constructed to make sure that the subjects give short answers, or even one-word answers but the response should contain the targeted words with

diphthongs. The interview was divided into a few parts including answering questions about people, animals, objects or situations, describing an object and answering personal questions if required. The questions for the interviewer was designed and set the same for the subjects to ensure consistency and fairness. The rationale behind this was to enable the collected tokens to be close to comparable despite they are the natural connected speech which is expected to exhibit a great variation in terms of its quality. Minimum response expected from the subjects was suggested. However, if the subjects were not able to answer or describe the picture, back-up questions were prepared to prompt and lead the subjects to the targeted words. A checklist was developed to ensure the targeted words were collected during the recording session (Appendix). Some bad data was eliminated as there were subjects who did not know how to pronounce some of the tokens, mispronounced some tokens like '*beard',* /bɪəd/ as '*bird',* /bə(r)d/ or '*beer',* /bɪə(r)/, some subjects could not figure out and produce the target words and some of the file quality was poor due to the unexpected disruptions and noise during the recording process. At last, two instances for each diphthong were selected for all the eight diphthongs except for /ɪə/ and /ʊə/ as there were limited speech vocabularies involving these two diphthongs in the context provided. Thus, there were a total of 280 tokens for both varieties in Task 2, in which all the tokens were then measure and analyzed to obtain the formant readings. The collected data is summarized as shown in Table 3.3 as the following:

Table 3.3 : Selected Words for Task 2.

Dipthongs	Selected Words	Number of Tokens
/eɪ/	*Steakhouse* /steɪkhaʊs/	2
	Potatoes /peteɪtəʊs/	
/əʊ/	*Soup* /səʊp/	2
	Yellow /jeləʊ/	
/aɪ/	*Sky* /skaɪ/	2
	Bicycle /baɪsɪkl/	
/ɔɪ/	*Toy/ Toys* /tɔɪ/ or /tɔɪs/	2
	Noisy /nɔɪzɪ/	
/aʊ/	*Steakhouse* /steɪkhaʊs/	2
	Mouse /maʊs/	
/ɪə/	*Ear/ Ears* /ɪə(r)/ or /ɪə(r)s/	1
/eə/	*Hair* /heə(r)/	2
	Chair /tʃeə(r)/	
/ʊə/	*Tour* /tʊə(r)/	1
	Total number of tokens	14

3.1.2 Recording Conditions

All the subjects were required to carry out three tasks in front of a mobile notebook with Mac OS X (Version 10.6.8). The recording software used was GarageBand ’09 (Version 5.1-398) and the audio was recorded and exported at the best audio resolution in which it has 24-bit depth quality that delivers the best and highest audio fidelity. This is much higher than the general and normal CD quality with a sampling rate of 44.1 kHz and 16-bit depth or below. Specifically, under the settings of Real Instrument Region, the Vocals of Female Basic was selected to ensure that the highest quality of voice recording was delivered for the recording of all the female speakers.

The recording process was completed with good quality sound files recorded in a quiet environment. The recording did not take place in a sound-treated lab. This is to ensure that the speech was as close as it could be to its natural state and the speakers would not be too conscious with their pronunciation. It was also mentioned by Wells (2010) in his phonetic blog that the computer’s internal microphone is good enough to do recordings. Therefore, the sound file might come with a little noise but it is a challenge to ensure that the quality of the sound file would not affect the result of the analysis. The surrounding of the recording became the most challenging part in the recording process to obtain the natural utterances. During the interviews, the researcher managed to do the recording in a quiet and carpeted lecture room. The majority of the subjects were comfortable in the environment that they were familiar with and able to accomplish the tasks successfully.

The built-in omnidirectional microphone of the MacBook is able to pick up sound virtually from any directions. In addition, the microphone is also able to detect ambient sound even when the sound source is moving. This is very useful in this study as the researcher was constantly on the move in order to capture the respondents randomly in the university campus. This is important to enhance the fairness of data selection as every respondent is given an equal opportunity of being selected before the criteria of their background are met. The omnidirectional microphone is created with bulging mesh and distinctive rounded ends, which limits the interference like breath noises and simultaneously, keeps the sound as crisp and clear as possible with high sensitivity (Pollick, 2012). Therefore, it helps to retain the quality of the recorded files.

In contrast, the usual external unidirectional microphones with a flat mesh design can only pick up the sound from a targeted source. Thus, it might restrict the researcher in the random selection of respondents in the campus as an unbiased random selection of subjects is expected to improve the drawing of conclusions from the result at the end of this study. Furthermore, some subjects might be more conscious over their pronunciation and may not be able to speak naturally in front of a physical external microphone.

The segmentation of the raw data was done using GarageBand ’09 (Version 5.1-398) to retain the best quality of the recorded files in its initial format and to avoid any reduction in its sound quality due to any file format conversion or compression.

3.1.3 The Tool for Data Analysis

Praat (Version 5.2.26) was used to analyze and study the data (Boesrma & Weenink, 2011). The estimated formant frequencies of each diphthong were computed using the Burg Linear Predictive Coding (LPC) analysis. The "Show Formant" option was selected for the formant tracker to identify the formants. In formant tracking, the formants are identified by means of red dots making up a sort of line (Welker, 2006). This may not be the most perfect and reliable method to identify the formants but it helps to increase the consistency of measurement as the formant tracking for all the readings was computed using LPC analysis. Praat uses the Viterbi algorithm with multiple planes to run the command of formant tracking, which enables up to five formants per frame (Boersma & Weenink, 2009). The formula for the algorithm to compute F1 and F2 for this study, with the proposed values F_{2i} (i = 1...N, where N=2, the number of frames) is (Boersma & Weenink, 2009):

$$\sum_{i=1..N} frequencyCost \cdot |F_{3i} - referenceF3|/1000 +$$

$$+ \sum_{i=1..N} bandWidthCost \cdot B_{3i}/F_{3i} +$$

$$+ \sum_{i=1..N-1} transitionCost \cdot |\log_2(F_{3i}/F_{3,i+1})|$$

For monophthongal vowels, F1 and F2 formants are generally used in plotting the distribution of vowels in the vowel space. This is more evident and would be able to provide a better picture about the quality of the vowels. With this, the vowel quality could be located as a position in the chart by comparing its quality to each of the cardinal vowels. Figure 3.1 is the vowel quadrilateral:

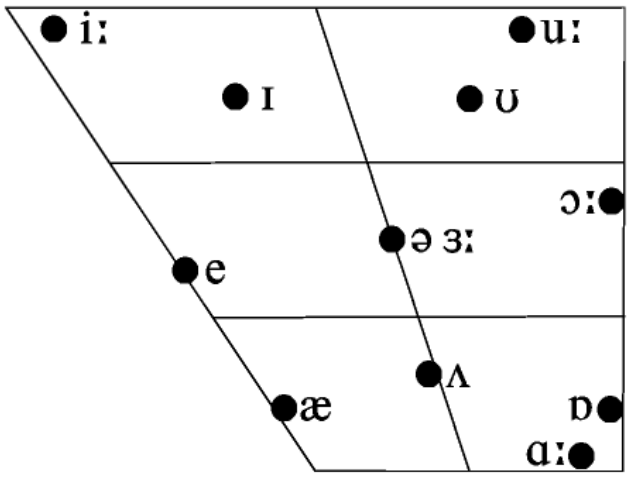

Figure 3.1 : Vowel Positions

(from http://www.phon.ucl.ac.uk/courses/spsci/iss/week5.php)

For diphthongs, F1 and F2 formants are used to plot and show the change in quality for every vowel pair. The trajectory of a diphthong is the result of the movement of the articulators during production. With a vowel chart, the gliding movement is graphed on the vowel quadrilateral with an arrow from the onset, beginning position to the offset, ending position. Figure 3.2 shows how the British English diphthongs are plotted in the vowel space.

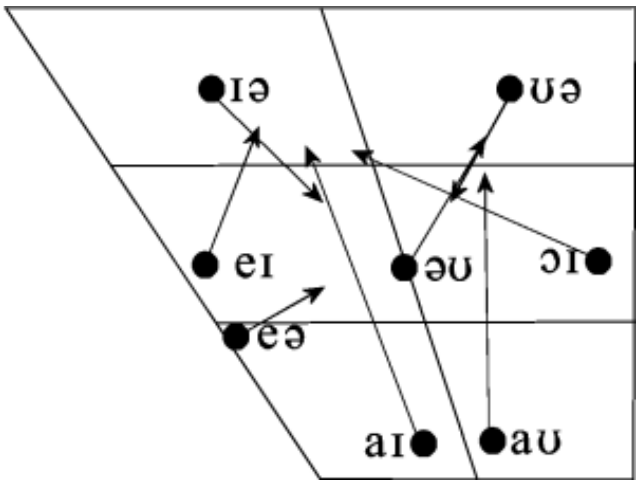

Figure 3.2 : Diphthongs for British English

(from http://www.phon.ucl.ac.uk/courses/spsci/iss/week5.php)

3.2 Principles of Measurement

With Praat, the comparison of the tracked formants (in red) with the regions of energy concentration in black at the back became clearer and easier. The formants were checked manually and visually by superimposing the tracks on a wideband spectrogram displays.

Figures 3.3 and 3.4 show the samples of the waveform and spectrograms with annotations. The first red line at the bottom represents F1 and the second red line from the bottom represents F2. In Figure 3.4, the cursor is placed at the first measurement point for F1 in which the onset of F1 is 547 Hz and the duration starts at 6.007892s.

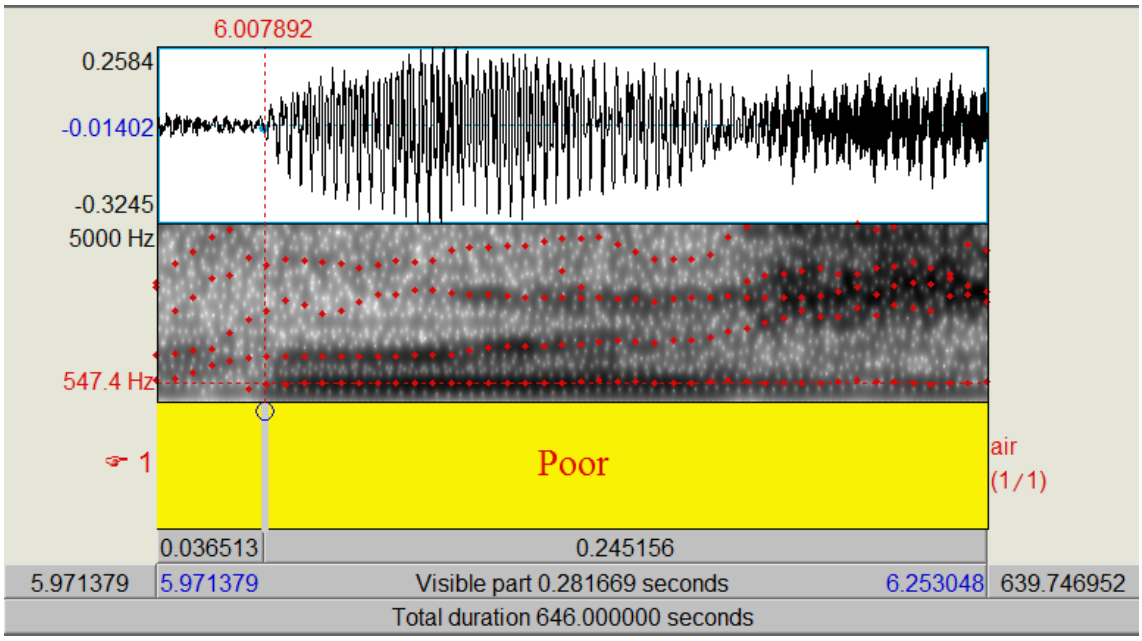

Figure 3.3 : Screenshot of the onset of F1 for the token of *'Poor'*

In Figure 3.4, the cursor is placed at the measurement point of the offset of F1 which reads, 630 Hz and the duration ends at 6.164748s.

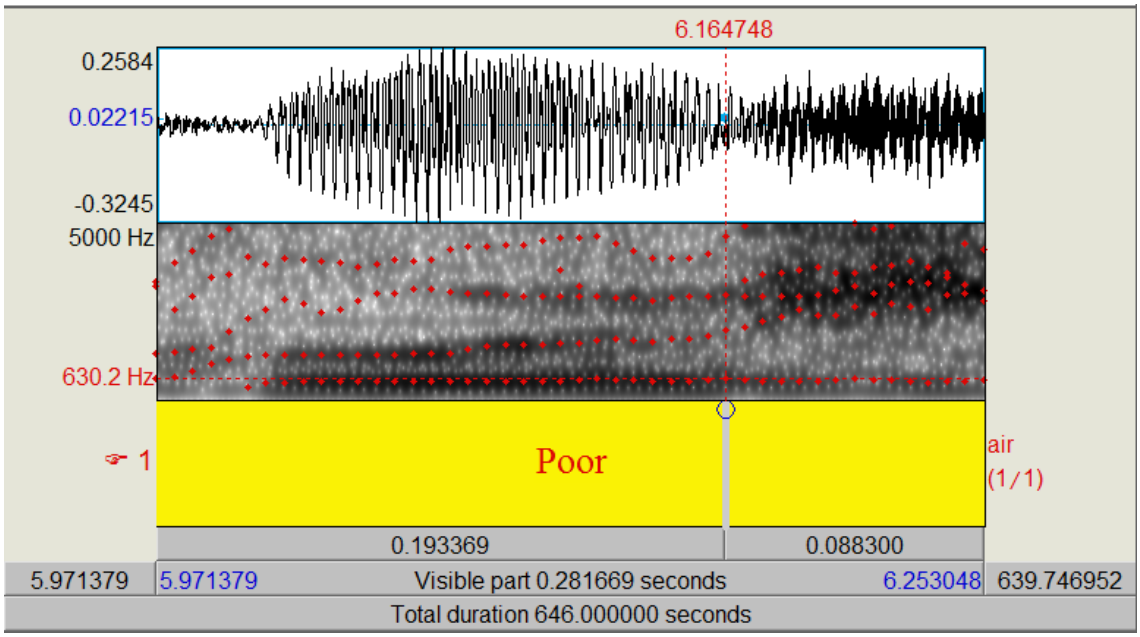

Figure 3.4 : Screenshot of the offset of F1 for the token of *'Poor'*

In order to find the ROC, the difference of the first formant (F_1), which is the onset position of the formant transition and the second formant (F_2), the offset position of the formant frequency were calculated. Next, the readings were divided by the value of the duration. This is to normalize the speaking rate. From Figure 4.4 and 4.5, the sample ROC of F1 for *'Poor'* is calculated as below:

$$= \frac{\frac{\textit{Offset F1 - Onset F1}}{\textit{Duration}}}{\textit{6.164748 - 6.007892 s}}$$

$$= \frac{\textit{630 - 547 Hz}}{\textit{6.164748 - 6.007892 s}}$$

$$= \textit{529 Hz/s}$$

In order to have consistency in the data measurement, the researcher adopted the guidelines used by Tan (2011) which are three principles expounded by Low (Low

1998, cited in Tan, 2011). Firstly, search for a change in the formant structures during the articulation of the vowels (Low 1998, cited in Tan, 2011). Next, listen to the tokens to verify the correlate acoustic signal with the perceptual analysis and lastly, be consistent in adhering strictly to the same principles of measurement each time (Low 1998, cited in Tan, 2011). In addition, the researcher examined the pattern of formants spread on the spectrogram at the bottom with the waveform on top after listening to the sound file repeatedly to ensure the segmentation was done properly. Furthermore, the researcher also followed the same method of identifying F_1 and F_2 closely at the beginning and the end of the segmentation each time for uniformity.

CHAPTER FOUR

ANALYSIS AND DISCUSSIONS

4.0 Analysis and Discussions

4.1 Analysis of Subjects

During data gathering, 33 Malaysian and Singapore subjects were interviewed by the researcher. The language background, language acquisition, language competency, use of languages and experience of language learning were carefully studied to select the subjects who met the requirements. Thus, five best Malay and Chinese each of both Malaysian and Singapore speakers were chosen.

4.1.1 Language Background

Five out of six types of childhood bilingualism by Romaine (1999) are adopted for the present study to classify and investigate the language background of the subjects based on factors such as the native language of the parents, language of the community at large and parents' strategy in speaking to the child (Appendix). This is to shed some light on the language background of the subjects as the phonological features of a target language could be affected by the first language of the ethnic groups or by filtering from the Malay language (the dominant language of the community) (Phoon, Abdullah and Maclagan, 2013). Due to various reasons like the need of communication, education system and living in a multi-racial environment, the majority of Malaysians are at least bilinguals. The selected subjects were chosen from the category of A, D and E (Table

4.1) and others that fell under the category of B and C were eliminated. The main reason they were eliminated was because the possibility of the subjects using English actively in their daily life appears to be lower especially for Type C where the parents of the subjects share the same native language and the dominant language of the community is not the language spoken by the parents. For Type B, the parents of the subjects have different native languages and one of them is the dominant language of the community which could be Malay or English as a common medium for communication. However, both the parents only speak the non-dominant language to the subject at home. The dominant language is used only when it is needed outside their homes.

The data gathered shows that 40% of the selected subjects acquired their languages in a one-person-one-language environment, Type A. Each of their parents has a different native language and each has a degree of competence in the language of one another. In addition, the language of one of the parents is the dominant language of the community and each parent speaks in their native language to the subject from young. For Malaysian Chinese speakers, the dominant language of the community is most probably English considering that both the parents are using a different native language at home in which it could be Mandarin or English. For Malaysian Malay speaker (MC4), the dominant language of the community could be English too as the parents could be communicating with the subject in Malay or English since young.

