ความเข้าใจภาษาอังกฤษของกันและกันระหว่างผู้พูดภาษาอังกฤษชาวสิงคโปร์และชาวไทย

นางสาว ทักษิณา ศรีประชา

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ (สหสาขาวิชา)
บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2548

ISBN 974-14-1955-4

INTELLIGIBILITY OF ENGLISH SPEECH BETWEEN SINGAPOREAN AND THAI ENGLISH SPEAKERS

Miss Tagsina Sripracha

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts Program in English as an International Language
(Inter-Disciplinary)
Graduate School
Chulalongkorn University
Academic Year 2005

ISBN 974-14-1955-4

Thesis Title	Intelligibility of English Speech between Singaporean and Thai English Speakers
By	Ms. Tagsina Sripracha
Field of study	English as an International Language
Thesis Advisor	Assistant Professor Namtip Pingkarawat, PhD

Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment of the Requirements for the Master 's Degree

..... Dean of the Graduate School
(Assistant Professor M.R. Kalaya Tingsabadh, PhD)

THESIS COMMITTEE

..... Chairman
(Assistant Professor Sudaporn Laksaneeyanawin, PhD)

..... Thesis Advisor
(Assistant Professor Namtip Pingkarawat, PhD)

..... Member
(Assistant Professor Pavinee Thirakhupt, PhD)

ทักษิณา ศรีประชา: ความเข้าใจภาษาอังกฤษของกันและกันระหว่างผู้พูดภาษาอังกฤษชาวสิงคโปร์และชาวไทย. (INTELLIGIBILITY OF ENGLISH SPEECH BETWEEN SINGAPOREAN AND THAI ENGLISH SPEAKERS) อ. ที่ปรึกษา: ผ.ศ. ดร. น้ำทิพย์ ภิงคารวัฒน์, 129 หน้า. ISBN 974-14-1955-4.

งานวิจัยนี้มีวัตถุประสงค์เพื่อวัดระดับความเข้าใจภาษาอังกฤษของกันและกันระหว่างผู้พูดภาษาอังกฤษชาวสิงคโปร์และผู้พูดภาษาอังกฤษชาวไทย และเพื่อระบุสัทลักษณ์ที่เป็นสาเหตุของความไม่เข้าใจภาษาอังกฤษของกันและกันในการสื่อสารระหว่างผู้พูดภาษาอังกฤษทั้งสองกลุ่มนี้ งานวิจัยนี้มีขอบเขตอยู่ที่ระดับการรับรู้คำโดยใช้แบบทดสอบการคึงข้อมูลจากการเปรียบต่างทางหน่วยเสียงและให้กลุ่มตัวอย่างเขียนคำตามที่ได้ยิน กลุ่มตัวอย่างในงานวิจัยนี้เป็นนักศึกษาไทยและสิงคโปร์ซึ่งมีความรู้ภาษาอังกฤษในเกณฑ์คือย่างละ 10 คน

จากการศึกษาพบว่า ระดับความเข้าใจภาษาอังกฤษของกันและกันของผู้พูดภาษาอังกฤษชาวสิงคโปร์ที่มีต่อผู้พูดภาษาอังกฤษชาวไทยสูงกว่าของผู้พูดภาษาอังกฤษชาวไทยที่มีต่อผู้พูดภาษาอังกฤษชาวสิงคโปร์โดยเฉลี่ย คือ ร้อยละ 57 และร้อยละ 44.25 ตามลำดับ นอกจากนี้ ยังพบว่า สัทลักษณ์เด่นจำแนกที่ผู้พูดภาษาอังกฤษชาวไทยใช้ซึ่งก่อให้เกิดความไม่เข้าใจแก่ผู้พูดภาษาอังกฤษชาวสิงคโปร์มี 3 สัทลักษณ์ คือ การแทนเสียง /v/ ด้วย /w/ การแทนเสียง /ʃ/ ด้วย /tʃ/ และการแทนเสียง /ð/ ด้วยเสียงฟัน /d/ ส่วนสัทลักษณ์เด่นจำแนกที่ผู้พูดภาษาอังกฤษชาวสิงคโปร์ใช้ซึ่งก่อให้เกิดความไม่เข้าใจแก่ผู้พูดภาษาอังกฤษชาวไทยมี 2 สัทลักษณ์ คือการเปลี่ยนเสียงสระเดี่ยว /æ/ เป็น /ɛ/ และการเปลี่ยนเสียงสระประสม /aɪ/ เป็น /aʊ/ อย่างไรก็ตาม การใช้สัทลักษณ์เด่นจำแนกในการออกเสียงภาษาอังกฤษเป็นเพียงสาเหตุย่อยของความไม่เข้าใจภาษาอังกฤษของกันและกันในการสื่อสารระหว่างผู้พูดภาษาอังกฤษทั้งสองกลุ่มนี้เท่านั้นเมื่อเปรียบเทียบกับปัจจัยอื่น

สาขาวิชา: ภาษาอังกฤษเป็นภาษานานาชาติ ลายมือชื่อนิสิต ทักษิณา ศรีประชา

ลายมือชื่ออาจารย์ที่ปรึกษา [illegible]

ปีการศึกษา: 2548

4689429020: MAJOR: ENGLISH AS AN INTERNATIONAL LANGUAGE
KEY WORD: INTELLIGIBILITY / SINGAPORE ENGLISH / THAI ENGLISH
TAGSINA SRIPRACHA: INTELLIGIBILITY OF ENGLISH SPEECH BETWEEN SINGAPOREAN AND THAI ENGLISH SPEAKERS. THESIS ADVISOR : ASST. PROF. NAMTIP PINGKARAWAT, PHD, [129] pp. ISBN 974-14-1955-4.

This research study is aimed to measure the intelligibility level of English speech of Singaporean English speakers towards Thai English speakers and vice versa. Also, it specifies the phonetic features that cause intelligibility failures in communication between Singaporean and Thai English speakers. The measurement is targeted at word-recognition level by using the phonemic contrast elicitation test. Dictation is taken as the method of testing performed by 10 Singaporean and 10 Thai university students who are competent users of English.

The findings show that intelligibility levels of Singaporean English speakers toward Thai English speakers are higher than those of Thai English speakers toward Singaporean English speakers, which are 57 per cent and 44.25 per cent in average, respectively. It is also found that only 3 distinctive phonetic features used by Thai English speakers, namely, replacement of /w/ for /v/; replacement of /tʃ/ for /ʃ/; and dentalization of /d/ substituting for /ð/ are the cause of intelligibility failures of Singaporean English speakers. On the other side, only 2 distinctive phonetic features used by Singaporean English speakers, namely, change of monophthong /æ/ into /ɛ/ and change of diphthong /aɪ/ into /aʊ/ are the cause of intelligibility failures of Thai English speakers. However, the use of distinctive phonetic features is only a minor cause of intelligibility failures comparing with other factors.