30% of the subjects are from Type D and E each. For Type D, both the parents of the subjects are sharing the same native language which is also the dominant language of the community. Thus, MM3, MM5 and MM7 could be using English or Malay actively.

Both parents of Type E are bilinguals. The sector of community is also bilingual. Hence, the possibility is very high that one of the two languages is English.

For Singaporean speakers, 50% of the selected subjects are of Type E. They considered themselves as bilinguals despite the medium of instruction at school is English for most subjects and English is the dominant language of the community. 30% of Singaporean speakers claimed that they are Type D as most probably both the parents are communicating in English at home, which is also the dominant language of the community. Only 20% of the subjects are under Type A where they are using two different native languages at home and one of them is the dominant language of the community which is most likely to be English. The summary of the result is shown in Table 4.2.

Table 4.1 : The Childhood Language Background of the Subjects

Type	**Types of Childhood Bilingualism**	**Parents' Native Language**	**The language(s) used at home**
A	One-person-one-language	Different	Both.
B	One language-one-environment	Different	Non-dominant Language.
C	Non-dominant home language	Same	Non-dominant Language.
D	Non-native parents	Same	Dominant Language.
E	Mixed Languages	Bilingual	Mix languages.

Table 4.2 : Part I - Summary of Result for the Childhood Language Background

Type	A	B	C	D	E
MC3	✓				
MC4	✓				
MC5	✓				
MC6					✓
MC7					✓
MM3				✓	
MM4	✓				
MM5				✓	
MM7				✓	
MM8					✓
SC1	✓				
SC4				✓	
SC5					✓
SC8					✓
SC9					✓
SM1	✓				
SM2				✓	
SM4				✓	
SM6					✓
SM7					✓

4.1.2 Language Acquisition and Competency Level

Referring to Table 4.3, one of the most interesting findings in this questionnaire is that among all the ten Malaysian subjects, MC6 is the only subject who acquired English as their first language (L1). Subject MC3, MC5 and MC7 have been learning English as their third language (L3) and the remaining six subjects acquired English as their second language (L2). From the data collected, all the subjects have been learning English as their first or second language except for three Malaysian Chinese (MC3, MC5 and MC7) who learnt Mandarin as their first language, followed by Bahasa Melayu and then English as their third language through their formal education in public schools. However, they were exposed to English since young and they claimed that the proficiency level of their English is at least the same or better than other languages.

All the Malaysian Malay subjects claimed that English is their L2 and Malay is their L1. Only 40% of the Malaysian subjects agreed that their English proficiency level is the same as the other two languages, 20% of them ranked English as the first in language competency to other languages that they have been learning and the last 40% considered that their English proficiency level is below the other two languages. The researcher suggested that this could be due to the lack of self-confidence and also the awareness of the subjects who were afraid of the recording, which was focusing on their command of English, as most of the subjects were very cautious when they were approached by the researcher for an interview.

For SgE, all the Singaporean subjects acquired English as their L1 except for SM1, SM4 and SM6 who considered Malay as their L1. As English is the medium of

instruction in Singapore schools and institutes of higher learning, the Singaporean subjects have a stronger foundation and 60% of them confidently claimed that English is the language that they speak best compared to Mandarin and Malay. All the Singapore subjects claimed that their English proficiency level was better or at least the same as Malay or Mandarin as shown in Table 4.3.

Table 4.3 : Part II - Summary of Result for Language Acquisition, Competency and Self-rating English Proficiency Level Over Malay or Mandarin

	Lang. Acquisition (L1 / L2 / L3)	Lang. Competency (Best =1)			Self-rating Eng. Proficiency Level over Malay/Mandarin
		Eng.	Malay	Mandarin	
MC3	L3	3	2	1	Same
MC4	L2	2	3	1	Better
MC5	L3	3	2	1	Same
MC6	L1	2	3	1	Same
MC7	L3	1	2	3	Better
MM3	L2	2	1	-	Same
MM4	L2	2	1	-	Below
MM5	L2	2	1	-	Below
MM7	L2	2	1	-	Below
MM8	L2	2	1	-	Below
SC1	L1	1	-	2	Better
SC4	L1	1	-	2	Better
SC5	L1	1	3	2	Same
SC8	L1	1	-	2	Better
SC9	L1	1	-	2	Better
SM1	L2	2	1	-	Same
SM2	L1	2	1	-	Same
SM4	L2	2	1	-	Better
SM6	L2	2	1	-	Same
SM7	L1	1	2	-	Same

4.1.3 The Choice and Use of Languages

All the Malaysian subjects were brought up in an environment of more than one language. Both of the parents are either bilingual or multilingual. Code switching is found to be common in their communication. Generally, the Chinese subjects speak mainly in English and Mandarin in their daily life whilst the Malay subjects use mainly English and Malay in their daily life with family and friends.

English is the first choice for all the Malaysian subjects in meeting someone that they have just got to know except for MM5 and MM7 where they chose to use Malay in meeting someone new. In addition, the Chinese subjects (MC4 and MC6) also mentioned about the dialects they normally and frequently use at home with their parents such as Cantonese or Hokkien during the interview. However, dialects are not taken into consideration in this study. Only MC4 and MM3 chose to use two languages with someone they newly met. The researcher suggested that this could be due to the thorough consideration of the two subjects in which the race of the new friend plays a role in the final choice of language for them and this varies according to situations. For the medium of instruction, all the subjects attended public ethnic schools where the medium of instruction is Mandarin or the national schools where the medium of instruction is Malay. In these schools, English was taught as a subject as mentioned in Section 2.2. At tertiary level, 20% of the subjects are using Malay and this could be due to the course offered by the university as certain courses are conducted in Malay. The remaining 80% claimed that they are using English in university as the medium of instruction in learning. However, MM3, MM4 and MM8 stated that they are using both

English and Malay in university. As English is the medium of instruction for the majority at university level, the subjects were well-exposed to English.

For Singapore speakers, all of them used English actively in all occasions and with friends and family except for SC5 who uses Mandarin and SM1, SM4 and SM6 who use Malay at times. English is the preferred language for all subjects in meeting someone new. Only SC5 and SM4 use both English and their L2 (Mandarin and Malay respectively) in meeting someone they have just met. Table 4.4 shows the summary of the result in terms of the choice and use of language in education. 100% of the Singaporean subjects are using English at all levels from primary to secondary and even at tertiary level. Thus, all the subjects are fully exposed to English from young. This also explains their choices earlier where English is the preferred language for all occasions.

Table 4.4 : Part III - Summary of Result for the Choice and Use of Language(s) in Education

	The Use of Language(s)			Medium of Instruction		
	Daily Life	Friends	Someone you've just met	Primary	Secondary	University
MC3	Mandarin	Mandarin	Eng	Mandarin	Mandarin	Eng
MC4	Mandarin	Eng /Mandarin	Eng /Mandarin	BM	BM	Eng
MC5	Mandarin	BM	Eng	Mandarin	BM	Eng
MC6	Eng /Mandarin	Eng /Mandarin	Eng	Mandarin	Mandarin	Eng
MC7	Mandarin	Mandarin	Eng	BM	BM	BM
MM3	Eng/BM	Eng/BM	Eng/BM	BM	BM	Eng/BM
MM4	Eng/BM	Eng/BM	Eng	BM	BM	Eng/BM
MM5	BM	BM	BM	BM	BM	BM
MM7	BM	Eng/BM	BM	BM	BM	Eng
MM8	Eng/BM	Eng/BM	Eng	BM	BM	Eng/BM
SC1	Eng	Eng	Eng	Eng	Eng	Eng
SC4	Eng	Eng	Eng	Eng	Eng	Eng
SC5	Eng /Mandarin	Eng /Mandarin	Eng /Mandarin	Eng	Eng	Eng
SC8	Eng	Eng	Eng	Eng	Eng	Eng
SC9	Eng	Eng	Eng	Eng	Eng	Eng
SM1	Eng/BM	Eng/BM	Eng	Eng	Eng	Eng
SM2	Eng	Eng	Eng	Eng	Eng	Eng
SM4	Eng/BM	Eng/BM	Eng/BM	Eng	Eng	Eng
SM6	Eng/BM	Eng/BM	Eng	Eng	Eng	Eng
SM7	Eng	Eng	Eng	Eng	Eng	Eng

4.2 Data Analysis

4.2.1 Analysis for Task 1

4.2.1.1 Closing Diphthongs, /eɪ/, /aɪ/, /ɔɪ/, /əʊ/ and /aʊ/

In the current study, both Figure 4.1 and 4.2 show that /eɪ/ appears to be higher for both MalE and SgE in the vowel space compared to /eɪ/ of BrE in Figure 3.5. The onset of /eɪ/ for both the varieties appears to have the tendency of being centralized too. The onset of /eɪ/ for MalE begins at central front with a short closing glide. /eɪ/ produced by the speakers of SgE appears to be closer with less diphthongal movement compared to the speakers of MalE.

For /ɔɪ/, the MalE speakers appear to produce it closely with centralized onset and offset in this study. Thus, /ɔɪ/ for MalE appears to have the least diphthongal movement in closing diphthongs. From the observation, some of the MalE speakers displayed a tendency to monophthongize /ɔɪ/ with little diphthongal movement as seen in Figure 4.1. In Figure 4.2, the SgE speakers suggest a greater diphthongal movement than the MalE speakers. Both the onsets and offsets of the diphthong /ɔɪ/ for MalE and SgE appear to be close to the central especially the onset of /ɔɪ/ for SgE. The close distance between the two targets for MalE suggests that /ɪ/ of /ɔɪ/ might appear to be very short and not clearly heard. Thus, the diphthongal movement of /ɔɪ/ for MalE appears to be small compared to SgE.

For /aɪ/, the glide appears to have the greatest diphthongal movement of all three closing diphthongs for both the varieties. Comparing Figure 4.1 and 4.2, the onset and

offset targets of diphthong /aɪ/ for both the varieties appear to be close to each other. Thus, the trajectories of the diphthongs are similar too with /aɪ/ for MalE being slightly lower than SgE for both onset and offset.

It was also found that /eɪ/ and /ɔɪ/ had very little change in the vowel height from the onset to offset whereas in British English, Collins and Mees (2006) found that there was a large change in the vowel height. However, /aɪ/ for MalE and SgE speakers appears to have a larger glide compared to the glide in the study of Collins and Mees (2006) which is very slight due to the pre-fortis clipping of the modern non-regional speakers (NRP) (Collins & Mees, 2006).

Table 4.5 : Average F1 and F2 of /eɪ/, /aɪ/ and /ɔɪ/ Produced by Malaysian Speakers in Task 1

	F1 (Hz)	F2 (Hz)	F1 (Bark)	F2 (Bark)
/beɪd/ (onset M)	481	2645	4.570	14.852
/beɪd/ (offset M)	442	2935	4.225	15.473
/baɪd/ (onset M)	948	2218	8.172	13.765
/baɪd/ (offset M)	738	2760	6.679	15.108
/bɔɪd/ (onset M)	694	2676	6.340	14.923
/bɔɪd/ (offset M)	627	2712	5.805	15.003

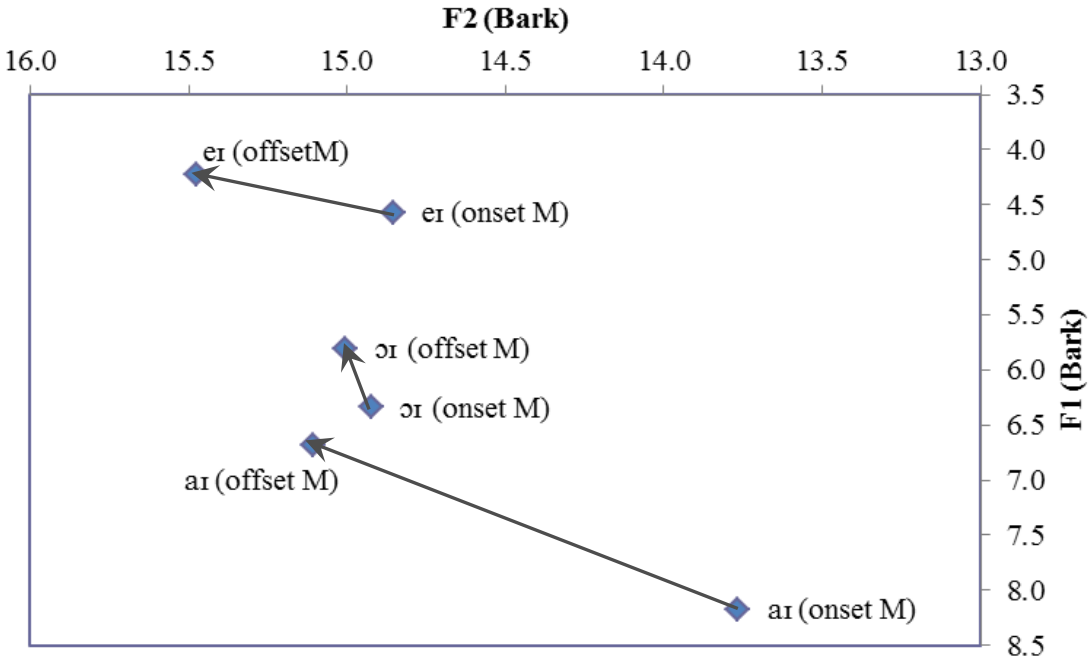

Figure 4.1 : Formant Plot of /eɪ/, /aɪ/ and /ɔɪ/ for MalE

Table 4.6 : Average F1 and F2 of /eɪ/, /aɪ/ and /ɔɪ/ Produced by Singaporean Speakers in Task 1

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/beɪd/ (onset S)	434	2791	4.154	15.175
/beɪd/ (offset S)	421	2933	4.037	15.589
/baɪd/ (onset S)	886	2205	7.753	13.728
/bạɪd/ (offset S)	650	2816	5.991	15.228
/bɔɪd/ (onset S)	695	2454	6.347	14.395
/bɔɪd/ (offset S)	554	2774	5.200	15.138

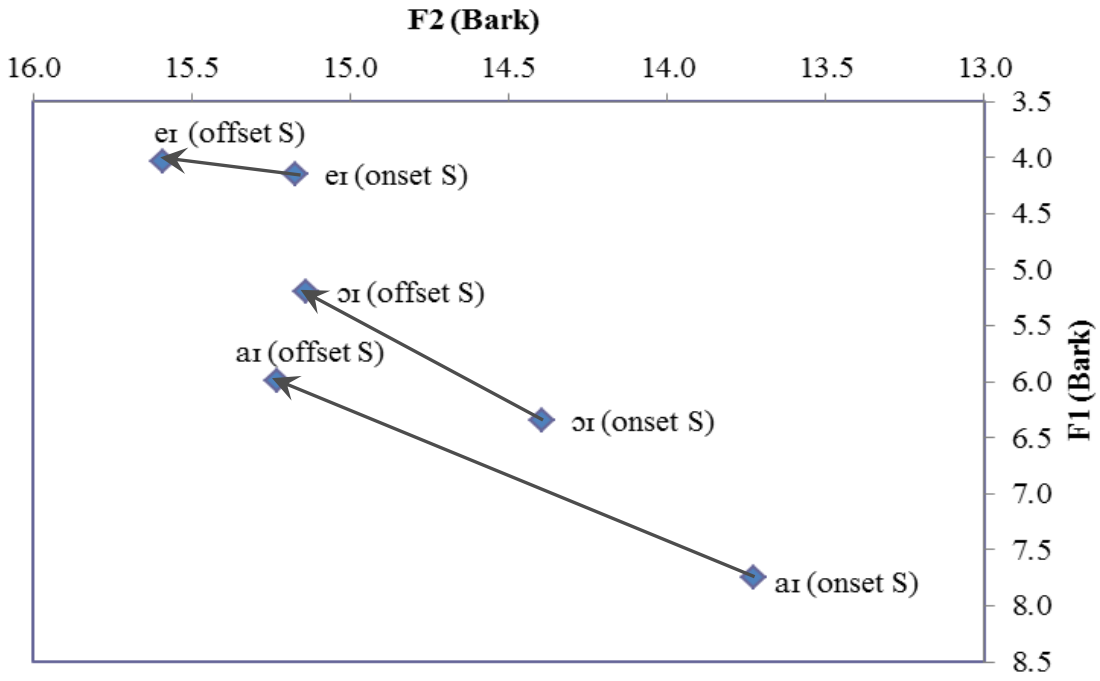

Figure 4.2 : Formant Plot of /eɪ/, /aɪ/ and /ɔɪ/ for SgE.

Table 4.7 : *t*-Test Results of F1 for Fronting Diphthongs, /eɪ/, /aɪ/ and /ɔɪ/ in Task 1

Diphthong	**p**	**df**	**t-value**
/eɪ/	0.86	18	0.17
/aɪ/	0.43	18	0.80
/ɔɪ/	0.23	18	1.23

In Table 4.7, the statistical test reveals that there were no significant differences among the three sets of values for /eɪ/ (t (18) = 0.17, p = 0.86, paired sample, two-tailed), /aɪ/ (t (18) = 0.80, p = 0.43, paired sample, two-tailed) and /ɔɪ/ (t (18) = 1.23, p = 0.23, paired sample, two-tailed). The absence of differentiation between MalE and SgE for these

three closing diphthongs could be due to the various factors and similarities they have been sharing as mentioned in Section 2.4 earlier.