Field of study: English as an International Language Student's signature. Tagsina Sripracha

Advisor's signature. Namtip Pingkarawat

Academic year: 2005

ACKNOWLEDGEMENTS

This thesis would not have been completed without the support of many people. Thank you very much to my adviser, Assistant Professor Namtip Pingkarawat, who read my numerous revisions and helped make some sense of the confusion. Thank you to my committee members, Assistant Professor Sudaporn Laksaneeyanawin and Assistant Professor Pavinee Thirakupt, who offered constructive criticism.

I would also like to thank students of an international program at the Faculty of Economics, Chulalongkorn University and students of the National University of Singapore who have shown their interests and participated the questionnaires. Special thank to Miss Warithorn Samana, a good friend of mine who devoted her time to Singapore trip with me and helped me collect the data. Thank you to all instructors and classmates in the English as an International Language Program for their support and encouragement during my study.

Finally, I would like to thank my parents who have supported me for not just this study but throughout my whole life. I dedicate this achievement to them.

TABLE OF CONTENTS

Page

Page

LIST OF TABLES

Table Page

Table Page

LIST OF PHONETIC SYMBOLS

GENERAL SYMBOLS

[ ] = phonetic transcription (indicates actual pronunciation)

/ / = phonemic transcription

ENGLISH VOWELS

/i/	as	*ea*	in	*seat*
/ɪ/	as	*i*	in	*sit*
/ɛ/	as	*e*	in	*next*
/æ/	as	*a*	in	*plant*
/ə/	as	*a*	in	*about*
/u/	as	*oo*	in	*fool*
/ʊ/	as	*u*	in	*full*
/ɔ/	as	*a*	in	*tall*
/ʌ/	as	*u*	in	*cut*
/ɑ/	as	*a*	in	*cart*
/ɒ/	as	*o*	in	*cot*
/eɪ/	as	*ay*	in	*stay*
/oʊ/	as	*o*	in	*told*

VOWEL DIACRITICS

ː = long

˜ = nasal

ENGLISH CONSONANTS

/p/	as	*p*	in	*paid*
/t/	as	*t*	in	*told*
/tʃ/	as	*ch*	in	*chair*
/k/	as	*c*	in	*camp*
/b/	as	*b*	in	*button*

/d/	as	*d*	in	*day*
/dʒ/	as	*j*	in	*just*
/g/	as	*g*	in	*go*
/f/	as	*f*	in	*four*
/θ/	as	*th*	in	*thing*
/s/	as	*s*	in	*seat*
/ʃ/	as	*sh*	in	*share*
/h/	as	*h*	in	*house*
/v/	as	*v*	in	*vase*
/ð/	as	*th*	in	*this*
/z/	as	*z*	in	*zoo*
/ʒ/	as	*s*	in	*conclusion*
/l/	as	*l*	in	*leave*
/r/	as	*r*	in	*robe*
/w/	as	*w*	in	*well*
/j/	as	*y*	in	*you*
/m/	as	*m*	in	*milk*
/n/	as	*n*	in	*next*
/ŋ/	as	*ng*	in	*long*

OTHER CONSONANT SYMBOLS

[ʔ] = glottal stop

[tɕ^{h}] = Thai /ฉ/ which approximates to English /tʃ/ and /ʃ/

[tɕ] = Thai /จ / which approximates to English /dʒ/

C$^{\neg}$ = unreleased consonant

C̪ = dental consonant

C^{s} = alveolar consonant

C^{h} = aspirated consonant

n̩ = syllabic

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The phenomenon that English has become the most widely spoken, read, and learned language of the world has brought the language to a special status as 'a global language', as referred by Crystal (1997). Besides the fact that its users worldwide are over two billions with the institutionalized status in approximately 75 territories, and that L2 English speakers tremendously outnumber L1 English speakers, (Crystal, 1997), this special status has brought with it a variety of communicative situations in which English is used. That is, the use of English is not only limited to the situation where native speakers are involved but has also extended to the interaction where no L1 speakers are involved at all (Kachru, 1983, 1986 and 1987; Tarone and Yule, 1987; Strevens, 1992; Crystal, 1997; Jenkins, 2001).

Having been exercised by its speakers from linguistically and culturally various backgrounds, English has inevitably been influenced by indigenous minds and this results in a number of distinctive features having been introduced to the language. This linguistic process, which is termed 'nativization', 'indigenization' or 'localization', is natural to any language when transplanted into a new ecology because it makes the language fit the social setting, according to Kachru (1983, 1986 and 1987). Even though the emergence of localized forms of English was initially disapproved by a number of linguists such as Long (1982, cited in Görlach,

1991) and Quirk (1990, cited in Jenkins, 2003), it has so far continually gained recognition by more and more linguists as well as language users in general, especially by those whose concerns are of ethnic identity. The latter group: Kachru (1983, 1986 and 1987), Görlach (1991), Crystal (1997), and Kachru and Nelson (2001), for example, refers to those localized forms of English as new 'varieties' of English, a preferable term that connotes more positive implication in which identity and creativity are perceived.

The rise of new varieties of English around the world has provoked a number of concerned scholars with a great interest in the issue of mutual intelligibility of people from different parts of the world when they communicate with one another using different varieties of English. This concern is nurtured by the historical evidence that all Romance languages, which include Italian, French, and Spanish, were once Latin, which later on was disintegrated into mutually unintelligible languages as a result of language change over a period of time. Consequently, several research studies have been conducted in order to find out: to what extent each variety of English is intelligible to speakers of other varieties, what are the factors that hinder or facilitate intelligibility, and what linguists can do in order to increase mutual intelligibility of English speech in international communication (Brown, 1968; Bansal, 1969 cited in Jenkins 2001; Tiffen, 1974 cited in Atechi, 2004; Atechi, 2004).

The research studies referred to above investigate intelligibility of English speech particularly between the speakers of 'the inner circle' and 'the outer circle', and do not extend to the speakers of 'the expanding circle' at all. Circles here refer to Kachru's (1983) three concentric circles. In fact, English speakers from the outer circle and the expanding circle are interesting for several reasons. They are the

majority of the English users who contribute to the internationalization of English. The communication between these two groups of English users reflects the status of English as an international language by which native norms are marginalized. Moreover, they are the groups that represent an important communicative pattern of real usage of English among non-natives. In addition, it is in the interaction between these two groups that communicative breakdowns are far more common than in the interaction where native speakers are involved as stated by Jenkins (2001).

As such, there is a need for a research study that measures the intelligibility level of English speech between the English speakers of the outer circle and the expanding circle to enhance the knowledge on this area in a particular communicative situation.

Given that, this research study will be conducted in the environment of Southeast Asian countries, where English is claimed to belong to the region, and serves as the medium of intra-regional communication (Toh, 1996); Thai and Singaporean English speakers are purposively selected for the study. It is because Thais and Singaporeans are non-native users of English from the expanding circle and the outer circle, using English as a foreign and second language, respectively. The interaction between these two groups can be considered a legitimate representative of a real usage of English as an international language among non-natives.

1.2 Research Questions

1. To what extent is the English spoken by Singaporean English speakers intelligible to Thai English speakers and vice versa?
2. What are the phonetic features that cause intelligibility failures of English speech in communication between Singaporean English speakers and Thai English speakers?

1.3 Objectives of the Study

1. To measure the intelligibility level towards English speech of Singaporean English speakers to Thai English speakers and vice versa.
2. To specify the phonetic features which cause intelligibility failures of English speech in communication between Singaporean English speakers and Thai English speakers.

1.4 Statement of Hypothesis

This research study hypothesizes that the level of intelligibility towards English speech spoken by Thai English speakers to Singaporean English speakers is not equal to that by Singaporean English speakers to Thai English speakers. That is,

the level of intelligibility of English speech is higher in the former group than in the latter group, namely that Singaporeans understand Thai English speakers more than Thais do Singaporean English speakers. This hypothesis is based on two factors described in the followings.

First, as oppose to Thailand where only Thai is the national language, the fact that Singapore is a multi-lingual country in which Chinese, Malay, Tamil, and English are constitutionalized languages, entails the idea of sub-varieties of English within the country. Begum and Kandiah (1997:196) insist that 'ethnolinguistically-associated variability' does exist in Singapore English and phonetic differences according to language background of the speakers can be noticed among the speakers. In addition, the range and the depth of functions of English vary from Singapore to Thailand as being categorized by Kachru (1983) that Singapore is a norm-developing country whereas Thailand is a norm-depending country. Singaporeans use English in almost all everyday activities. They use the language in schools and offices as well as in intra- and inter- ethnic communication. Therefore, apart from British and American media, Singaporeans consume localized forms of English through their interaction and a number of media produced in their own country as well. Plat, Weber and Ho (1983) supportably report that Singapore has a considerable amount of radio and television programs as well as films that are presented in English. According to the facts mentioned, Singaporean subjects have exposure to more various English pronunciations within the country and; therefore, are expected to be more tolerant to phonetic variation than Thais do. The situation is much different in Thailand where the language is normally used mainly with educational objectives and in occupational areas that involve oversea contacts. Apart from the two mentioned domains, British and American media are the major

channel that Thais may have additional exposure to English. Therefore, it can be assumed that besides Thai English, which is unique all over the country, Thais are more familiar with British and American English pronunciation than any other varieties of English. This condition hinders the ability of Thai English speakers to realize phonetic deviations of other varieties of English as Jenkins (2001:20) claims that non-bilingual English speakers[1] tend to have "a narrower band of allophonic tolerance" than bilingual English speakers[2] because they have not been exposed to "a range of other non-bilingual English speakers' accents and the types of phonological and phonetic transfer they contain."

Second, apart from the status of English, differences in economic situations of the countries is another reason that contributes to the subjects' ability of English speech perception. With its successful economic development over the past three decades (Rodan, 2001; Jayasuriya and Rosser, 2001), Singapore has become the hub of international trading of Southeast Asian region. The position attracts many oversea investments by which a number of foreigners from various parts of the world are imported for works. This leads people in Singapore to become even more diverse in term of ethnics and linguistic backgrounds. Such diversity has promoted Singaporeans' ability in perceiving greater varieties of English. Unlike Singapore, even though Thailand has also been trying to achieve that position of Singapore, it has not succeeded yet. Consequently, it is reasonable to assume that Singaporeans are able to adjust themselves to become more familiar with new varieties of English better than Thais.

1.5 Scope of the Study

This research study measures the level of intelligibility of the English speech between Singaporeans and Thais at word-recognition level. Also, it investigates phonetic features that cause unintelligibility between the two groups. The data will be collected by the phonemic contrast elicitation test and the populations will be competent Singaporean and Thai English speakers.

1.6 Delimitations of the Study

The delimitations of this research study are as follows:

1. The measurement of this research study is aimed at word-recognition level; therefore, its result may not generalize beyond this scope.
2. The population is competent Singaporean and Thai English speakers; therefore, the result of this research study cannot be generalized beyond this group.
3. The researcher realizes that gender variables may have some effects on the result of this investigation but they are assumed to be very few since this research does not require an ability to interpret the speaker's intention or tone. However, a further research focusing on gender variables might be informative to this area.
4. The analysis is based on segmental features; therefore, its result cannot be generalized beyond this basis.

5. The result of this research study may be taken as a tendency of intelligibility level when these people interact, but is not supposed to be exhaustive because a number of contextual clues, which can be both linguistic and situational, may facilitate intelligibility in any real communication.

1.7 Assumptions of the Study

Providing that the concept of intelligibility defined in this research study is delimited to the recognition of word utterance, it is assumed that the amount of the correct words in the hearer subjects' responses represents the level of intelligibility towards the speaker subjects' speech.

As for the subjects of this research study, it is assumed that Singaporeans who passed GCE O level[3] in English, and Thais who obtained TOEFL score at least 500 are qualified to be representatives of competent users of English in their countries.

1.8 Definition of Terms

Intelligibility

Intelligibility of English speech refers to a hearer's ability to recognize the sounds of English words uttered by a speaker. The definition follows Smith (1988

as cited in Kachru & Nelson, 2001) who hierarchically categorizes the process of text receiving into three levels: intelligibility, comprehensibility and interpretability, based on the degree of the perceptive processing demand. Intelligibility, according to Smith (1988), is the simplest level of perception since it is based on word-level recognition. If one recognizes a word he is hearing, that it is English word, for example, in which a sequence of English phonemes are emitted, that word is intelligible to him.

Singapore English

Singapore English is a variety of English used by educated Singaporeans. It has its own characteristics in which some distinctive features at all linguistic levels; i.e. lexical, syntactic, semantic, and phonological, are developed and adopted as local norms. These distinctive features are developed due to the influence of various indigenous languages in the country as well as the multi-ethnic cultures. The characteristics of Singapore English are increasingly recognized as reflecting the ethnic identity in international communication (Platt and Weber, 1980; Platt *et al.*, 1983).

Thai English

Thai English is simply the English of Thai competent English users whose domain of English usage is limited to educational and occupational areas. It has some distinctive features which constitute its characteristics and that make it different from the Standard English[4]. Although the distinctive features of Thai English are developed under the influence of Thai language, just as the same way Singapore English characteristics are under its various indigenous languages, those

characteristics are not identified and yet adopted as local norm like Singapore English. In addition, Thai English has not yet been widely recognized as a variety of English by linguists.

1.9 Significance of the Study

The findings of this research study will provide empirical evidence on intelligibility level of English speech between Singaporean and Thai English speakers. This empirical evidence will help enhance the understanding of the situation of English as an international language as it reflects intelligibility in real communication between non-native English speakers from the two circles. Besides, in an attempt to specify the distinctive phonetic features causing intelligibility failures between these groups of speakers, this study will provide some evidence which proves whether 'regional variety', in this case, 'Asian English' exist.

Regarding pedagogical aspect, the results of the study will be beneficial to the language teaching, which includes the issues of curriculum design, teaching materials and testing. Starting from curriculum design, the information will prove whether differences in pronunciation significantly blocks intelligibility and whether the standard native-speaker pronunciation guarantees intelligibility between non-L1 English speakers. This will provoke people concerned with curriculum design to consider more the practical model(s) of English in real communication when they set the aim of a course. Consequently, the selection of teaching materials, in part of pronunciation input, might be revised to allow the language learners exposure to more varieties of English in case the standard one alone could not fulfill their

communicative goal. Finally, this will effect the assessment and evaluation in language teaching in correspondent to the aim of the course and teaching materials.