For backing diphthongs of both the varieties, /əʊ/ for MalE speakers appears to be more open and fronted as can be seen in Figure 4.3. Overall, /əʊ/ produced by MalE speakers has less diphthongal movement than /əʊ/ produced by SgE speakers. From the short diphthong glide as observed, /əʊ/ could have been monophthongized in both the varieties. The values of F1 and F2 for /əʊ/ for MalE speakers are lower than SgE. However, the onset values for F1 and F2 of /əʊ/ for SgE speakers appear to be higher than its offset. The unusual and opposite gliding direction suggests that the auditory quality of /əʊ/ could have been not stable due to various factors like the environment or the rapid transitions of the adjacent consonants.

For /aʊ/ of MalE speakers, both the onset and offset seem to be low and close to the central. For SgE speakers, /aʊ/ produced appears to be low and back as shown in Figure 4.4. Nevertheless, /aʊ/ for the Malaysian speakers appears to be very much centralized and only the onset of /aʊ/ for the Singaporean speakers appears to begin from the very back of the vowel space with a clear diphthongal movement to the central. Of all the eight diphthongs in Task 1, /aʊ/ appears to have the smallest diphthongal movement of all. It could have been shortened due to the fast speech rate of the Malaysian speakers for the tokens.

Table 4.8 : Average F1 and F2 of /əʊ/ and /aʊ/ Produced by Malaysian Speakers in Task 1

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/bəʊd/ (onset M)	633	2665	5.854	14.898
/bəʊd/ (onset M)	708	2713	6.449	15.005
/baʊd/ (onset M)	877	2401	7.691	14.261
/baʊd/ (offset M)	853	2433	7.522	14.342

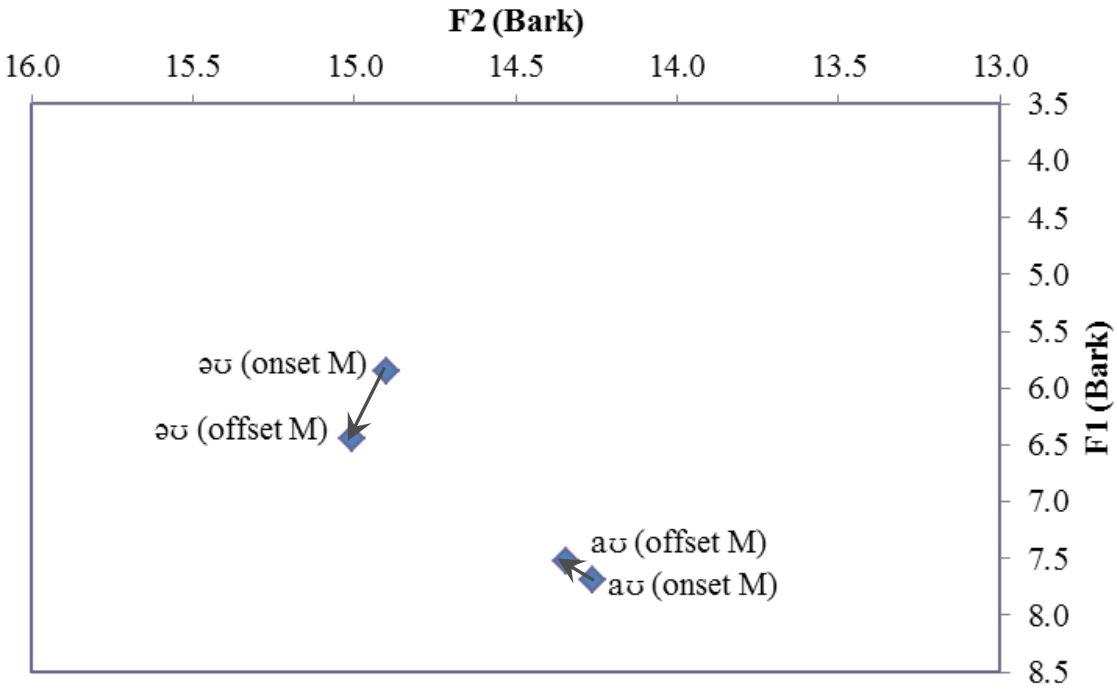

Figure 4.3 : Formant Plot of /əʊ/ and /aʊ/ for MalE

Table 4.9 : Average F1 and F2 of /əʊ/ and /aʊ/ Produced by Singaporean Speakers in Task 1

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/bəʊd/ (onset S)	615	2858	5.789	15.316
/bəʊd/ (onset S)	577	2701	5.393	14.979
/baʊd/ (onset S)	846	1997	7.473	13.094
/baʊd/ (offset S)	812	2445	7.229	14.373

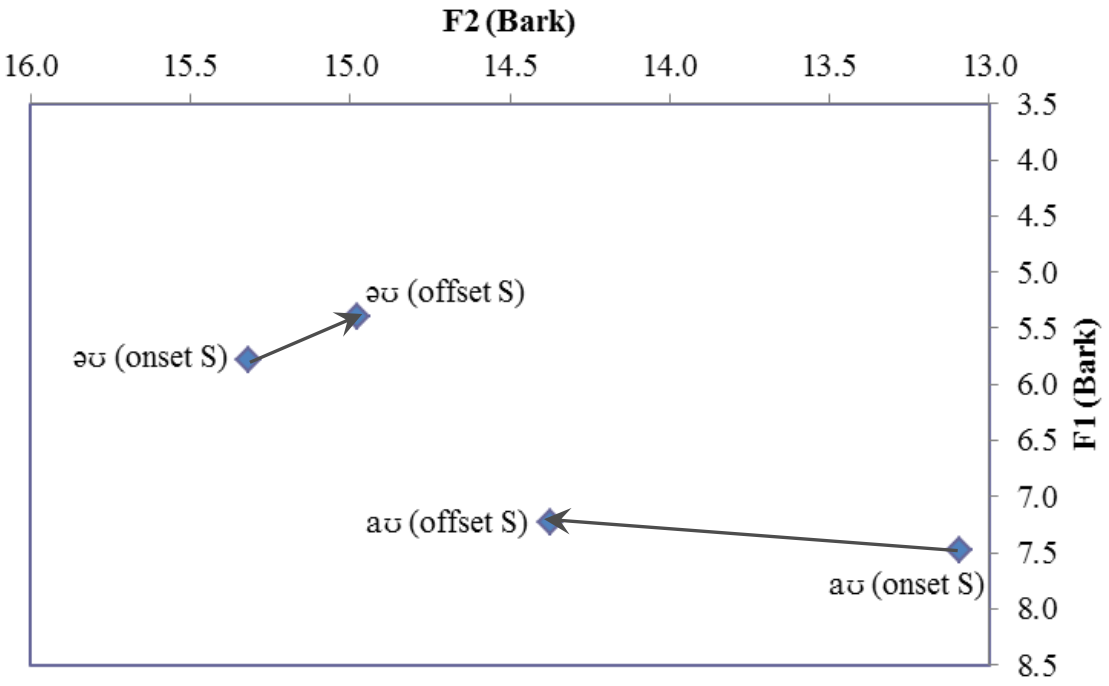

Figure 4.4 : Formant Plot of /əʊ/ and /aʊ/ for SgE.

Table 4.10 *: t*-Test Results of F1 for Backing Diphthongs, /aʊ/ and /əʊ/ in Task 1

Diphthong	**p**	**df**	**t-value**
/aʊ/	0.47	18	0.74
/əʊ/	0.02*	18	2.52

From Table 4.10, the statistical test suggests that there were no significant differences found between the values of the Malaysian and Singaporean speakers for /aʊ/ *(t* (18) = 0.74, p=0.47, paired sample, two-tailed). However, there is a marginally significant difference for /əʊ/ between MalE and SgE in this study as shown by the value of p = 0.02*, which was reported to be smaller than 0.05.

4.2.1.2 Centring Diphthongs, /ɪə/, /eə/ and /ʊə/

In Figure 4.5 and 4.6, the analysis indicated that all the centring diphthongs of MalE appear to be more centralized with smaller diphthongal movement compared to Singaporean speakers. /ɪə/ produced by Singaporean speakers which seems to move from high front to the central with the greatest deal of diphthongal movement of all. The onset of /ɪə/ for MalE speakers appears to be much higher and more centralized than the Singaporean speakers.

In Figure 4.5, the /eə/ produced by the speakers of MalE and SgE seems to have more resemblance in terms of its positions of the targets. All the targets appear to be

centralized with little diphthongal movement. The glide for the targets of the Malaysian speakers seems to be much shorter than the Singaporean speakers. According to Roach (2000), the first vowel of /eə/ is generally more opened than the vowel in /e/. However, the first vowel of /eə/ in this study for both the MalE and SgE appear to be half-close and closer to /ə/ in terms of its vowel height. Thus, there is a strong possibility of monophthongization taking place where /eə/ could be likely to be produced as /e/ especially for MalE.

Both the onsets of /ʊə/ for MalE and SgE appear to begin from mid and central position to the low and back position. This trajectory is different from the glide of /ʊə/ by British speakers in Figure 3.2 which begins from the high and back position towards the center of the vowel space. This shows that it is realized more to /ɔ/ as some speakers may regard the tokens *poor,* /pʊə(r)/ as /pɔ(r)/ and thus, /ʊə/ is being monophthongized to /ɔ/.

Table 4.11 : Average F1 and F2 of /ɪə/, /eə/ and /ʊə/ Produced by Malaysian Speakers in Task 1

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/bɪəd/ (onset M)	374	2546	3.609	14.621
/bɪəd/ (offset M)	540	2527	5.081	14.575
/beə(r)/ (onset M)	565	2454	5.293	14.395
/beə(r)/ (offset M)	604	2445	5.617	14.373
/pʊə(r)/ (onset M)	634	2591	5.862	14.727
/pʊə(r)/ (offset M)	696	2360	6.355	14.154

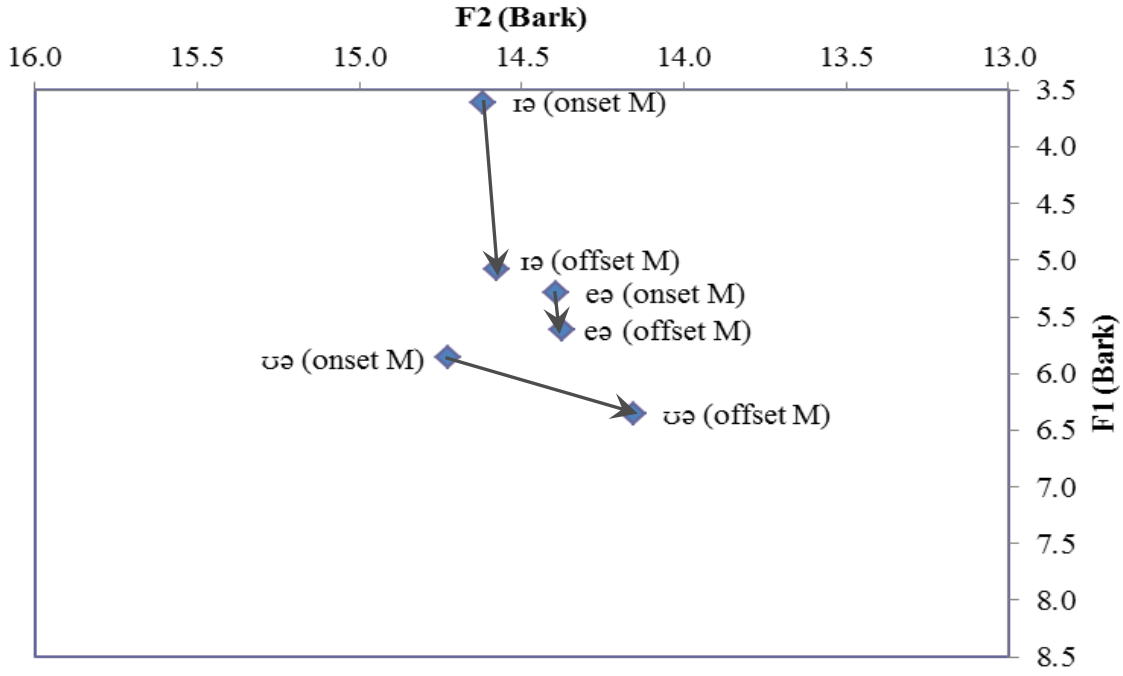

Figure 4.5 : Formant Plot of /ɪə/, /eə/ and /ʊə/ for MalE.

Table 4.12 : Average F1 and F2 of /ɪə/, /eə/ and /ʊə/ Produced by Singaporean Speakers in Task 1

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/bɪəd/ (onset S)	490	2918	4.649	15.439
/bɪəd/ (offset S)	589	2459	5.493	14.408
/beə(r)/ (onset S)	577	2529	5.393	14.580
/beə(r)/ (offset S)	627	2385	5.805	14.219
/pʊə(r)/ (onset S)	644	2455	5.943	14.398
/pʊə(r)/ (offset S)	761	2301	6.853	13.996

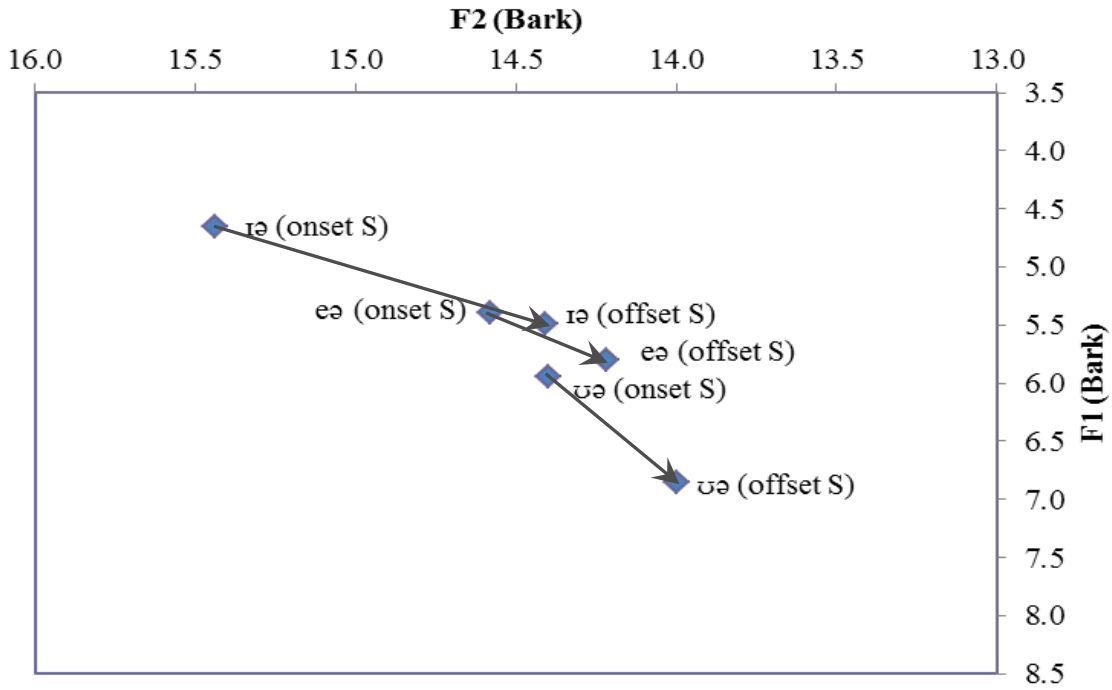

Figure 4.6 : Formant Plot of /ɪə/, /eə/ and /ʊə/ for SgE.

Table 4.13 : t-Test Results of F1 for Centring Diphthongs,/ɪə/,/eə/ and /ʊə/ of Task 1

Diphthong	**p**	**df**	**t-value**
/ɪə/	0.72	18	0.36
/eə/	0.89	18	0.14
/ʊə/	0.73	18	0.35

In Table 4.18, the statistical test reveals that there were no significant differences found between the two sets of values for /ɪə/ (t (18) = 0.36, p=0.72, paired sample, two-tailed), /eə/ (t (18) = 0.14, p = 0.89, paired sample, two-tailed) and /ʊə/ (t (18) = 0.35, p = 0.73, paired sample, two-tailed).

4.2.2 Analysis for Task 2

4.2.2.1 Closing Diphthongs, /eɪ/, /aɪ/, /ɔɪ/, /əʊ/ and /aʊ/

Table 4.14 and 4.15 show the average F1 and F2 for the three closing diphthongs of Task 2. Based on the values, the vowel pairs were plotted on Bark charts, Figure 4.7 and 4.8 where all the onsets and offsets of the fronting diphthongs are shown in the vowel space. In Task 2, the fronting diphthongs for SgE appear to be moving towards a more front and close position from the center of the vowel space in Figure 4.8 in which all F1s are lower than F2s.

/eɪ/ for both the Singapore and Malaysian speakers appears to have a small diphthongal movement with a closing glide. However, /eɪ/ for Singapore speakers appears to be more fronted compared to the Malaysian speakers. The F1 for both appears to be relatively close-mid and scattered in the front and near to central vowel space. Unlike the trajectory of /eɪ/ for British English as shown in Figure 3.2, /eɪ/ produced by both Malaysian and Singaporean speakers in this study appears to have a short /e/ and is more front and close like /ɪ/ and /iː/ in Figure 3.1. This implies that /eɪ/ is produced as a monophthong, auditory discerned as /iː/.