Notes:

1. Non-bilingual English speakers (NBES) is the term initiated by Jenkins who categorizes the English speakers world-wide into three groups: Monolingual English speakers (MES), Bilingual English speakers (BES) and Non-bilingual English speakers. NBES refers to L2 speakers of English who may not have achieved native-like performance but are able to communicate in English in international context. Based on functions and usage, the majority of Thai English speakers are considered NBES.
2. BES refers to native or non-native English speakers who speak English and another language fluently. Based on functions and usage, the majority of Singaporean English speakers are BES.
3. GCE O Level stands for the General Certificate of Education (Ordinary Level). It is the national school-leaving examination in several countries, including Singapore, Brunei and Mauritius. Grade C in GCE O Level in English Language satisfies the **English proficiency requirements** of many universities in the UK and other Anglophone countries. It is considered approximately equivalent to TOEFL score of 500 - 550 since some educational institutions accept either one for admission. For more information, see (http://www.cie.org.uk/CIE/WebSite/qualificationsandawardshub/qualificationhubs/recognition/recognition.jsp)
4. The English of Educated British and American people

CHAPTER II

LITERATURE REVIEW

The review of relevant literature covers the following topics. First of all, it discusses intelligibility of English speech in 4 aspects: its concepts, concerned factors, testing methods and related previous research studies. Next, it provides background knowledge of English in Singapore including distinctive features of Singapore English pronunciation identified by linguists. Lastly, it describes the status of English in Thailand as well as demonstrates some characteristics of Thai English pronunciation observed by various linguists.

2.1 Intelligibility of English Speech

2.1.1 The Concept of Intelligibility

The word 'intelligibility' seems to be very simple as people generally use it alternately with 'comprehensibility', 'understandability', or 'interpretability'. However, the term is, actually, rather problematic in the area of linguistics since different linguists define it differently according to their own opinions and this has caused it to be controversial when concerning the issues of judging or measuring this quality in any communication.

Catford (1950), for example, proposes that intelligibility of any utterance could be admitted only in case the listener is able to identify the linguistic forms he

hears and responds to the speaker's intention in an appropriate way according to the purpose of his speaking. This means that, in his viewpoint, intelligibility must always include effectiveness in any communication.

Dissimilarly, Davies (1968: 165) relieves the demanding concept proposed by Catford by simply relating 'intelligibility' with "the ability to understand and be understood" between the listener and the speaker in oral communication. His definition is in agreement with Kenworthy's (1987: 13), who defines 'intelligibility' as "being understood by a listener at a given time in a given situation". By these two definitions, the process of intelligibility is closely related to the sound utterance of the speaker. In addition, the number of the words a listener is able to identify accurately when said by a particular speaker is counted for the level of intelligibility of that speaker.

Smith (1988 cited in Kachru and Nelson, 2001; 1992 cited in Jenkins, 2001 and Atechi, 2004) points that to understand the concept of 'intelligibility', one must be able to distinguish the three levels of text receiving: intelligibility, comprehensibility, and interpretability.

Intelligibility, according to Smith, is the simplest level of perception since it is based on word-level recognition. If one recognizes a word he is hearing, that it is English word, for example, in which a sequence of English phonemes are emitted, that word is intelligible to him.

Comprehensibility is a step more advanced to intelligibility in the way that it relates to the meaning of text. A word is comprehensible when the hearer knows its referential meaning after he recognized the sound.

Interpretability is the most demanding among the three levels since it requires the hearer to respond to the speaker's intention and purpose hidden in the

speech in appropriate way. According to this definition, Smith's 'interpretability' is comparable to Catford's 'intelligibility'

The concept of 'intelligibility' defined by Smith is well supported in Jenkins (2001: 77-78) in which she accepts to restrict the term 'intelligibility' to the phenomenon of 'recognition of phonological form' in interaction or, to the 'utterance recognition.'

As can be seen that intelligibility is variously conceptualized and now that no precise definition of it has been set up as a standard so far (Davies, 1968: 160), it is important that a researcher always defines the concept of this term referred in his/her research so that the test can be constructed appropriately to evaluate 'intelligibility' in the sense used and the scope of the study can be identified accordingly. According to this, the present study uses the one proposed by Smith (1988 cited in Kachru and Nelson, 2001) as the criteria for its measurement.

2.1.2 Factors that Affect Intelligibility

No matter how similar or different the concepts of intelligibility defined by linguists are; it is unquestionable that it involves speakers as equal as listeners (Ingram, 1968). As a result, factors that affect intelligibility should be considered on both speakers and listeners' sides.

2.1.2.1 Speaker Variables

To begin with speakers' side, Kenworthy (1987) suggests that the quality of speech sound and utterance are most concerned. The quality of speech she refers to includes the speaker's pronunciation, the frequency of self-corrections, hesitations and grammatical restructuring, the speed of utterance and the idiosyncratic speech habits that are developed in some people. Among those mentioned, pronunciation is considered the most threatening to intelligibility as agreed by a number of linguists (Kenworthy, 1987; Görlach, 1991; Benrabah, 1997; Jenkins, 2001). This is because in any simple communication, speakers usually try to make their speech intelligible to their listener(s) by making their utterance as clearest as possible. There are also phonological processes as described here in native speakers' speech as well. However, the patterns may be different. However, in the situation where speakers and listeners are from different linguistic backgrounds, using English as a medium, the ability to imitate the native speakers may differ from one another and that may cause difficulty in intelligibility. For example, in pronouncing a word or a sentence, speakers may take advantage of sound substitution in which a sound too difficult to pronounce by the speaker is replaced by another easier sound, or sound deletion in which at least a sound of a consonant cluster is deleted, or sound insertion in which a sound is added into the word. Whether a sound production is easy or difficult is subject to the speaker's linguistic background. This results in the strategy he/she prefers when imitating native accent, which subsequently leads to the different products of speech imitations by non-natives. If a speaker takes the same strategy as his/her listener does, his/her production is supposed to be similar to that of the listener and,

therefore, more intelligible to the listener. This idea can be supported by Catford (1950) as he claims that a listener's ability to identify the heard sounds depends on his ability to associate those sounds with his own inner speech or mental images of those sounds. Therefore, it is expected that the more similar the pronunciation of the speaker is to the listener's, the more intelligible the speaker's speech is to the listener. In addition to sound production, links between words, the use of stress, the use of rhythm, and the use of intonation in command of a speaker are also important contributors to speech similarity between the speaker and the listener. As for the other speech qualities, Kenworthy (1987) correlates low degree of intelligibility with the contributors such as high frequency of self-correction, hesitations and grammatical restructuring and speed of utterance.

2.1.2.2 Listener Variables

Concerning to listener's side, familiarity and contexts are very crucial factors in intelligibility. According to Kenworthy (1987), the listeners' familiarity with the speakers' speech is positively influential to their intelligibility. This idea is well supported by Gass and Varonis (1984) when they report the findings in their research study, which investigates the effect of various types of familiarity on native speaker comprehension of non-native speaker speech. That is, familiarity with the topic is the most important factor that facilitates intelligibility while other types of familiarity, namely familiarity with non-native in general, familiarity with a non-native accent in particular, and familiarity with a particular non-native also play important roles in intelligibility. However, intelligibility, which varies with familiarity is not fixed, according to Trask (2001 cited in Atechi, 2004), but

improves over time because any one can be more familiar with a speaker's speech if he/she has more exposure to that person's speech.

Regarding contexts, Fry (1955: 15 cited in Atechi, 2004) claims that intelligibility can be increased 12 to 14 times when a context is supplied. Catford (1950) suggests that a listener usually takes advantage from context to promote their intelligibility in any communication. Such context can be categorized into 2 types: linguistic context, and situational context.

Linguistic context is associated to the knowledge of grammatical rules of a language. If a word in a sentence is unintelligible to the hearer, he may be able to guess it by considering the nearby words and the position of the word in the sentence, for example. As for the situational context, the interlocutors' cultural background(s), the topic they are discussing, the relationship between the speaker and the hearer, the circumstance they are in, or even the action they are doing at the moment of utterance are the examples of this category. It might be said that the contexts help increase predictability of statements in any interactions. However, an ability to exploit the contexts in a situation is subjective and varies from person to person (Kenworthy, 1987).

2.1.2.3 Proficiency Correlation Variables

In addition to what mentioned above, language proficiency of speakers and listeners are also important factors that should not be overlooked in any study on intelligibility (Smith, 1992 cited in Atechi, 2004). Perren (1968: 114) points that a person with higher proficiency level of English has a wider tolerance of variations

than that with lower one and “may well ‘read-in’ corrections or interpretations of sounds without realizing it.”

2.1.2.4 Other Variables

Besides the factors related to speakers and listeners, Atechi (2004: 47) reminds that noise also affects intelligibility level. The communication taken place in noisy environment may incur lower intelligibility whereas those in quiet place may incur higher intelligibility.

2.1.3 Intelligibility Testing

Kenworthy (1987) states that the easiest but accurate and dependable way to assess the intelligibility of a particular speaker is to ask someone to listen to his or her speech and say how difficult or easy such speech is to understand. However, since the level of intelligibility is involved with the familiarity of the listener to the speaker’s accent and personality, the good assessor should be one who has limited exposure to the speaker’s speech and is not familiar with the speakers themselves.

She further recommends that to test intelligibility, two tasks, which are reading aloud and spontaneous speech, should be provided in parallel to ensure validity of the result. The spontaneous speech is firstly suggested because its producing process is closest to the interaction that really happens in real life. However, it may be less preferred by those who are self-conscious and hesitant. As for the reading texts, they are prepared in advance and, as a result, their length and quantity can be controlled. However, the written forms of words in the text may

cause the reader to pronounce the words differently from what they actually speak due to the influence of the spelling interference. Having such two tests in parallel will remedy the weaknesses of each type of tests while the results are crosschecked as well.

Perren (1968: 113-116) suggests that a variety of tests should be taken when measuring intelligibility since it involves integrated skills. However, it should always be aware that the types of tests and techniques generally used to measure intelligibility are deficient in some particular points as described in the following.

To begin with listening to a recorded stretches of speech followed by multiple-choice questions on the meaning conveyed, Perren reminds that two special factors: memory span and influence of previous knowledge of the content might interfere the result.

Regarding phonetic discrimination, he points that it can be a reliable test that brings appropriate and valid result as long as the listeners are of elementary level. However, this type of test is not proper for the advanced-level listeners because they rely less on the ability to discriminate segmental phonological features but more on the ability to interpret prosodic or other contextual clues to meaning.

As for phonemic contrast, he doubts whether it really reflects the ability of a listener to understand the spoken language. For this argument, he gives an example of the British English /ə/ as being most frequent but mostly occurs in weak forms which carry little information. As a result, he claims that loss of the ability to contrast the phonemes of that sound should not be great loss of intelligibility.

Concerning to comprehension of stress, pitch or intonation, he perceives that it can be tested by a variety of techniques, but to construct one that really

assesses intelligibility is a difficult task. A way to increase the reliability of this test type requires a long passage produced by a speaker for a listener to listen. This will consequently result in an expensive and time-consuming process of scoring and may not be practical.

According to what have been reviewed so far, the main concern of intelligibility testing resides mostly in the construct of testing material that is the most appropriate, the most reliable, which is considered the hardest part of work. However, with consideration on the above guidelines, researchers on intelligibility have used various measuring devices in their research studies. Brodkey (1972), for example, used dictation section of the UCLA proficiency test for foreign students to measure intelligibility of his subjects while Smith and Bisazza (1983) preferred their subjects, both native and non-native speakers, to select the picture that corresponded to a sentence or paragraph read aloud. Bansal (1969 cited in Atechi, 2004) investigated the intelligibility of Indian English by using several tests: connected speech, reading of sets of passages, sentences and some word lists. Similar to Brodkey, Gass and Varonis (1984) had their subjects write down what they heard. However, their device is different from Brodkey as they developed the test on their own, which are sentences for reading aloud.

2.1.4 Previous Studies on Intelligibility

Most of the research studies on intelligibility of English speech can be divided into two types: the first one with conservative opinion that English belongs to the native speakers, and the second one with less restricted view that the language

belongs to anyone who uses it. Most of the research studies of the first type are one-sided investigations in which the prestigious judging power on intelligibility was given to the native speakers only. This reflects the notion prevailing the period of time when such researches were conducted that only linguistic behaviors of native speakers were taken as standard norms that must be strictly conformed to by non-native speakers. As a result, the research studies of this type were designed to measure the level of intelligibility of English speech based on the native speakers' judgment. Also, their measurements were mostly done between the native English speakers and the users of English as a second language in particular, only little extended to the users of English as a foreign language. Examples of research studies of this type are described in the following.

Olsson (1972) investigates intelligibility of Swedish English speech aiming to analyze the errors in an oral test made by 240 Swedish secondary students and to answer the question to what degree such deviant sentences are acceptable and/ or understandable to native English speakers. The result of the investigation shows that most of the native English speakers disapproved those deviant sentences although their level of intelligibility reached approximately 70 percent. The author, therefore, concludes that the correctness of the sentences is not the most important factor in successful communication and suggests this surprising finding (for the prevailing time) should be of any beneficial to the language teaching.

Olsson's investigation is an example of a traditional work on intelligibility that was conducted with the purpose to find a solution to improve English language teaching, particularly in the area of pronunciation, rather than to examine the real situation of English as international language. This study reflects the notion of native-like pronunciation as a target that non-native speakers are motivated to

achieve. However, the target has been reconsidered since the recognition of new varieties of Englishes has come into existence.