For /aɪ/, Singapore speakers appear to have a greater diphthongal movement compared to the Malaysian speakers. The onset for the Singapore speakers appears to be more back but higher than the Malaysian speakers. This is also more back compared to onset position of /aɪ/ of British speakers in Figure 3.2. In contrast, the offset for the Malaysian speakers appears to be more to open-mid and closer to the central whilst the offset for the Singapore speakers seems to be more to close-mid.

/ɔɪ/ produced by the Singaporean speakers appears to have a great diphthongal movement compared to the Malaysian speakers. The onset of the Singapore speakers appears to have a more back quality in the vowel space with the offset having a close and front quality. This is very similar to the /ɔɪ/ produced by British speakers in Figure 3.2. The Malaysian speakers appear to produce a lower open-mid onset with a short glide towards the close-mid offset. As a result, it is found that the /ɔɪ/ produced by Malaysian speakers is seen to be moving with a small diphthongal movement, indicating a realization closer to /aɪ/.

Table 4.14 : Average F1 and F2 of /eɪ/, /aɪ/ and /ɔɪ/ Produced by Malaysian Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/eɪ/ (onset M)	496	2679	4.702	14.929
/eɪ/ (offset M)	419	2757	4.019	15.102
/aɪ/ (onset M)	883	2227	7.732	13.791
/aɪ/ (offset M)	725	2584	6.580	14.711
/ɔɪ/ (onset M)	788	2600	7.053	14.749
/ɔɪ/ (offset M)	610	2616	5.667	14.786

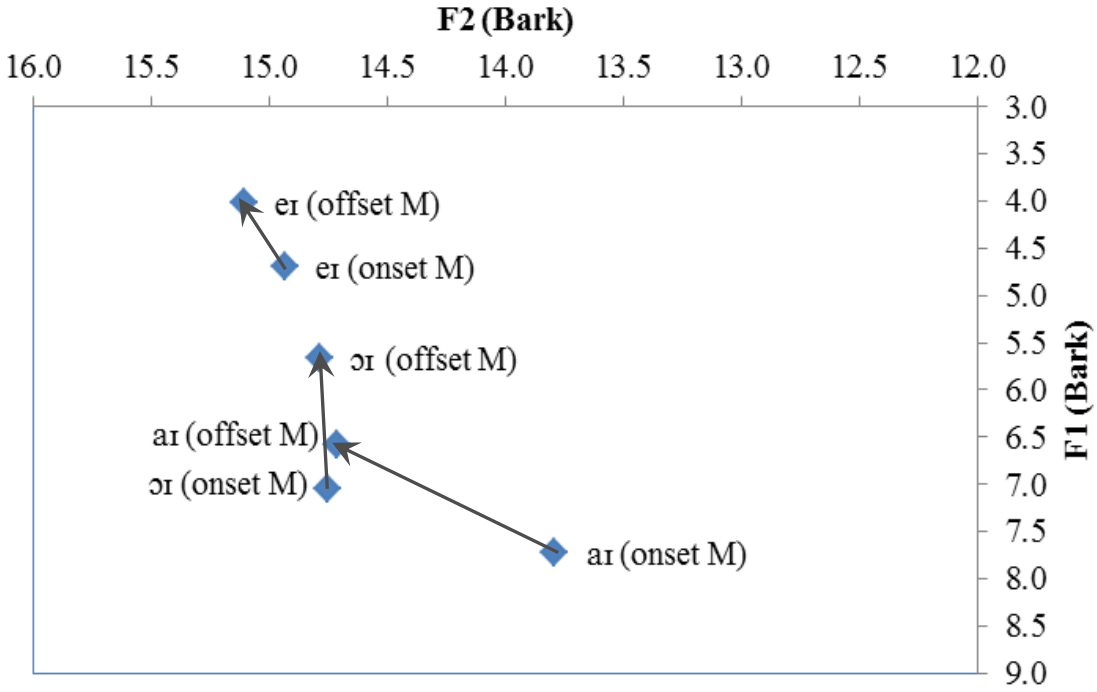

Figure 4.7 : Formant Plot of /eɪ/, /aɪ/ and /ɔɪ/ for MalE.

Table 4.15 : Average F1 and F2 of /eɪ/, /aɪ/ and /ɔɪ/ Produced by Singaporean Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/eɪ/ (onset S)	495	2748	4.693	15.082
/eɪ/ (offset S)	424	2835	4.064	15.268
/aɪ/ (onset S)	864	1915	7.600	12.822
/aɪ/ (offset S)	511	2437	4.832	14.353
/ɔɪ/ (onset S)	755	1769	6.808	12.301
/ɔɪ/ (offset S)	523	2549	4.935	14.628

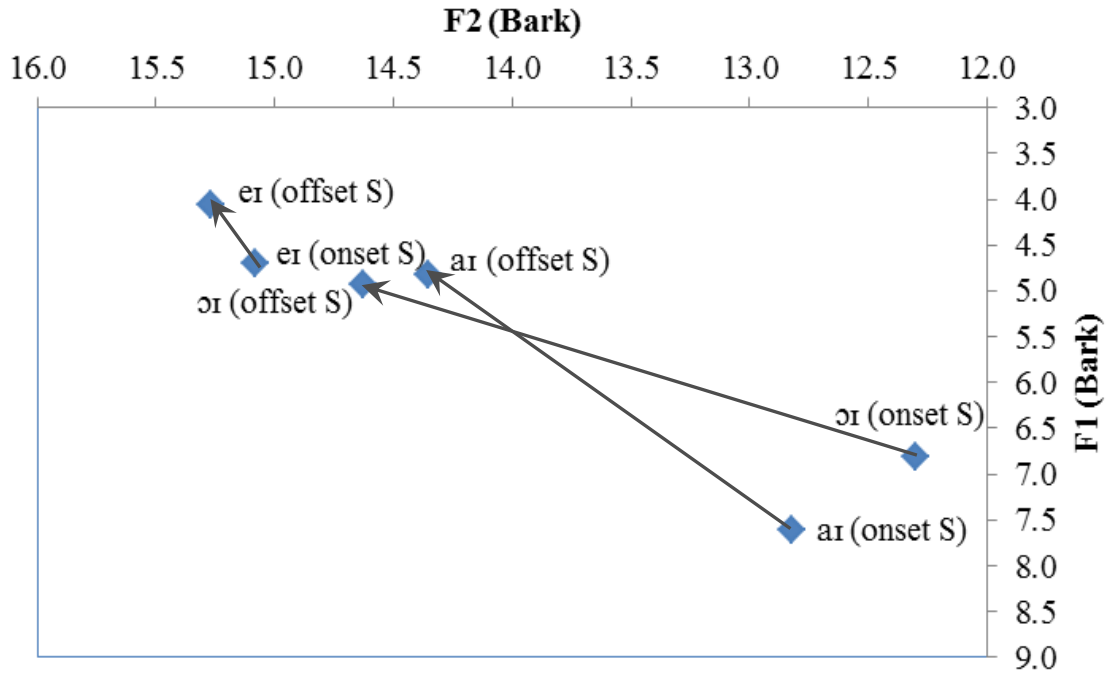

Figure 4.8 : Formant Plot of /eɪ/, /aɪ/ and /ɔɪ/ plot for SgE.

Table 4.16 **:** t-Test Results of F1 for Closing Diphthongs, /eɪ/, /aɪ/ and /ɔɪ/ in Task 2

Diphthong	**p**	**df**	**t-value**
/eɪ/	0.31	18	1.05
/aɪ/	0.10	18	1.76
/ɔɪ/	0.36	18	0.95

In Table 4.24, the statistical test reveals that there were no significant differences among the three sets of values for /eɪ/ (t (18) =1.05, p = 0.31, paired sample, two-tailed), /aɪ/ (t=1.76, df=18, paired sample, two-tailed) and /ɔɪ/ (t (18) = 1.76, p = 0.10, paired sample, two-tailed). This result appears to be similar with Task 1 as it too suggests the absence of differentiation between MalE and SgE for these three closing diphthongs.

For backing diphthongs, Figure 4.9 and 4.10 show that /əʊ/ for Malaysian speakers appears to be more fronted and Singaporean speakers appears to be more back. The diphthongal movement for /əʊ/ of Singaporean speakers is greater than Malaysian speakers. /əʊ/ of Malaysian speakers appears to have the smallest diphthongal movement of all diphthongs in this study. This is the most interesting diphthongal movement of all diphthongs. This strongly implies that monophthongization may have taken place and there might be a very small diphthongal movement for some speakers but this is only noticeable via auditory analysis for individual tokens, which is more subjective as it is based on perceptual judgments. This is similar to the findings of other researchers for the monophthongization of /əʊ/ (Hung, 2007; Kerswill, Torgesen & Fox, 2006; Maxwell and Fletcher, 2010; Salbrina, 2009).

In Figure 4.9, /aʊ/ for Malaysian speakers appears to be more centralized while the Singaporean speakers' seems to be more to the back just like /əʊ/. The diphthong /aʊ/ for Malaysian speakers is smaller than Singaporean speakers. /aʊ/ for Malaysian speakers too appears to be more centralized and Singaporean speakers' seem to be more back. Both the onset appears to move with a closing glide from the open position. The diphthongal movement of /aʊ/ for Malaysian speakers is smaller than the Singaporean speakers.

Table 4.17 : Average F1 and F2 of /əʊ/ and /aʊ/ Produced by Malaysian Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/aʊ/ (onset M)	1046	2279	8.800	13.936
/aʊ/ (offset M)	877	2307	7.691	14.012
/əʊ/ (onset M)	652	2713	6.007	15.005
/əʊ/ (offset M)	651	2731	5.999	15.045

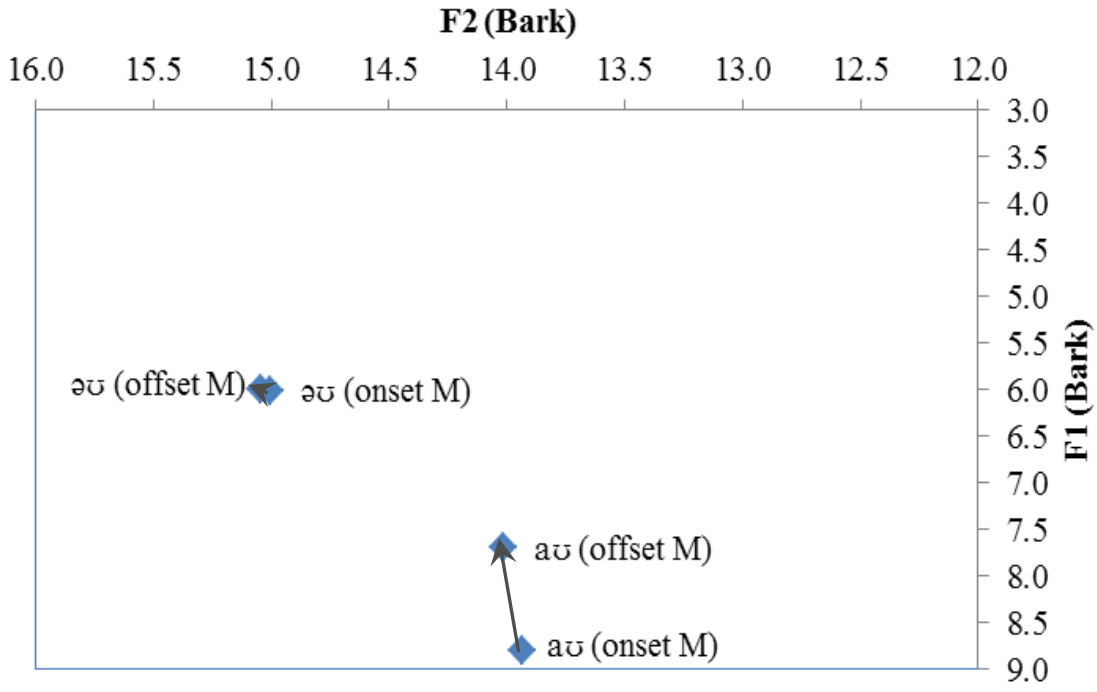

Figure 4.9 : Formant Plot of /əʊ/ and /aʊ/ for MalE.

Table 4.18 : Average F1 and F2 of /əʊ/ and /aʊ/ Produced by Singaporean Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/aʊ/ (onset S)	1031	2010	8.706	13.136
/aʊ/ (offset S)	780	2063	6.994	13.304
/əʊ/ (onset S)	676	2306	6.198	14.010
/əʊ/ (offset S)	571	2025	5.343	13.184

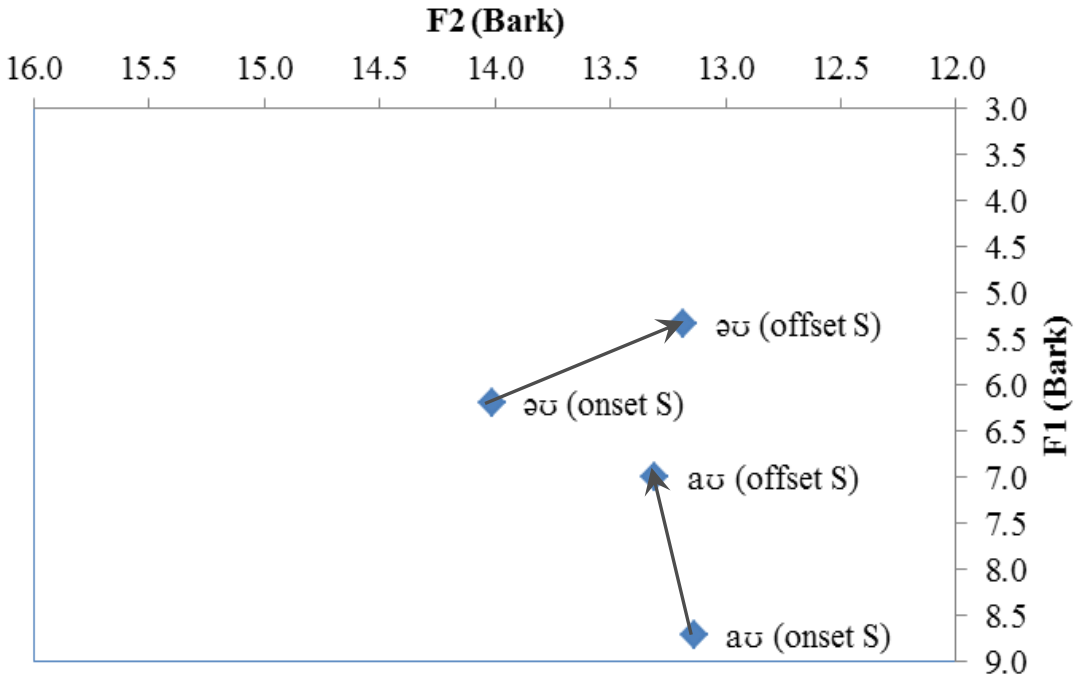

Figure 4.10 : Formant plot of /əʊ/ and /aʊ/ for SgE.

Table 4.19 : t-Test Results of F1 for Closing Diphthongs, /aʊ/ and /əʊ/ in Task 2

Diphthong	p	df	t-value
/aʊ/	0.21	18	1.31
/əʊ/	0.27	18	1.13

From Table 4.19, the statistical test suggests that there were no significant differences found between the values of the Malaysian and Singaporean speakers for /aʊ/ (t (18) = 1.31, p = 0.21, paired sample, two-tailed) and /əʊ/ (t (18) = 1.13, p = 0.27, paired sample, two-tailed).

4.2.2.2 Centring Diphthongs, /ɪə/, /eə/ and /ʊə/

In Figure 4.11 and 4.12, both the onsets for /ɪə/ of Malaysian and Singapore speakers appear to be more fronted. Both the offsets seem to be fairly centralized in the vowel space. The diphthongal movement for /ɪə/ appears to be clear and substantial here with a great diphthongal movement and both the trajectories are similar. This implies that /ɪə/ was produced similarly for both the varieties.

In Figure 4.11, /eə/ appears to cluster at the half-close position with a centralized glide. Both the onsets appear to be in the middle between the front and central quality and both have a small diphthongal movement. The value of F1 for /eə/ of MalE appears to be higher than its offset whilst the onset of SgE is lower than its offset. Both are different from the /eə/ produced by the British speakers in Figure 3.2. Offset of /eə/ for

Singaporean speakers is very close to the position of /ə/ as shown in the vowel space in Figure 3.1. Thus, the realization of ending /ə/ in diphthong /eə/ appears to be clearer for Singaporean speakers.

/ʊə/ for both the varieties appears to be more back. Both appear to display small diphthongal movement to the central of the vowel space. The onset for Singaporean speakers appears to begin from back-high with a glide to the central position. This is similar to the trajectory of /ʊə/ by the British speakers in Figure 3.2. In contrast, the onset for Malaysian speakers seems to be back-mid with a glide to the central position. This trajectory suggests a sound akin to /ɔʊ/.