Brown (1968) investigates the mutual intelligibility of the pronunciation of three accents of English: RP, Ghanaian English used by Twi and Ghanaian English used by Ewe. A speaker of each accent is asked to read the items of three types of tests at a normal conversational speed and in the accent he/she would use in conversation with fellows. The three types of tests are phoneme discrimination, placement of tonicity in sentence and rhythm and intonation. The listeners are 45 students following the Preliminary year at the University College, preparatory to entering on a three-year General Degree course in the Faculty of Arts. These listeners are of various L1 backgrounds. 30 of them are of Akan language group including 23 Twi students. 9 were of Ewe group and 6 were of miscellaneous group. Since the major purpose of this study is to verify the findings of previous investigation by Streven (1956: 33-34 cited in Brown, 1968), the researcher neither describes much about her test methods nor gives any direct conclusions about intelligibility. However, she disapproves Streven's conclusions that "the possibility of misunderstanding, or confusion, or ambiguity, or complete lack of comprehension, may be between ten and twenty times as great with the West African pronunciation as with Received Pronunciation", given that Streven's report is against her findings as well as her own experience.

Tiffen (1974 cited in Atechi, 2004) did a survey on intelligibility of Nigerian English using Nigerian undergraduate students and British English speakers as subjects. The Nigerian students are to perform according to the test materials, which comprise segments and supra-segments. Their performances are recorded and then played to British English speakers. The British English speakers

are to write down what they hear. The result shows that the intelligibility scores range from 29.9% to 97.7%, with the mean score of 64.4%. He concludes that rhythmic/stress and segmental errors are the two main sources of intelligibility breakdown.

The investigation conducted by Tiffen is considered a major one that concerns intelligibility of English as an international language. However, it is still much influenced by the notion of prestigious native accent as can be perceived in the method in which only native speakers are the judges and the word 'errors' he uses to describe segmental variations of Nigerian English in the conclusion.

As for the research studies of the second type, most of them are reciprocal investigations which were designed with the awareness that English has become an international language and not anymore belongs to any particular nationalities. The research studies of this group are, therefore, centered on the intelligibility between the two sides of speakers: the native ones and non-native ones, giving the judging power to both sides. The most recent one, undertaken by Atechi (2004), for example, investigates the intelligibility from the two-sided viewpoint, that is the intelligibility of the English speech by Cameroonian English speakers to the British and American English speakers and vice versa. Apart from measuring the intelligibility, this research study intends to analyze major causes of intelligibility failure when speakers of these varieties of English interact. The subjects of the study are 20 Cameroonian students and 20 native English speakers (10 are American and the other 10 are British). All of the subjects are to perform 5 tests, which cover segments and supra-segments designed by the researcher. The tests are Connected Speech, Reading Passage, Phonemic Contrast Elicitation, Nucleus Placement in Words and Nucleus Placement in Sentences. Each subject's

performance is recorded and then played to his or her counterpart of different ethnics. A Cameroonian student listens to the performance of a native English subject and writes down what he/she hears. Similarly, a native English speaker listens to the performance of a Cameroonian student and writes down what he/she hears. The result of this study reveals that the mean intelligibility scores of Cameroonian students to British English listeners range from 42.0% to 67.0 %, while that of Cameroonian students to American listeners range from 46.7% to 64.0%. On the other hand, the mean intelligibility scores of British English speakers to Cameroonian listeners range from 52.0% to 61.3% and that of American English speakers to Cameroonian listeners range from 53.9% to 61.8%. He proposes that at these percentages, the average scores of intelligibility levels are all above 50 percent and thus, the fear that English language may one day disintegrate into mutually unintelligible languages should not be maintained. Also, he reports that Cameroonian English speech is more intelligible to British English speakers than to American English speakers. However, there is no significant difference between the intelligibility levels of British English speakers and American English speakers to Cameroonian English speakers. Regarding the major causes of intelligibility failure, the researcher finally concludes that supra segments stand out as the greatest source of intelligibility breakdown.

Atechi's investigation is an example of a research on intelligibility that is purposed to find out the real situation of World Englishes. It is designed with the appreciation of ethnic identification residing in each variety of English while realizing the intelligibility problems. In addition, it balances the judging powers between native and non-native English speakers. However, it can be argued that some items of the test materials, especially those in Phonemic Contrast Elicitation

Test, might not reflect the real situation of intelligibility between the subject groups. Several of them are words notorious for their lack of one-to-one correspondence between sound and spelling, which require linguistic concern in readers to pronounce them appropriately. Besides, the sentences the words are embedded in are all ambiguous as if they are selected to mislead the listeners in particular.

There are also other research studies that have been conducted with the purpose to measure the intelligibility of the English speech of the users from various backgrounds including the users from the expanding circle; however, they only intend to find out general factors that affect the degree of intelligibility.

Smith and Bisazza's (1983) research study has been conducted with the notion that one's English may be more comprehensible to one category of listeners than to another. Therefore it is purposed to investigate whether there were significant differences in English language comprehensibility for native and non-native users when they were exposed to three syntactically identical but phonologically different varieties of English. In the research, Japanese, Indians and Americans, three of each, were recorded as the speakers of the Michigan Test of Aural Comprehension (MTAC) which was taken by 210 subjects who were college students from seven countries: Hong Kong, Japan, India, the Philippines, Taiwan, Thailand and U.S.A., thirty of each. The results of the study show that the American speakers were the easiest for the subjects, and the Indian were the most difficult. The Japanese were significantly easier than the Indian but significantly more difficult than the American. Moreover, it reveals that the Indian speakers found their fellow Indian easier to comprehend than the Japanese speakers, whereas the Japanese subjects found the Japanese the easiest of all the speakers to comprehend. This proves the significance of familiarity to intelligibility level as the

researcher points that the results suggest that the subjects in all seven countries had primarily been trained to interact in English with native speakers and/ or with fellow countrymen. However, the assumption that nonnative students of English will be able to comprehend fluent nonnative speakers if they understand native speaker is clearly not correct. Therefore, the researcher concludes that the needs for students of English to have greater exposure to nonnative varieties of English is apparent in this study.

Gass and Varonis (1984) investigate the variables on familiarity which may be involved in aiding or hindering the interpretability of nonnative utterance. In the study, four advanced level students in the intensive program of the English Language Institute (ELI) were selected out of fifteen based on their mean level of intelligibility to the teachers. These four students were to read the sentences prepared by the researchers. Then, the recordings were organized into 24 ways. They would be randomly listened by 142 native English-speaking students enrolling at the University of Michigan who were asked to write down what they hear. The results of this study reveal that, apart from the speakers' pronunciation and grammar, familiarity with topic, nonnative speech, a particular nonnative accent and a particular nonnative speaker are all variables that facilitates comprehension, with the familiarity of topic the greatest factor that increases comprehensibility. The researchers concluded by relating these familiarities to Labov and Fanshel's shared knowledge that it was a key information needed in interpreting speech.

These two researches prove the significance of familiarity factors to intelligibility level. However, it is implied in the conclusion of the latter that contextual clues also have their roles in increasing intelligibility level as well.

From the review, it can be summarized that the study on intelligibility is firstly initiated with pedagogical purposes. Its purposes have been shifted to reflection of real situation of English as international language since linguists become more aware of the rising of localized varieties of English.