Table 4.20 : Average F1 and F2 of /ɪə/, /eə/ and /ʊə/ Produced by Malaysian Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/ɪə/ (onset M)	325	2855	3.155	15.310
/ɪə/ (offset M)	510	2170	4.823	13.627
/eə/ (onset M)	528	2762	4.978	15.113
/eə/ (offset M)	613	2567	5.691	14.671
/ʊə/ (onset M)	600	1864	5.584	12.646
/ʊə/ (offset M)	437	2111	4.180	13.451

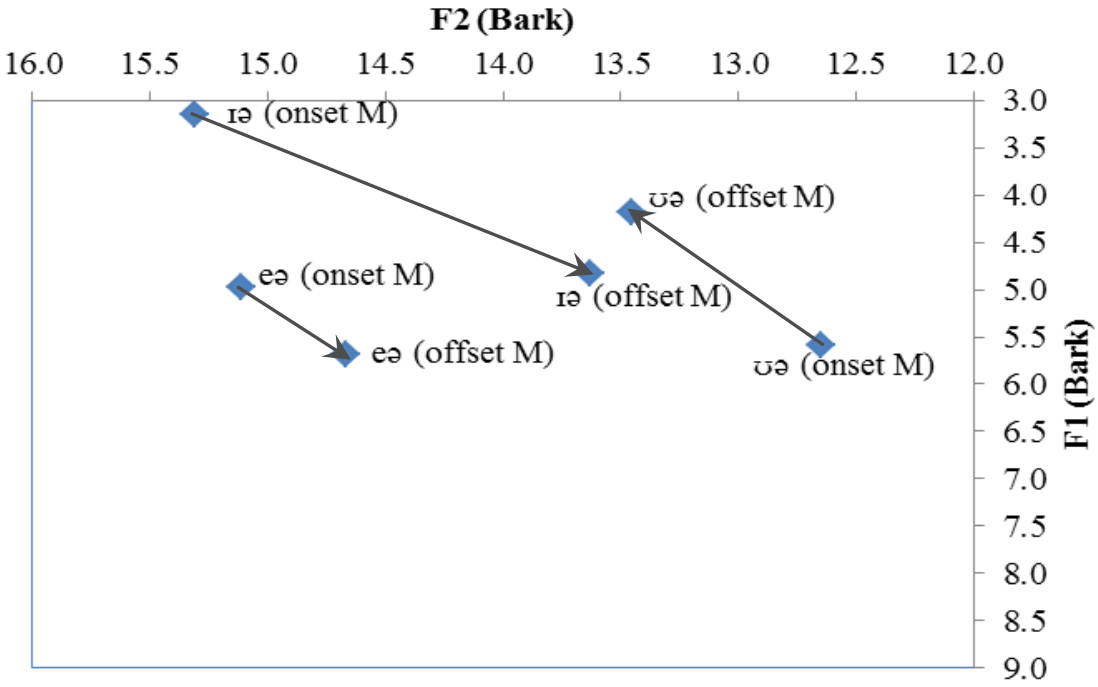

Figure 4.11 : Formant plot of /ɪə/, /eə/ and /ʊə/ for MalE.

Table 4.21 : Average F1 and F2 of /ɪə/, /eə/ and /ʊə/ Produced by Singaporean Speakers in Task 2

	F1(Hz)	F2(Hz)	F1(Bark)	F2(Bark)
/ɪə/ (onset S)	365	2720	3.526	15.021
/ɪə/ (offset S)	567	2180	5.309	13.656
/eə/ (onset S)	555	2651	5.208	14.866
/eə/ (offset S)	498	2410	4.719	14.284
/ʊə/ (onset S)	508	1814	4.806	12.467
/ʊə/ (offset S)	661	2020	6.079	13.168

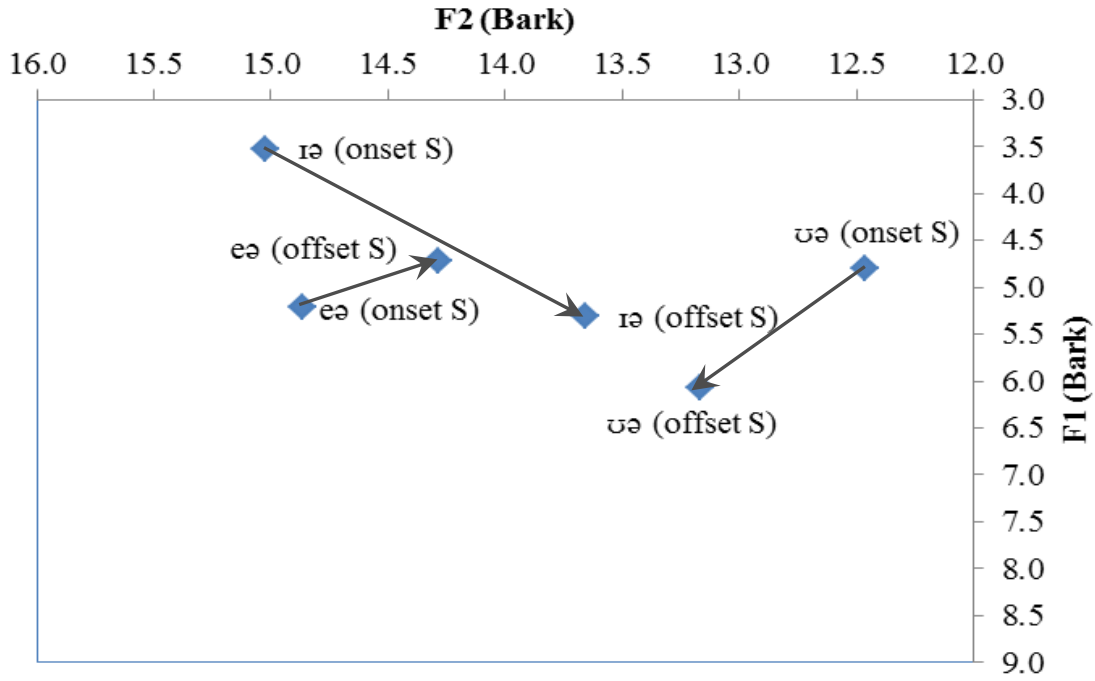

Figure 4.12 : Formant plot of /ɪə/, /eə/ and /ʊə/ for SgE.

Table 4.22 : t-Test Results of F1 for Centring Diphthongs,/ɪə/,/eə/ and /ʊə/ of Task 2

Diphthong	**p**	**df**	**t-value**
/ɪə/	0.45	18	0.77
/eə/	0.05	18	2.11
/ʊə/	0.13	18	1.60

In Table 4.22, the statistical test reveals that there were no significant differences found between the two sets of values for both /ɪə/ (t (18) = 0.77, p = 0.45, paired sample, two-tailed), /eə/ (t(18) = 2.11, p = 0.05, paired sample, two-tailed) and /ʊə/ (t (18) = 1.60, p = 0.13, paired sample, two-tailed).

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.0 Conclusion

5.1 Summary of the Findings

The results of the analysis of the diphthongs were reported in the previous chapter. This chapter goes on to discuss the findings of the study in the light of the research questions.

Referring to the first research question, '*This study aims to examine the qualities of English diphthongs produced by Malaysian English and Singapore English speakers',* the quality of all eight diphthongs were examined in Section 4.2. Average F1 and F2 for the vowel pairs were taken and plotted on Bark charts. The findings indicated that none of the trajectories of diphthongs in MalE is similar to British English. In Task 1, /ɔɪ/, /əʊ/, /aʊ/ and /eə/ appear to have small diphthongal movements. This is particularly obvious for /eə/ where the diphthongal movement is the smallest of all diphthongs in Task 1, sounding like /ə/ at the central position of the vowel space. In Task 2, /eɪ/, /ɔɪ/, /əʊ/, /aʊ/ and /eə/ were reported to have small diphthongal movements. /əʊ/ in Task 2 has the smallest diphthongal movement of this study. Monophthongization may have taken place with the onset and offset almost overlapping with each other.

The findings also indicated that /ɔɪ/ of SgE is the only diphthong that appear to have full quality and the similar trajectory to /ɔɪ/ in British English. Overall, most diphthongs produced by Singaporean speakers have greater diphthongal movements compared to

Malaysian speakers. Only two diphthongs, /əʊ/ and /eə/ were reported to have small diphthongal movements in Task 1. In Task 2, there were also two diphthongs, /eɪ/ and /eə/ reported to have small diphthongal movements.

Referring to the second research question, '*To what extent are English diphthongs produced similarly in Malaysian English and Singapore English?',* some diphthongs were found to be similar for both the varieties despite they are different from the British English. There is a great deal of variations in the realization of the diphthongs especially for MalE. However, /eɪ/ and /aɪ/ were found to be similar in terms of the trajectory of the diphthongs and the onset and offset for both varieties appear to be occupying the same vowel space in Task 1. Figure 5.1 and 5.2 show the similarities of the trajectories for both the diphthongs.

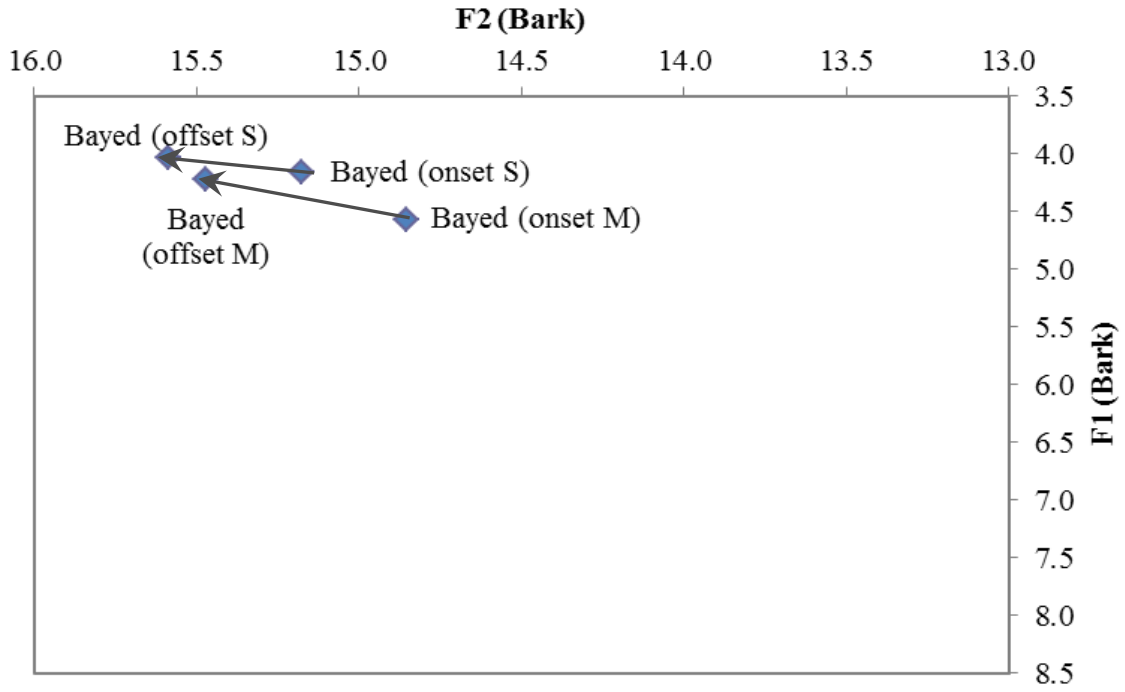

Figure 5.1 : Formant plot of *Bayed,* /eɪ/ for MalE and SgE.

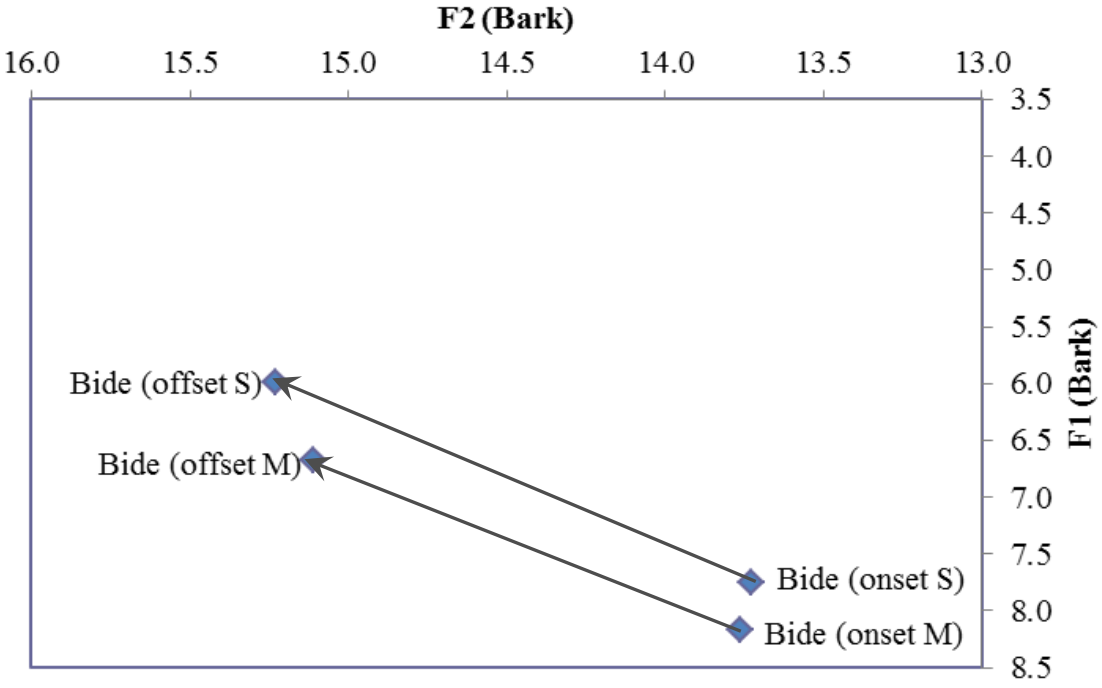

Figure 5.2 : Formant plot of *Bide,* /aɪ/ for MalE and SgE.

In Task 2, /eɪ/ and /aɪ/ were found to be similar. This can be seen in Figure 5.3 and 5.4 where the trajectory of the diphthongs and the onset and offset for both varieties appear to be occupying the same vowel space. These dissimilarities found between MalE and SgE as well as the significant difference found for /əʊ/ in t-Test are attributed to the factors mentioned earlier in Section 2.4 where there is a trace of influence of the history of both countries and other languages such as Malay and Mandarin in both the varieties.

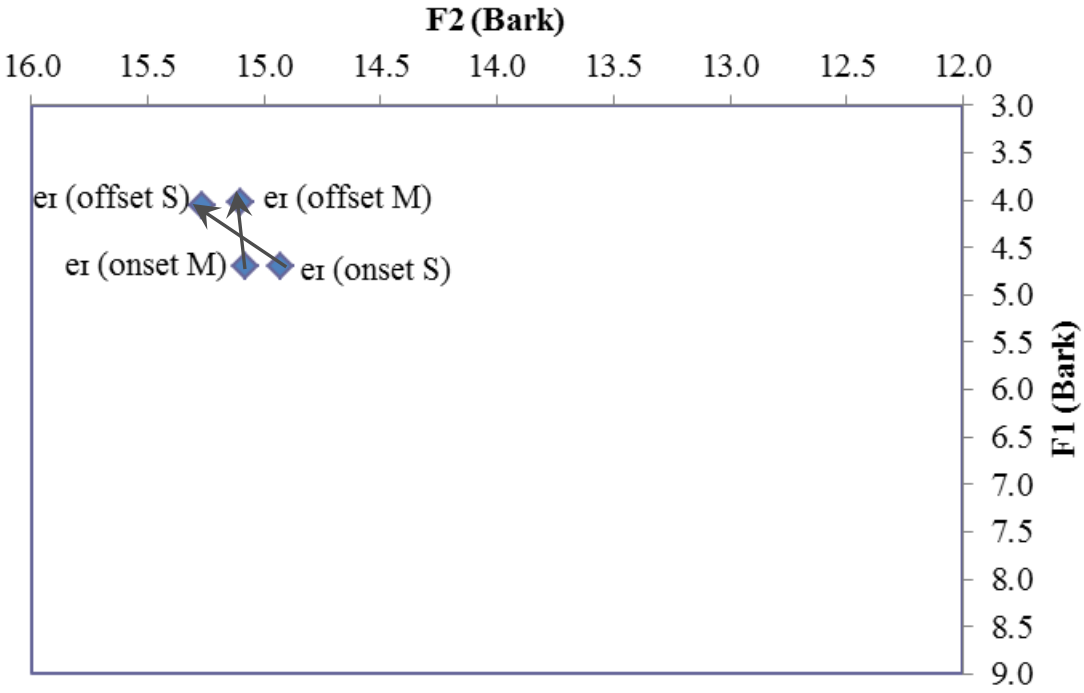

Figure 5.3 : Formant plot of /eɪ/ for MalE and SgE.

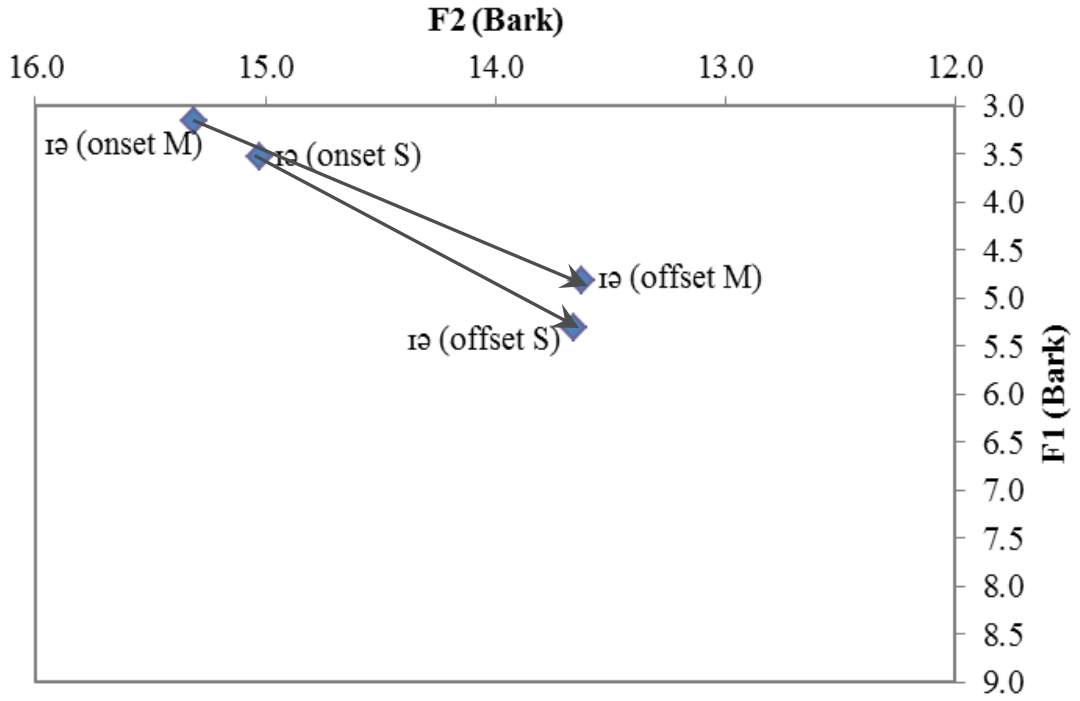

Figure 5.4 : Formant plot of /ɪə/ for MalE and SgE.

Referring to the first hypothesis made in Section 1.4, the Malaysian speakers and Singaporean speakers produced all diphthongs with diphthongal vowels movements except for /əu/ of MalE where the onset and offset were found to be almost overlapping with very little diphthongal movement. For the second hypothesis, the result matches the hypothesis where there is a great deal of variations in the production of the diphthongs for both Malaysian and Singapore English.

As mentioned in Section 2.5, SgE has been categorized as at Stage Four, endonormative stabilization in the Developmental Cycle of New Englishes by Schneider (2007). This suggests that SgE has formed its own identity with a relatively well-established pronunciation system that has emerged with generally accepted local norms. MalE, on the other hand, is now at Phase 3, nativization in which it is still undergoing structural nativization in forming its characteristics and identity to leap towards Phase 4. Thus, it is clear that SgE is more advanced and differences like clearer and greater diphthongal movements found in this study are relevant.

5.2 Future Directions

This study attempts to provide a full acoustic analysis of all eight diphthongs in MalE. However, the analysis of the study appears to be only the initial effort for a more thorough instrumental research in the future by looking at other aspects such as suprasegmental, lexical, syntactic and discourse sections. Further research is also needed to establish how acoustic analysis can be further improved and used in the description of Englishes. The future research also needs to provide a more updated status of the emerging Englishes for both MalE and SgE and its features.

Appendix

Questionnaire for Malaysian Speakers

The researcher of this study is conducting a research in the context of Malaysian English. Please kindly complete the following questionnaire. The data collected will only be used for educational purposes and the respondents will not be identified by names in any research or publications. Your time and cooperation is very much appreciated. Thank you.

Personal Details

Age (years old) _____

Gender ❑ Male ❑ Female

Race ❑ Malay ❑ Chinese ❑ Other, _____

Hometown (State/Province) _____

Programme of study _____

Contact Number _____

E-mail _____

1.0 Language Background

1.1.1 The Childhood Language

I was brought up in the environment of:

Tick	Types of Childhood Bilingualism	Parents' Native Language	The language(s) used at home
❑	One-person-one-language	Different	Both.
❑	One language-one-environment	Different	Non-dominant Language.
❑	Non-dominant home language	Same	Non-dominant Language.
❑	Non-native parents	Same	Dominant Language.
❑	Mixed Languages	Bilingual	Mix languages.

1.2 Language Acquisition

English is my:

- ❑ first language learnt
- ❑ second language learnt, my first language is _____.
- ❑ third language learnt, my first language is _____, second is_____.
- ❑ fourth or subsequent language learnt, my first language is _____.

1.3 Language Competency

(Please give them in decreasing order of competence, i.e. rank the language you speak best as 1, followed by the one you speak second best as 2 etc.)

____ Bahasa Melayu ____ English

____ Mandarin ____ Tamil

____ other, _____ ____ other, _____

Please rate your English proficiency level to Bahasa Melayu or Mandarin.

❑ Below ❑ Same ❑ Better

1.3.1 The use of language(s)

	English	Malay	Mandarin	Dialect(s)	Other
Daily Life	❑	❑	❑	❑_____	❑_____
Friends	❑	❑	❑	❑_____	❑_____
Someone you've just met	❑	❑	❑	❑_____	❑_____

1.4 Experience of Language Learning

**Native Speakers: British / American Instructors*

Level	**Medium of Instruction**			**Was your teacher a native speaker of English?**	
Primary	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No
Secondary	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No
College/Uni	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No

1.5 Have you been formally educated in schools directed by native speakers of English?

- ❑ Yes, I had.
- ❑ No, I have not.

2.0 Have you ever spent more than FOUR consecutive months living outside Malaysia?

- ❑ Yes, I had. *Country: _____
- ❑ No, I have not.

3.0 Have you ever lived with English speaking families or groups?

- ❑ Yes, I have/had.
- ❑ No, I have not.

Thank you.

~The End~

For Researcher's Use Only

Remark:

_____

_____

Questionnaire for Singaporean Speakers

The researcher of this study is conducting a research in the context of Singapore English. Please kindly complete the following questionnaire. The data collected will only be used for educational purposes and the respondents will not be identified by names in any research or publications. Your time and cooperation is very much appreciated. Thank you.

Personal Details

Age (years old) _____

Gender ❑ Male ❑ Female

Race ❑ Malay ❑ Chinese ❑ Other, _____

Hometown (State/Province) _____

Programme of study _____

Contact Number _____

E-mail _____

1.0 Language Background

1.1.1 The Childhood Language

I was brought up in the environment of:

Tick	Types of Childhood Bilingualism	Parents' Native Language	The language(s) used at home
❑	One-person-one-language	Different	Both.
❑	One language-one-environment	Different	Non-dominant Language.
❑	Non-dominant home language	Same	Non-dominant Language.
❑	Non-native parents	Same	Dominant Language.
❑	Mixed Languages	Bilingual	Mix languages.

1.2 Language Acquisition

English is my:

- ❑ first language learnt
- ❑ second language learnt, my first language is _____.
- ❑ third language learnt, my first language is _____, second is_____.
- ❑ fourth or subsequent language learnt, my first language is _____.

1.3 Language Competency

(Please give them in decreasing order of competence, i.e. rank the language you speak best as 1, followed by the one you speak second best as 2 etc.)

____ Bahasa Melayu ____ English

____ Mandarin ____ Tamil

____ other, _____ ____ other, _____

Please rate your English proficiency level to Bahasa Melayu or Mandarin.

❑ Below ❑ Same ❑ Better

1.3.1 The use of language(s)

	English	Malay	Mandarin	Dialect(s)	Other
Daily Life	❑	❑	❑	❑_____	❑_____
Friends	❑	❑	❑	❑_____	❑_____
Someone you've just met	❑	❑	❑	❑_____	❑_____

1.4 Experience of Language Learning

**Native Speakers: British / American Instructors*

Level	**Medium of Instruction**			**Was your teacher a native speaker of English?**	
Primary	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No
Secondary	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No
College/Uni	❑ Malay	❑ Mandarin	❑ Eng	❑ Yes	❑ No

1.5 Have you been formally educated in schools directed by native speakers of English?

- ❑ Yes, I had.
- ❑ No, I have not.

2.0 Have you ever spent more than FOUR consecutive months living outside Singapore?

- ❑ Yes, I had. *Country: _____
- ❑ No, I have not.

3.0 Have you ever lived with English speaking families or groups?

- ❑ Yes, I have/had.
- ❑ No, I have not.

Thank you.

~The End~

For Researcher's Use Only

Remark:

_____

_____

General English Proficiency Test Paper

A: For the questions below, tick the best sentence to complete the conversation.

1. Why are you watching TV?

- ❑ All the time.
- ❑ If you like.
- ❑ There's nothing else to do.

2. Michelle isn't very well.

- ❑ What's the matter with her?
- ❑ How long does she take?
- ❑ Why did she do it?

3. Who's that girl with the red hat?

- ❑ It's Lucy's.
- ❑ She's my sister.
- ❑ I don't know it.

4. Are you going to come inside soon?

- ❑ For ever.
- ❑ Not long.
- ❑ In a minute.

5. Would you like anything else?

- ❑ That's all, thank you.
- ❑ Yes, I like everything.
- ❑ Two please.

B: For the questions below, tick the best word for each space.

6. I hope I haven't ..... you any trouble by changing the arrangements.

- ❑ put
- ❑ caused
- ❑ made
- ❑ done

7. Charlotte ..... me a lot of her mother.

- ❑ recognises
- ❑ remembers
- ❑ reminds
- ❑ remarks

8. There are no longer any fish in this river - it's too ..... by chemicals from the factory.

- ❑ dirty
- ❑ polluted
- ❑ infected
- ❑ spoiled

9. The floor is wet: don't run or you might ..... !

- ❑ stood
- ❑ spill
- ❑ slip
- ❑ spin

10. I would ..... to stay at home and relax for a change.

- ❑ rather
- ❑ better
- ❑ prefer
- ❑ enjoy

11. It is too early in the ..... to expect many tourists in the town.

- ❑ term
- ❑ season
- ❑ time
- ❑ calendar

12. Maria is responsible ..... looking after visitors to the college.

- ❑ in
- ❑ for
- ❑ of
- ❑ with

13. When you come to dinner, ... your holiday photographs with you.

- ❑ take
- ❑ show
- ❑ fetch
- ❑ bring

14. ..... the step when you go in.

- ❑ Consider
- ❑ Mind
- ❑ Attend
- ❑ Look

15. Is there ..... of food for everyone?

- ❑ adequate
- ❑ enough
- ❑ sufficient
- ❑ plenty

16. ..... stay the night if it's too difficult to get home.

- ❑ At all costs
- ❑ By all means
- ❑ In all
- ❑ On the whole

17. If you're not too tired, we could have a ..... of tennis after lunch.

- ❑ match
- ❑ play
- ❑ game
- ❑ party

18. I don't remember ..... the front door when I left home this morning.

- ❑ to lock
- ❑ locking
- ❑ locked
- ❑ to have locked

19. The price of winter clothes usually ..... at the end of the winter.

- ❑ drops
- ❑ lowers
- ❑ cuts
- ❑ reduces

20. No ..... Margaret is happy when you think how successful she has been recently.

- ❑ surprise
- ❑ problem
- ❑ question
- ❑ wonder

21. The rescue mission was completed without a ..... .

- ❑ hitch
- ❑ knot
- ❑ tie
- ❑ catch

22. Rachel painted a gloomy ..... of life as a student.

- ❑ image
- ❑ picture
- ❑ drawing
- ❑ illustration

23. The magazine is offering free DVDs in an effort to raise its ..... among young readers.

- ❑ profile
- ❑ face
- ❑ outline
- ❑ view

24. When we went to Egypt he knew ..... no Arabic, but within six months he had become fluent.

- ❑ entirely
- ❑ virtually
- ❑ barely
- ❑ scarcely

25. My cousin was nervous about being interviewed on television, but she rose to the ..... wonderfully.

- ❑ event
- ❑ performance
- ❑ incident
- ❑ occasion

Thank you.

For researcher's use only

Well done for completing the test. Your score is _____.

Based on your test score, here is information about the Cambridge ESOL exams that might be most appropriate for you. The suggested level for you would be:

❑ KET ❑ PET ❑ FCE ❑ CAE ❑ CPE

Please note: This is not a Cambridge ESOL exam and the test scores and levels are very approximate. Your score on this test cannot be used as proof of a formal language qualification.

This test Paper is retrieved on 9th March 2011 from:

http://www.cambridgeesol.org/testyourenglish/index.php

Task I: Citation Flash Cards

Read aloud. **Bayed**	**Read aloud.** **Bide**
Read aloud. **Boyd**	**Read aloud.** **Bode**

Read aloud.

Bout

Read aloud.

Beard

Read aloud.

Bear

Read aloud.

Poor

Read aloud.

Say bayed, please.

Read aloud.

Say bide, please.

Read aloud. **Say boyd, please.**	**Read aloud.** **Say bode, please.**
Read aloud. **Say bout, please.**	**Read aloud.** **Say beard, please.**
Read aloud. **Say bear, please.**	**Read aloud.** **Say poor, please.**

From Pillai. S. (2014). The Monophthongs and Diphthongs of Malaysian English: An Instrumental Analysis. ENGLISH IN MALAYSIA: POSTCOLONIAL AND BEYOND.

Task 2: Specially Designed Picture

Task 2: Interlocutor Frame

To do:	To say:	Response: (Variations in form possible)	Back-up:
Greeting	Hello, my name's See Yin. How are you?	Hello. I am fine / good, thank you.	 How are you feeling today?
1. Point to the **scene Card**	Look at the scene card. I'm going to ask you some questions about the scene card. You tell me what can you see in the picture.		
1.1	Where are the children?	(In) Sky Tour Steakhouse	What is the name of the restaurant?
1.2	What is the Malay boy with a cap doing?	He is playing with his toy car.	What does he have in his hand?
1.3	What is the Indian boy next to him eating?	(He is eating) steak.	What does he have on his plate?
1.4	Both the boys have short hair and they are wearing a shirt and short. Now, you talk	She has long hair and she is wearing a dress.	Tell me more about her hair.

	about the girl.		
1.5	What is the girl doing? Why is she covering her ears?	(She is covering her ears) because it is too noisy / of the noise.	Is it because of the environment of the restaurant?
1.6	The radio is playing some music. Do you think the kids are enjoying the music? Why?	No, (they don't.) The music / it is too loud.	Is the music soft?
2.0 Point to the objects.	Here, there is a vase on the table. Now, tell me what other things can you see on the table.	• (A) rose (in the vase) • Five pears • (A glass of) beer • (Three) coins	What is in the vase? How many pears are there? What type of drink is that?

2.1 Point to the objects.	What animal is this? Where is the mouse?	(A) mouse Under the chair.	Is it a cat?
2.2	Now, let's talk about shapes. I can see a rectangular table at the side here. What about you?	(There's) a round table The ball is round / A round ball A square photo frame	Is this table square? What about the ball? What is the shape of the photo frame?
2.3	There are three objects on the rectangular table at the side here. What are they?	(A) phone/ telephone (A) radio (Some) potatoes	Is this a camera? Is this a television? Are these tomatoes?
2.4	Look at the ball. What colour is it?	Yellow	Is it green?

2.5	Look at here. There is a brush on the floor. What other things can you see?	(A bar of) soap (A) pail (with a towel in it)	
2.6	Let's look out of the window. What can you see?	A plane / An airplane / An aeroplane.	Is it a helicopter?
2.7	What's this? Why is there a bike out there?	(A) bike / bicycle The kids cycled to the restaurant / They went there by bike.	Is it a car? Did they drive there?
2.8	Thank you.	Thank you.	The End

Task 2: Checklist of Tokens

Participant's Code: _____

FACE	/eɪ/	☐ Steak /steɪk/	☐ plane /pleɪn/	☐ radio /reɪdɪəʊ/	☐ they /ðeɪ/
		☐ pail /peɪl/	☐ aeroplane /eərəpleɪn/	☐ table /teɪbl/	☐ frame /freɪm/
		☐ potatoes /peteɪtəʊs/	☐ airplane /eə(r)pleɪn/	☐ steakhouse /steɪkhaʊs/	
GOAT	/əʊ/	☐ Soap /səʊp/	☐ potatoes /pəteɪtəʊs/	☐ yellow /jeləʊ/	☐ don't /dəʊnt/
		☐ phone /fəʊn/	☐ rose /rəʊz/	☐ no /nəʊ/	☐ photo /fəʊtəʊ/
		☐ telephone /telɪfəʊn/			
PRICE	/aɪ/	☐ Bike /baɪk/	☐ sky /skaɪ/	☐ by /baɪ/	
		☐ bicycle /baɪsɪkl/	☐ five /faɪv/	☐ cycled /saɪkl(d)/	
CHOICE	/ɔɪ/	☐ noise /nɔɪz/	☐ noisy /nɔɪzi/	☐ toy /tɔɪ/	☐ coins /kɔɪns /
MOUTH	/aʊ/	☐ Mouse /maʊs/	☐ loud /laʊd/	☐ steakhouse /steɪkhaʊs/	☐ round /raʊnd/

NEAR	/ɪə/	☐ ears /ɪə(r)s/	☐ beer /bɪə(r)/	☐ here /hɪə(r)/	
SQUARE	/eə/	☐ aeroplane /eərəpleɪn/ ☐ airplane /eə(r)pleɪn/	☐ square /skweə(r)/ ☐ there /ðeə(r)/	☐ hair /heə(r)/ ☐ chair /tʃeə(r)/	☐ wearing /weərɪŋ/
TOUR	/ʊə/	☐ Tour /tʊə(r)/			

Analysis of Standard Deviation for Task 1

Bayed

er SgE	Ave ROC F1
SC1	-288
SC4	-890
SC5	212
SC8	-322
SC9	22
SM1	384
SM2	64
SM4	-166
SM6	131
SM7	-356
SD	**365**

Bayed

er MalE	Ave ROC F1
MC1	-281
MC3	-997
MC4	-74
MC5	-73
MC7	-398
MM3	394
MM4	-151
MM5	-377
MM7	-87
MM8	527
SD	**424**

Bide

ɑɪ MalE	Ave ROC F1
MC1	-1517
MC3	-1081
MC4	-1623
MC5	-676
MC7	-129
MM3	-1178
MM4	-897
MM5	-1183
MM7	-425
MM8	-1815
SD	**534**