2.2 Singapore English

2.2.1 English in Singapore

The status of English in Singapore has been reported by a number of linguists (Platt and Weber, 1980; Platt, 1982; Platt, Weber and Ho, 1983; Richards, 1983; Gamley and Pätzold, 2004; Gupta, 2004). According to the reports, English started taking its root in Singapore in 1819 when Sir Stamford Raffles established the country, which later became a part of the British Crown Colony of The Straits Settlements. During the time under the British influence, the use of English in Singapore was at first restricted to the British administrative and legal organizations and British employees in private business. The expansion of English usage among Singaporeans formally began when English-medium schools were established in the early 19th century. Since then, English has continually gained its importance as the language of advancement, which enables its speakers to get a better job or a higher position in his career. Apart from being a key instrument for acquiring western knowledge of commerce, science, technology and so on, English has increased its importance as becoming an inter-ethnic as well as intra-ethnic medium of communication.

At present, 100 percent of students in Singapore are in English-medium schools (Platt, 1991 cited in Gramley and Pätzold, 2004: 329) and for almost all of them, English is the only language they are literate (Platt, 1982: 388). According to these figures, it is unquestionable that English has become the most dominant language in this country being used in almost all aspects of life. Platt, Weber and Ho (1983) observe that the use of English increases as the age scale is moved down. In addition to the use of English in verbal interaction, English has expanded its influence through various types of media such as radio and television programs as well as publications.

2.2.2 Characteristics of Singapore English

According to Gupta (2004:1), linguistic features of Singapore English have been studied by several linguists since the 1960s. Most of the major works, such as those conducted by Tay (1979), Platt and Weber (1980), Platt (1982), Platt, Weber and Ho (1983), Richards (1983) and Trudgill and Hannah (2002), investigate those features at every linguistic level. Regarding the pronunciation, those researchers are in an agreement that it is the most distinctive comparing with other deviations in Singapore English. The characteristics of Singapore English pronunciation examined in the mentioned researches can be summarized as follows.

Consonants

1. Voiceless and voiced interdental fricatives /θ/ and /ð/ are usually treated as dentalised voiceless and voiced alveolar plosives [t̪], [d̪], dentalised voiceless alveolar affricate [t̪^{s}] or dentalised voiceless and voiced alveolar fricatives [s̪] or [z̪] in initial position and as dentalised voiceless and voiced alveolar plosives [t̪] or [d̪] in final position. For example:

   thing /θɪŋ/ is pronounced [t̪^{s}ɪŋ]

   this /ðɪs/ is pronounced [z̪ɪs]

   the /ðə/ is pronounced [d̪ə]

   teeth /tiθ/ is pronounced [t̪it]

   (Platt, Weber and Ho, 1983: 12)

2. Voiceless stops /p/, /t/, /k/ may be weakly aspirated or unaspirated in all positions. For example:

   paid [p^{h}eɪd] is pronounced [peɪd]

3. Consonant clusters, particularly final and some medial clusters, are often reduced. For the final position, the reduction is typically taken in reverse order (Brown, 1986) as follows:

   - 3-consonant clusters are often reduced to 2 by omitting the last consonant. They are sometimes reduced to one by omitting the last consonant and the second-to-last (Plat and Weber, 1980). For example:

     next /nɛkst/ is pronounced /nɛks/ or /nɛk/

punched /pʌntʃt/ is pronounced /pʌntʃ/

(Trudgill and Hannah, 2002: 137)

- 3-consonant clusters of which the middle consonant is /t/ or /d/ and the final one is /s/ or /z/ are often reduced to two by omitting the middle one. They are sometimes reduced to one by omitting both. For example:

  plants /plænts/ is pronounced /plæns/ or /plæn/

  camps /kæmps/ is pronounced /kæms/ or /kæm/

  (Plat and Weber, 1980: 49)

- 2-consonant clusters are often reduced to one by omitting the second consonant. In case the 2 consonants are *-nt*, *-ns* or *-dz*, both are omitted and modified to glottal stop. For example:

  just /dʒʌst/ is pronounced /dʒʌs/

  told /toʊld/ is pronounced /tol/

  recent /risənt/ is pronounced /risən/ or [risəʔ]

  (Plat and Weber, 1980: 50; Platt, 1982: 394; Platt, Weber and Ho, 1983: 12)

4. Final consonants are frequently unreleased, and usually appear as glottal stop, particularly after the shortened vowels. The substitution of glottal stop is most found for the final /k/ and /t/. However, it is also found for the final /f/, /p/, /b/ and /m/. For example:

   it /ɪt/ is pronounced [ɪtˀ] or [ɪʔ]

   pick /pɪk/ is pronounced [pɪkˀ] or [pɪʔ]

robe /roʊb/ is pronounced [roʊ̚p̚]*

(Trudgill and Hannah, 2002: 137)

* It should be noticed that /b/ in ‘robe’ is actually devoiced into /p/ when it is unreleased.

5. Final voiceless /p/, /t/, /k/, /tʃ/, /f/, /θ/ and /s/ are usually conflated with their voiced counterpart, /b/, /d/, /g/, /dʒ/, /v/, /ð/ and /z/, respectively, causing the absence of any contrast of syllable-final /p/-/b/, /t/-/d/, /k/-/g/, /tʃ/-/dʒ/, /f/-/v/, /θ/-/ð/, /s/-/z/. For example:

knees /niz/ is equivalent to niece /nis/

leave /liv/ is equivalent to leaf /lif/

(Trudgill and Hannah, 2002: 137)

6. Post-vocalic /l/ is usually vocalized to [ʊ] or omitted. For example:

milk /mɪlk/ is pronounced [miʊk]

well /wɛl/ is pronounced [wɛʊ]

tall /tɔl/ is pronounced [tɔː]

(Trudgill and Hannah, 2002: 137)

7. The syllabic /l/ and /n/ are usually replaced by /əl/ and /ən/. For example:

bottle /bɑtl̩/ is pronounced [bɑtəl]

button /bʌtn̩/ is pronounced [bʌtən]

(Trudgill and Hannah, 2002: 137)

Vowels

1. Length distinctions are usually neutralized, causing no contrasts between the following pairs of vowels:

/iː/ and /ɪ/	as in	seat and sit
/ɑː/ and /ʌ/	as in	cart and cut
/ɔː/ and /ɒ/	as in	sports and spots
/uː/ and /ʊ/	as in	fool and full

(Deterding, 1988: 156-166 cited in Deterding, 2003: 2)

2. The first-syllabled unstressed schwa /ə/ followed by the stressed second syllable is usually pronounced with its full vowel quality. For example:

familiar /fəmɪliəʳ/	is pronounced	/fæmɪliəʳ/
conclusion /kənkluʒən/	is pronounced	/kɔnkluʒən/
upon /əpɔn/	is pronounced	/ʌpɔn/
available /əveɪlebel/	is pronounced	/aveɪlebel/
official /əfɪʃəl/	is pronounced	/ofɪʃəl/

(Tay, 1979: 101)

3. Diphthongs /oʊ/, /eɪ/ /ɔə/ and /ɛə/, as pronounced in RP, are often reduced to /oː/, /eː/, /ɔː/ and /ɛː/ and realized as pure long vowels without the glides in the diphthong. For example:

go /goʊ/	is realized as	/goː/
day /deɪ/	is realized as	/deː/
four /fɔə/	is realized as	/fɔː/

there /ðɛə/ is realized as /ðɛː/

(Tay, 1979: 100)

Stress patterns

1. Word stress in polysyllabic words tend to shift to a later syllable. For example:

   éducated is pronounced as educáted

   distríbutor is pronounced as distribútor

   úsually is pronounced as usuallý

   ássociated is pronounced as associáted

   críticism is pronounced as criticísm

   (Platt and Weber, 1980: 56; Platt, Weber and Ho, 1983: 13)

2. Singapore English is syllable-timed rhythm, which means that all syllables, stressed or unstressed, 'recur at equal intervals of time' (Tay, 1978 cited in Platt and Weber, 1983: 57)
3. The final syllable of a tone unit is often somewhat lengthened.