Bide

ɑɪ SgE	Ave ROC F1
SC1	-1158
SC4	-280
SC5	-1335
SC8	-1117
SC9	-799
SM1	-2366
SM2	-1750
SM4	-1297
SM6	-1436
SM7	-944
SD	**558**

Boyd

ɔɪ MalE	Ave ROC F1
MC1	-1621
MC3	27
MC4	-84
MC5	-725
MC7	-553
MM3	-436
MM4	279
MM5	174
MM7	441
MM8	149
SD	**617**

Boyd

ɔɪ SgE	Ave ROC F1
SC1	-1621
SC4	27
SC5	-84
SC8	-725
SC9	-553
SM1	-436
SM2	279
SM4	174
SM6	441
SM7	149
SD	**617**

Beard

ɪə MalE	Ave ROC F1
MC1	414
MC3	933
MC4	699
MC5	897
MC7	663
MM3	295
MM4	493
MM5	1504
MM7	72
MM8	692
SD	**396**

Beard

ɪə SgE	Ave ROC F1
SC1	414
SC4	933
SC5	699
SC8	897
SC9	663
SM1	295
SM2	493
SM4	1504
SM6	72
SM7	692
SD	**396**

Bear

eə MalE	Ave ROC F1
MC1	-252
MC3	235
MC4	-173
MC5	-383
MC7	91
MM3	422
MM4	171
MM5	874
MM7	381
MM8	171
SD	**367**

Bear

eə SgE	Ave ROC F1
SC1	-252
SC4	235
SC5	-173
SC8	-383
SC9	91
SM1	422
SM2	171
SM4	874
SM6	381
SM7	171
SD	**367**

Poor

ʊə MalE	Ave ROC F1
MC1	456
MC3	807
MC4	-444
MC5	371
MC7	130
MM3	796
MM4	-46
MM5	222
MM7	-399
MM8	505
SD	**439**

Poor

ʊə SgE	Ave ROC F1
SC1	-157
SC4	1400
SC5	347
SC8	1576
SC9	237
SM1	-375
SM2	52
SM4	765
SM6	532
SM7	717
SD	**630**

Bout

ɑʊ MalE	Ave ROC F1
MC1	-215
MC3	-801
MC4	-1247
MC5	480
MC7	68
MM3	-394
MM4	689
MM5	642
MM7	798
MM8	-263
SD	**685**

Bout

ɑʊ SgE	Ave ROC F1
SC1	-240
SC4	-72
SC5	94
SC8	387
SC9	-231
SM1	-2028
SM2	-941
SM4	343
SM6	-43
SM7	157
SD	**727**

Bode

ɘʊ MalE	Ave ROC F1
MC1	2111
MC3	979
MC4	-369
MC5	1000
MC7	167
MM3	78
MM4	95
MM5	-58
MM7	837
MM8	442
SD	**723**

Bode

ɘʊ SgE	Ave ROC F1
SC1	-444
SC4	-133
SC5	-641
SC8	719
SC9	-673
SM1	482
SM2	-1116
SM4	-39
SM6	116
SM7	-231
SD	**554**

Analysis of Standard Deviation for Task 2

/eɪ/ /eɪ/

eɪ MalE	Ave ROC F1
MC1	-3962
MC3	-1101
MC4	-2211
MC5	-1189
MC7	-1189
MM3	-279
MM4	-303
MM5	-2172
MM7	1208
MM8	-778
SD	**1384**

eɪ SgE	Ave ROC F1
SC1	192
SC4	-1744
SC5	-2368
SC8	-1576
SC9	-2137
SM1	-3382
SM2	664
SM4	-1100
SM6	-1146
SM7	-1081
SD	**1183**

/aɪ/

aɪ MalE	Ave ROC F1
MC1	-617
MC3	7286
MC4	148
MC5	960
MC7	417
MM3	-1318
MM4	-4385
MM5	-2336
MM7	-2158
MM8	-4971
SD	**3424**

/aɪ/

aɪ SgE	Ave ROC F1
SC1	-2863
SC4	-1960
SC5	-4038
SC8	-3591
SC9	-6356
SM1	-2589
SM2	-1267
SM4	-6138
SM6	-765
SM7	-2718
SD	**1867**

/ɔɪ/

ɔɪ MalE	Ave ROC F1
MC1	-1437
MC3	-1453
MC4	-1230
MC5	-428
MC7	-1057
MM3	-12
MM4	-3240
MM5	-850
MM7	-484
MM8	-1374
SD	**879**

/ɔɪ/

ɔɪ SgE	Ave ROC F1
SC1	-868
SC4	-4044
SC5	-1492
SC8	-2639
SC9	-1482
SM1	-884
SM2	-1986
SM4	-1413
SM6	-264
SM7	-1303
SD	**1063**

/ɪə/

ɪə MalE	Ave ROC F1
MC1	1041
MC3	210
MC4	1625
MC5	845
MC7	689
MM3	1526
MM4	-108
MM5	521
MM7	1657
MM8	-226
SD	**692**

/ɪə/

ɪə SgE	Ave ROC F1
SC1	1505
SC4	997
SC5	1424
SC8	1156
SC9	1467
SM1	0
SM2	1149
SM4	852
SM6	0
SM7	2031
SD	**646**

/eə/

eə MalE	Ave ROC F1
MC1	-194
MC3	74
MC4	1128
MC5	-70
MC7	759
MM3	1219
MM4	-1255
MM5	315
MM7	675
MM8	1198
SD	**779**

/eə/

eə SgE	Ave ROC F1
SC1	-151
SC4	65
SC5	-272
SC8	-337
SC9	-739
SM1	827
SM2	-814
SM4	-163
SM6	-136
SM7	-118
SD	**451**

/ʊə/ /ʊə/

ʊə MalE	Ave ROC F1
MC1	-1483
MC3	411
MC4	-1669
MC5	-1357
MC7	-1321
MM3	-814
MM4	-340
MM5	-3565
MM7	912
MM8	-710
SD	**1233**

ʊə SgE	Ave ROC F1
SC1	1132
SC4	10356
SC5	-1364
SC8	-320
SC9	1831
SM1	1794
SM2	0
SM4	388
SM6	256
SM7	245
SD	**3280**

/aʊ/ /aʊ/

ɑʊ MalE	Ave ROC F1
MC1	-830
MC3	-2997
MC4	-571
MC5	-2223
MC7	743
MM3	-1561
MM4	-394
MM5	-1214
MM7	86
MM8	-1568
SD	**1102**

ɑʊ SgE	Ave ROC F1
SC1	151
SC4	-3561
SC5	-5723
SC8	-630
SC9	-3183
SM1	-2376
SM2	-2077
SM4	-1428
SM6	-630
SM7	-764
SD	**1766**

/əʊ/ /əʊ/

əʊ MalE	Ave ROC F1
MC1	-1094
MC3	300
MC4	-1203
MC5	616
MC7	-55
MM3	1045
MM4	-283
MM5	-1670
MM7	1051
MM8	753
SD	**984**

əʊ SgE	Ave ROC F1
SC1	861
SC4	-1903
SC5	405
SC8	-1082
SC9	-533
SM1	-13033
SM2	-205
SM4	-123
SM6	-559
SM7	-1575
SD	**4044**

Bibliography

Asmah, Haji Omar. (1977). The Phonological Diversity of the Malay Dialects. Kuala Lumpur: Dewan Bahasa and Pustaka.

Arai, T. (2004, June). History of Chiba and Kajiyama and Their Influence in Modern Speech Science. Paper presented at *From Sound to Sense Conference conducted at MIT, Cambridge, USA*. Retrieved from www.rle.mit.edu/soundtosense/conference/pdfs/SB-**Arai**-STS.pdf.

Au-Yong, J. (2011, July 1). Still in tune with Malaysia-lah. The Star Online. Retrieved from http://thestar.com.my/metro/story.asp?file=/2011/7/1/central/8997199&sec=central

Balas, A. (2009). English Centring Diphthong Production by Polish Learners of English. *Research in Language*, 7: 129-148.

Ball, M.J. & Rahilly, J. (1999). Phonetics: The Science of Speech. New York: Oxford University Press Inc.

Baskaran, L.M. (1987). Aspects of Malaysian English Syntax. (Doctoral thesis, University of London, London, United Kingdom).

Baskaran, L.M. (2004). Malaysian English: Phonology. In Kortmann, B. & Schneider, E.W. (Eds), *A Handbook of Varieties of English: A Multimedia Reference Tool* (pp. 1034-1046). New York: Mouton de Gruyter.

Baskaran, L.M. (2005). A Malaysian English Primer: Aspects of Malaysian English Features. Kuala Lumpur: University Malaya Press.

Bautista M.L.S. & Gonzalez A.B. (2009). Southeast Asian Englishes. In Kachru, B.B.,Kachru Y. & Nelson C.L. (Eds.), *The Handbook of World Englishes* (pp. 130 – 141). Malden, MA: Wiley-Blackwell.

Boersma, P. & Weenink D. (2009). Praat: Doing Phonetics by Computer, Version 5.1.05[Computer Software]. Retrieved from http://www.praat.org.

Bolton, K. & Kachru B.B. (2006). World Englishes: Critical Concepts in Linguistics. (Vol. 4). New York: Routledge.

Brosnahan, L.F. & Malmberg, B. (1970). Introduction to Phonetics. Cambridge: Cambridge University Press.

Brown, A. & Deterding, D. (2005). A checklist of Singapore English pronunciation features, In Deterding, D., Brown, A. & Low E.L. (Eds.), *English in Singapore: Phonetic research on a corpus* (pp. 2-13). Singapore: McGraw-Hill Education.

Cheah, Y.M. (1994). Literacy and Cultural Identity: An Ethnographic Study of English Language Education in Singapore (Doctoral dissertation). Berkeley: University of California.

Chiba, T. & Kajiyama, M. (1941). The Vowel: Its Nature and Structure. Tokyo: Tokyo Kaisekan. (Reprinted by the Phonetic Society of Japan 1958).

Citrin, W. (2011, October 3). Malaysia- the oklah land. The Star Online. Retrieved from http://thestar.com.my/metro/story.asp?file=/2011/10/3/central/9596287&sec=central.

Clark, J. & Yallop, C. (1994). An Introduction to Phonetics and Phonology. Malden, MA: Blackwell Publishing.

Clark, J., Yallop, C. & Fletcher, J. (2007). An Introduction to Phonetics and Phonology. Malden, MA: Blackwell Publishing.

Clermont, F. (1992). Characterisation of Diphthongal Sound Beyond the F_1-F_2 Plane. *Proceedings of the 4th Australian International Conference on Speech Science & Technology* (pp. 298-303). Brisbane: University of New South Wales.

Clermont, F. (1993). Spectro-temporal description of diphthongs in F_1-F_2-F_3 space. *Journal of Speech Communication- Speech Science and Techonology*, 13(3-4), 377-390.

Collins, B. & Mees, I.M. (2006). Practical Phonetics and Phonology: A Resource Book for Students. New York: Routledge and Kegan.

Cox, F. (2006). The Acoustic Characteristics of /hVd/ Vowel in the Speech of Some Australian Teenagers. *Australian Journal of Linguistics*, 26: 147-179.

David, M.K., Cavallaro, F. & Coluzzi, P. (2009). Language Policies- Impact on Language Maintenance and Teaching: Focus on Malaysia, Singapore, Brunei and the Philippines. *The Linguistic Journal: Language, Culture and Identity in Asia*. British Virgin Islands: Time Taylor International Ltd.

Denes, P.B. & Pinson, E.N. (1993) The Speech Chain: The Physics and Biology of Spoken Speech (3rd Ed.). Oxford: W.H. Freeman and Company.

Department of Statistics Malaysia (2011). Population Distribution and Basic Demographic Characteristic Report 2010. Retrieved from http://www.statistics.gov.my/portal/index.php?option=com_content&view=article&id=1215%3Apopulaton-distribution-and-basic-demographic-characteristic-report-population-and-housing-census-malaysia-2010-updated-2972011&catid=130%3Apopulationdistribution-and-basic-demographic-characteristic-report-population-and-housing-census-malaysia-2010&lang=en

Department of Statistics Singapore. (2011). Census of Population 2010 Statistical Release 1 on Demographic Characteristics, Education, Language and Religion. Retrieved from www.singstat.gov.sg/pubn/popn/c**2010**sr1/cop**2010**sr1.pdf.

Department of Statistics Singapore. (2011). Census of Population 2010 Advance Census Release. Retrieved from http://www.singstat.gov.sg/pubn/popn/c2010acr.html.

Department of Statistics Singapore. (2010). Singapore Standard Educational Classification (SSEC) 2010. Retrieved from http://www.singstat.gov.sg/statsres/ssc/ssec2010.html.

Department of Statistics Singapore. (2011). Yearbook of Statistics Singapore 2011. Retrieved from www.singstat.gov.sg/pubn/reference/yos11/yos**2011**.pdf.

Deterding, D. & Hvitfeldt, R. (1994). The Features of Singapore English Pronunciation: Implications for Teachers. *Teaching and Learning*, 15(1): 98-107.

Deterding, D. (1996). Diphthong Measurements in Singapore English. *Proceedings of the Sixth Australian International Conference on Speech Science and Technology* (pp. 66-67). Canberra: Australia Speech Science and Technology Association.

Deterding, D. (2000). Measurement of the /ei/ and /@u/ Vowels of Young English Speakers in Singapore. In Brown A, Deterding, D. & Low, E.L. (Eds.), *The English Language in Singapore: Research on Pronunciation* (pp. 93-99). Singapore: Singapore Association for Applied Linguistics.

Deterding, D. (2004). How Many Vowel Sounds Are There in English?. *Singapore Tertiary English Teachers Society (STETS) Language and Communication Review*, 4(1): 23-26.

Deterding, D. (2005). Emergent Patterns in the Vowels of Singapore English. *Journal of Varieties of English*, 26(2): 179-197.

Deterding, D. (2006). The North Wind versus a Wolf: short texts for the description and measurement of English pronunciation. *Journal of the International Phonetic Association*, 36 (2): 187-196.

Deterding, D. (2006). Reduced vowels in SE Asia: Should we be teaching them?. *SOUTHEAST ASIA: A Multidisciplinary Journal*, 6(1). Retrieved from http://videoweb.nie.edu.sg/phonetic/pers/david.htm.

Deterding, D. (2007). The Vowels of the Different Ethnic Groups in Singapore. In Prescott D., Kirkpatrick A., Martin I. & Hashim A. (Eds.), *English in Southeast Asia: Literacies, Literactures and Varieties* (pp. 2-29). Newcastle: Cambridge Scholars Press.

Deterding, D. (2007). Singapore English: Dialects of English. Edinburgh: Edinburgh University Press.

Deterding, D. & Low, E.L. (2001). The NIE Corpus of Spoken Singapore English (NIECSSE). Singapore Association for Applied Linguistics (SAAL) Quarterly. Retrieved from http://videoweb.nie.edu.sg/phonetic/niecsse/saal-quarterly.htm.

Deterding, D., Wong J. & Kirkpatrick A. (2008). The Pronunciation of Hong Kong English. *Journal of Varieties of English* 29(2): 148-175.

Fant, G. (2001). T. Chiba and M. Kajiyama: Pioneers in Speech Acoustics. *Speech, Music and Hearing Quarterly Progress and Status Report*, 42(1): 59-60. Retrieved from http://www.speech.kth.se/prod/publications/files/qpsr/2001/2001_42_1_059-060.pdf

Fevriyanti, E. (2009). A Description Study of Australian-English Pronunciation of Vowel and Diphthong Sounds. (Unpublished master's thesis). Indonesia: University of Surakarta.

Foulkes, P. & Docherty, G. (2007). Phonological variation in England, Language in the British Isles. Cambridge: Cambridge University Press.

Fry, D.B. (1979). The Physics of Speech. Cambridge: The Press Syndicate of the University of Cambridge.

Fricker, A.B. (2004). The Change in Australian English Vowels over Three Generations. *Proceedings of the 10th Australian International Conference on Speech Science & Technology*, 184-194.

Gargesh, R. (2006). South Asian Englishes. In Kachru, B.B., Kachru Y. & Nelson C.L. (Eds.), *The Handbook of World Englishes* (pp. 90 - 113). Malden: Wiley-Blackwell.

Gaudart, H. (1997). Malaysian English, can or not?. In Halimah, M.S. & Ng, K.S. (Eds.), *English is an Asian Language: The Malaysian Context* (pp. 47 -56). Kuala Lumpur: Persatuan Bahasa Moden Malaysia and The Macquarie Library Pty Ltd.

Gay, T. (1968). Effect of Speaking Rate on Vowel Formant Movements. *Speech, Music and Hearing Quaterly Progress and Status Report*, 18(2-3): 8-30. Retrieved from http://www.haskins.yale.edu/SR/SR051/SR051_09.pdf

Gill, S.K. (2002). International Communication: English Language Challenges for Malaysia. Bangi: University Putra Malaysia Press.

Gill, S.K. (2007). Shift in language policy in Malaysia: Unravelling reasons for change, conflict and compromise in mother-tongue education. *Journal of Association Internationale de Linguistique Appliqu é Review*, 20 (1): 106-122.

Gill, S.K. & Pakir A. (1999). Standards and Emerging Linguistics Realities of English in the Malaysian Workplace. *Journal of English as an International and Intranational Language*, 18 (2): 215-231.

Groves, J. (2009). Hong Kong English-Does it Exist?. HKBU Papers in Applied Language Studies, 13: 54-79.

Hayward, K. (2000). Experimental Phonetics. London: Longman.

Hawkins, S. (n.d.). Acoustic Theory of Speech Production. (Unpublished academic exercise). Cambridge: University of Cambridge. Retrieved 28th May 2012 from www.ling.cam.ac.uk/.../M4_0809_Acoustic**Theory**SpeechProduction.pdf.

Heng, M.G. & Deterding, D. (2005). Reduced vowels in conversational Singapore English. In Deterding, D., Brown, A. & Low E.L. (Eds.), *English in Singapore: Phonetic research on a corpus* (pp. 54-63). Singapore: McGraw-Hill Education.

Holbrook, A. & Fairbanks G. (1962). Readings in Acoustic Phonetics. London: The M.I.T. Press Massachusetts Institute of Technology.

Hubais, A. & Pillai, S. (2010). An Instrumental Analysis of English Vowels Produced by Omanis. *Journal of Modern Languages*, 20: 1-18.

Hung, T.T.N. (2007). Hong Kong English. In Nakano M. (Eds.), *World Englishes and Miscommunications* (pp. 71-90). Japan: Waseda University International Co.

Jenkins, J. (2003). World Englishes: A resource book for students. London: Routledge and Kegan.

Jha S.K. (1985). Acoustic Analysis of the Maithili Diphthongs. *Journal of Phonetics*, 13: 107-115.

Johnstone B. & Kiesling S.F. (2008). Indexicality and Experience: Exploring the meanings of /aw/-monophthongization in Pittsburgh[1]. *Journal of Sociolinguistics*, 12(1): 5-33.

Jones, D. (1969). An Outline of English Phonetics. Cambridge: W. Heffer & Sons Ltd.

Kent, R. & Read, C. (1996). The Acoustic Analysis of Speech. San Diego, UK: Singular Publishing.

Kerswill, P. Torgersen, E. & Fox, S. (2006, Nov). Innovation in Inner-London teenage speech. Paper presented at the 35th Annual Conference on New Ways of Analyzing Variation (NWAV35), Columbus OH.

Khurshid, K., Usman S.A. & Butt N.J. (2003). Possibility of Existence and Identification of Diphthongs and Triphthongs in Urdu Language. Retrieved from http://www.crulp.org/Publication/Crulp_report/CR04_03E.pdf

Kiesling, S.F. & Wisnosky M. (2003, Oct). Competing norms, heritage prestige, and /aw/-monophthongization in Pittsburgh. Paper presented at the 32nd Annual Conference on New Ways of Analyzing Variation (NWAV32), Columbus OH.

Kingsley, B. (2008). English in Asia, Asian Englishes, and the issue of proficiency. *Journal of English Today*, 24 (2): 3-12.

Kirkpatrick, A. (2007). World Englishes: Implications for International Communication and English Language Teaching. Cambridge: Cambridge University Press.

Kirkpatrick, A. (2009). Theoretical Issues. In Hashim, A. & Low, E.L. (Eds.), English in Southeast Asia: Features, Policy and Language in Use. Amsterdam: John Benjamins.

Ladefoged, P. (2001). A Course in Phonetics (4th ed.). Fort Worth: Harcourt College Publishers.

Ladefoged, P. (2001). Vowel and Consonants: An Introduction to the Sounds of Languages. Oxford: Blackwell Publishers Inc.

Ladefoged, P. (2006). A Course in Phonetics (5th ed.). Los Angeles: Wadsworth Publishing.

Laver, J. (1994). Principles of Phonetics. Cambridge: The Press Syndicate of the University of Cambridge.

Lee, E.M. and Lim, L. (2000). Diphthongs in Singaporean English: their realisations across different formality levels, and some attitudes of listeners towards them. In Brown, A., Deterding, D. and Low, E.L. (Eds.), *The English Language in Singapore: Research on Pronunciation* (pp. 100-111). Singapore: Singapore Association for Applied Linguistics.

Lee, K. C. (2008). Singapore Education System and Policy: A Select Bibliography. Singapore: The National Library Board. Retrieved 18 December 2011 from http://infopedia.nl.sg/singapore_education_updated.pdf.

Lehiste, I. & Peterson, G.E. (1961). Transitions, Glides, and Diphthongs. Readings in Acoustic Phonetics. Massachusetts: The M.I.T. Press.

Leimgruber, J.R.E. (2009). Modelling Variation in Singapore English. Oxford: University of Oxford.

Leimgruber, J.R.E. (2011). Singapore English, Language and Linguistics Compass 5.1 (pp. 47-62). Oxford: University of Oxford.

Lim, C.C. (2007). Languages Choices of Malaysian Youth: A case study. Kuala Lumpir: University Malaya.

Lim, G. (2001). Till Divorce Do Us Part: The Case of Singaporean and Malaysian English. In Ooi, B.Y. (Eds.), *Evolving Identities: The English Language in Singapore and Malaysia* (pp. 125-139). Singapore: Times Media Private Limited.

Lim, S.S. & Low, E.L. (2005). Triphthongs in Singapore English. In Deterding, D., Brown, A. & Low E.L. (Eds.), *English in Singapore: Phonetic research on a corpus* (pp. 64-73). Singapore: McGraw-Hill Education.

Low, E.L. & Tan, S.K. (2010). How different are the monophthongs of Malay speakers of Malaysian and Singapore English? *English World-wide*, 31(2).

Maxwell, O. & Fletcher J. (2010). The Acoustic Characteristics of Diphthongs in Indian English. *World Englishes*, 29(1): 27-44.

Melchers, G. & Shaw P. (2003). World Englishes: An Introduction. Sweden: Stockholm University.

Menon, D. (2006). Non-native Idioms in Malaysian English Lexis. In Azirah, H. & Norizah, H. (Eds.), *Varieties of English in Southeast Asia and Beyond* (pp. 173-190). Kuala Lumpur: University of Malaya Press.

Ministry of Education Malaysia's Official Portal (2011). Microsite for MBMMBI - 25th October 2010. Retrieved 20 September 2011 from http://www.moe.gov.my/?id=169&lang=en.

Ministry of Education Singapore (2011). Bilingual Education Given a Boost with Setting Up of Lee Kuan Yew Fund for Bilingualism. Retrieved 30 December 2011 from http://www.news.gov.sg/public/sgpc/en/media_releases/agencies/moe/press_release/P-20111128-6.html.

Mlinar, R. (2011). Pronunciation of English Diphthongs by Speakers of Serbian: Acoustic Characteristics. Retrieved 28 May 2012 from www.languagebits.com/final-rev2-Pronunciation of English Diphthongs by Speakers of Serbian.pdf

Mukherjee, J. & Gries, S.T. (2009). Collostructional nativisation in New Englishes: Verb-construction associations in the International Corpus of English. *English World-Wide*, 30:1.

Noraini, I. (2008). Language(s) in the Judicial Process: Tempering Justice with 'Mercy'. Korea: Asian EFL Journal Press.

Perpustakaan Negara Malaysia. (2009). The Surrender of Melaka to the British by the Dutch (pp. 1824-1941). Retrieved 28th December 2011 from http://sejarahmalaysia.pnm.my/portalBI/detail.php?section=sm01&spesifik_id=434&ttl_id=60.

Peter, T.K.W. (2005). The Medium-of-instruction debate in Malaysia: English as a Malaysian Language? *Language Problems and Language Planning*, 29(1): 47- 66.

Phoon, H.S. & Maclagan M. (2009). The Phonology of Malaysian English: A Preliminary Study. New Zealand: University of Canterbury.
Phoon, H.S., Abdullah, A.C. & Maclagan, M. (2013). The Consonant Realizations of Malay-Chinese-, and Indian-influenced Malaysian English. *Australian Journal of Linguistics*, 33(1): 3 – 30.

Pillai, S. (2008). Speaking English the Malaysian way- correct or not? *English Today*, 24(4): 42-45.

Pillai, S. (2014). The Monophthongs and Diphthongs of Malaysian English: An Instrumental Analysis, In Shakila, A.M. & Hajar A.R. (Eds.), *English in Malaysia: Postcolonial and Beyond* (pp. 55 – 86). Frankfurt: Peter Lang.

Pillai, S. & Fauziah, K. (2006). The Variety of Malaysian English Used in Radio Advertisements. In Azirah, H. & Norizah, H. (Eds.), *Varieties of English in Southeast Asia and Beyond* (pp. 39-54). Kuala Lumpur: University of Malaya Press.

Pillai, S. & Yusuf, Y.Q. (2013). An Acoustic Description of Diphthongs in Two Varieties of Acehnese. *Pertanika Journal of Social Sciences and Humanities*, 21(S): 153 – 168.

Pillai, S., Zuraidah, M.D., Knowles G. & Tang, J. (2010). Malaysian English: An Instrumental analysis of vowel contrasts. *Journal of World Englishes*, 29(2): 159-172.

Platt, J. & Heidi, W. (1980). English in Singapore and Malaysia. Kuala Lumpur: Oxford University Press.

Platt, J., Weber, H. & Ho, M.L. (1984). The New Englishes. London: Routledge and Kegan

Pollick, M. (2012). What are Omnidirectional Microphones? In Wynn, L.S. (eds.), *Conjecture Corporation*. Retrieved 29th February 2012 from http://www.wisegeek. com/what-are-omnidirectional-microphones.htm.

Pride, J. (1982). New Englishes. Massachusetts: Newbury House Publishers.

Rajadurai, J. (2005). Revisiting the Concentric Circles: Conceptual and Sociolingusitic Considerations (pp.). *Asian EFL Journal Quarterly*, 7(4): 111-130.

Rajadurai, J. (2006). Pronunciation Issues in Non-native Contexts: A Malaysian case study. *Malaysian Journal of ELT Research*, (2) 42-59.

Rajadurai, J. (2007). Sociolinguistic Perspectives on Variation in Non-native Varieties of English: The case of Malaysian English. *Multilingua*, 26(4): 409-426.

Richmond, S. (2007). Malaysia, Singapore & Brunei (pp. 48). Singapore: Lonely Planet.

Roach, P. (2000). English Phonetics and Phonology: A Practical Course, 3rd Ed. Cambridge: Cambridge University Press.

Romaine, S. (1999), Bilingual Language Development. In Trott, K., Dobbinson, S. & Griffiths, P. (Eds. 2004), *The Child Language Reader* (pp. 287-303). Cornwall: TJ International Ltd.

Ren, H. (1986). On the Acoustic Structure of Diphthongal Syllables (Doctoral dissertation, University of California). Retrieved from http://escholarship.org/uc/item/8431z0hn#

Salbrina, H.S. (2006). The Vowels of Brunei English: An Acoustic Investigation. *English World-Wide*, (27) 247–264.

Salbrina, H.S. (2009). An acoustic investigation of the segmental features of Educated Brunei English speech. Singapore: Nanyang Technological University. Retrieved 26 April 2011 from www.ubd.edu.bn/academic/faculty/FASS.../Thesis_Salbrina_Sharbawi.pdf

Schneider, E.W. (2003). Evolutionary Patterns of New Englishes and the Special Case of Malaysian English, *Asian Englishes*, 6(2): 44-63.

Schneider, E.W. (2007). Postcolonial English: Varieties around the world. Cambridge: Cambridge University Press.

Setter, J. & Deterding, D. (2003). Extra final consonants in the English of Hong Kong and Singapore. *Proceedings of the 15th International Congress of Phonetic Sciences*, pp. 1875 – 1878.

Simpson, A.P. (1998). Characterizing the formant movements of German diphthongs in spontaneous speech. Retrieved 24 August 2010 from http://www.personal.uni-jena.de/~x1siad/publications.html.

Smith, L.E. (1983). Readings in English as an International Language, Pergamon Press, East-West Center, Culture Learning Institute, Hawaii, U.S.A.

Smith, L.E. & Nelson C.L. (2009). World Englishes and Issues of Intelligibility. In Kachru, B.B., Kachru Y. & Nelson C.L. (Eds.), *The Handbook of World Englishes* (pp. 428-445). London: Wiley-Blackwell.

Solomon, J.S. (1988). The Development of Bilingual Education in Malaysia, Kuala Lumpur: Pelanduk Publications.

Soo, E.J. (2011, August 15). The 'Ma and Pa' shops something special. The Star Online. Retrieved 19 December 2011 from http://biz.thestar.com.my/news/story.asp?file=/2011/8/15/business/9300797&sec=business.

Strevens P. (1983). What is "Standard English"? Readings in English as an International Language (pp. 87-93). Hawaii: Pergamon Press.

Subramaniam, G. (2007). The Changing Tenor of English in Multicultural Postcolonial Malaysia. *3L Journal of Language Teaching, Linguistic and Literature*. Retrieved 20 October 2011 from http://www.ukm.my/ppbl/3L/3L Archives.html.

Sweet, H. (1970). A Handbook of Phonetics including a Popular Exposition of Principles of Spelling Reform (pp. 10-24). Maryland: McGrath Publishing Company.

Tan S.I. (2009). Lexical Borrowing in Malaysian English: Influences of Malay, World Englishes. Hong Kong: University of Hong Kong.

Tan, S.K. (2011). An Acoustic Investigation of the Segmentals and Supresegmentals of Malaysian English. Singapore: Nanyang Technological University.

Tan, S.K. & Low, E.L. (2010). How different are the monophthongs of Malay speakers of Malaysian and Singapore English? *English World-wide*, 31(2): 162-189.

Tay, W.J. (1979). The Uses, Users and Features of English in Singapore. In New varieties of English: Issues and Approaches (pp. 91-111). Singapore: SEAMEO Regional Language Centre.

Tay, W.J. (1993). The English Language In Singapore: Issues and Development. Singapore: National University of Singapore.

Teachers Activity Centre. (2010). Surat Pekeliling Ikhtisas Bil.2/2010: Pelaksanaan Dasar Memartabatkan Bahasa Malaysia dan Memperkukuh Bahasa Inggeris. Retrieved 20 July 2011 from http://www.pkg.bandar.kotatinggi.edu.my/index.php?option=com_phocadownload&view=category&download=39:pelaksanaan-dasar-mbmmbi&id=5:pekeliling&Itemid=115.

Traunmüller, H. (1990). Analytical Expressions for the Tonotopic Sensory Scale. In *Journal of the Acoustical Society of America*, (69) 1465–1475.

Trudgill, P. & Hannah, J. (1985). International English: A Guide to Varieties of Standard English. London: Edward Arnold Ltd.

University of Cambridge ESOL Examinations (Cambridge ESOL). Cambridge English for Schools. Retrieved 9th March 2011 from http://www.cambridgeesol.org/what-we-do/index.html.

Walker, R. (2001). Pronunciation for International Intelligibility, Retrieved 24 August 2010 from http://www3.telus.net/linguisticsissues/international intelligibility.html.

Wang, H. & Heuven, V. J. V. (2006). Acoustical Analysis of English Vowels Produced by Chinese, Dutch and American Speakers. In Weijier J. M. V. & Los, B. (Eds.), *Linguistics in the Netherlands* (pp. 237-248). Amsterdam: John Benjamins.

Watson, K. (2007). Liverpool English. *Journal of the International Phonetic Association*, 37(3): 351-359.

Watson, K. (2007). The Phonetics and Phonology of Plosive Lenition in Liverpool English. Liverpool: Edge Hill College of Higher Education/Lancaster University.

Wells, J.C. (1982). Accents of English. Cambridge: Cambridge University Press.

Wells, J.C. (2010). Everything to do with phonetics. Retrieved 2 April 2011 from http://phonetic-blog.blogspot.com/2010/06/yanks-and-kiwis.html

Wong, B.E. & Liu, J.C. (2006). The acquisition of gender, number and case in English personal pronouns. In Azirah, H. & Norizah, H. (Eds.), *Varieties of English in Southeast Asia and beyond* (pp. 237-256). Kuala Lumpur: University of Malaya Press.

Wong, F.H. (1983). Simplification Features in the Structure of Colloquial Malaysian English. In Noss, R.B. (Eds.), *Varieties of English in Southeast Asia* (pp. 125-149). Singapore: Singapore University Press.

Welker, C. (2006). Tutorial for self-study: Basics of Phonetics and How to Use Praat, Retrieved from http://www.hum.uu.nl/uilots/lab/courseware/phonetics/index.html.

Wright, R. & Nichols, D. (2009). How to Measure Vowel Formants Using Praat, Retrieved from http://courses.washington.edu/l453/Formants.pdf.

Zhang, L.J., Rubdy, R., & Lubna, A. (2009). Englishes and Literatures-in-English in a Globalised World: *Proceedings of the 13th International Conference on English in Southeast Asia* (pp. 59-73). Singapore: Nanyang Technological University.

Zuraidah, M.D. (1997). Malay+English= a Malay variety of English vowels and accent. In Halimah, M.S. & Ng, K.S. (Eds.), *English is an Asian Language: The Malaysian Context* (pp. 35-45). Kuala Lumpur: Persatuan Bahasa Moden Malaysia and The Macquarie Library Pty Ltd.

Zuraidah, M.D. (2006). Investigating an Emerging Asian Variety of English: The Malaysian Corpus of Learner English. In Zuraidah, M.D. (Eds.), *English in a Globalised Environment: Investigating an Emerging Variety of English* (pp. 21-32). Kuala Lumpur: University of Malaya Press.