The distinctive features of Singapore English pronunciation summarized above are common in all mentioned studies. Even though, there might be some different details of these features reported in other works (such as one by Lian, 1977; Tay, 1979 cited in Richards, 1983; Saravanan and Gupta, 1997), Platt and Weber (1983) suggest that these features are considered the major characteristics of this variety, which is unique among educated Singaporean English speakers.

2.3 Thai English

2.3.1 English in Thailand

It is unanimously agreed among Thai linguists that English is the most significant foreign language in Thailand (Prasithrathsint, 1996; Pingkarawat, 2002; Tuaycharoen, 2003). Its importance derives mainly from the domains of usage that penetrate into all levels of Thai society regardless of users' occupations and educational backgrounds despite the fact that English does not have any constitutionalized functions within the country. Tuaycharoen (2003) describes the situation of English in Thailand that Thais using English in a number of activities, especially those involving their study and their works. The English usage in Thailand ranges from isolated words or fragmented speech to complete and grammatical sentences according to users' levels of proficiency. It can also be seen that English is a necessary language if one needs to gain advancement academically or professionally. Even among those whose works do not require the knowledge of English, they will need to know some as the language becomes widely used in the media and government's press release and campaign.

2.3.2 Characteristics of Thai English

Even though Thai English has not been world-widely recognized by linguists in general, its unique characteristics have been observed and identified in

several research studies, especially those done by Thai linguists. Chutisilp (1984) confirms that there exists a Thai variety of the English language and such variety has its unique characteristics in all aspects. In her dissertation, Chutisilp reports the style and discourse of Thai English whereas Pingkarawat (2002) surveys cohesive features in documentary articles from English Newspapers in Thailand and in America. These two studies demonstrate some characteristics of Thai English at the discourse levels. In the aspect of phonology, Smyth (2001) claims that 'Thai accent' is resulted from the effort of Thai English speakers to fit every English word into the Thai phonological system. He, additionally, has an observation that most Thai English speakers are reluctant to shed their Thai accent because of peer group pressure, i.e. they do not want to show off or be different in the classroom environment. Tuaycharoen (2003) reports that phonological system of Thai English is the result principally of the method of teaching, the model of use and the process of mother tongue interference.

Regarding the method of teaching and the model of use, Tuaycharoen relates them to 2 factors as follows. The first one is the lack of well-qualified teachers. Because of this, Thai students learn English by memorizing word spelling with a single meaning and reciting words aloud with mother tongue pronunciation. The second factor is students' lack of exposure to native or native-like pronunciation. As a result of this, young learners develop their English pronunciation with a strong Thai accent according to the pronunciation model in their class. As for the process of mother tongue interference, she points that it is the outcome of the two factors mentioned earlier.

Following are some characteristics of spoken English of Thais observed by Smyth and Tuaycharoen.

Consonants

1. Initial consonants

   a. Voiceless palato-alveolar affricate /tʃ/ and fricative /ʃ/ are often conflated (Smyth, 2001) or replaced by aspirated voiceless alveolo-palatal affricate [tɕ^{h}], which is a Thai approximate sound (Tuaycharoen 2003). For example, ‘chair’/tʃɛə/ and ‘show’ /ʃəʊ/ are pronounced [tɕ^{h}ɛː] and [tɕ^{h}oː], respectively.

   b. Voiced palato-alveolar affricate /dʒ/ is often devoiced (Smyth, 2001) or replaced by voiceless alveolo-palatal affricate [tɕ], which is a Thai approximate sound (Tuaycharoen 2003). For example, ‘jar’ /dʒɑː/ is pronounced [tɕaː].

   c. Voiced velar plosive /g/ is usually devoiced (Smyth, 2001).

   d. Voiced alveolar fricative /z/ is usually devoiced (Smyth, 2001; Tuaycharoen, 2003). For example, ‘zoo’ /zuː/ is pronounced [suː].

   e. Voiced labiodental fricative /v/ is often conflated with voiced labiovelar semi-vowel /w/ and subsequently replaced by it (Smyth, 2001; Tuaycharoen, 2003). For example, ‘van’ /væn/ is pronounced [wæn].

   f. Voiceless interdental fricative /θ/ is often replaced by aspirated voiceless alveolar plosive [t^{h}], voiceless alveolar fricative [s] whereas voiced interdental fricative /ð/ is often replaced by

aspirated voiceless alveolar plosive [t^h], voiceless alveolar fricative [s], voiced alveolar plosive [d], respectively (Smyth, 2001; Tuaycharoen, 2003). For example, ‘thank’ /θæŋk/ and ‘the’ /ðə/ are pronounced [t^hæŋk] and [də], respectively.

g. Voiced alveolar liquid /r/ in initial position is often replaced by voiced aquio-alveolar trill [ɽ] or is usually conflated with alveolar lateral approximant /l/. For example, ‘raw’ /rɔː/ can be pronounced [ɽɔː] or [lɔː] (Tuaycharoen 2003).

2. Final consonants

a. Voiced velar plosive /g/ is often replaced by voiceless velar plosive [k] which is unreleased. For example, ‘bag’ /bæg/ is pronounced /bæk/ (Tuaycharoen 2003).

b. Voiceless alveolar fricatives /s/, voiceless palato-alveolar fricative /ʃ/, voiced alveolar fricative /z/ and voiced palato-alveolar fricative /ʒ/ and palato-alveolar affricates /tʃ/, /dʒ/ are often replaced by voiceless alveolar plosive [t] which is unreleased. For example, ‘face’ /feɪs/, ‘fish’ /fiʃ/, ‘please’ /pliːz/, ‘each’ /iːtʃ/, ‘wage’ /weɪdʒ/ and ‘beige’ /beɪʒ/ are pronounced [feɪt], [fit], [pliːt], [iːt], [weːt] and [beːt], respectively (Tuaycharoen 2003).

c. Voiced alveolar plosive /d/ and interdental fricatives /θ/ and /ð/ are often conflated and replaced by voiceless alveolar plosive [t] which is unreleased (Smyth, 2001).

d. Voiced and voiceless labiodental fricatives /v/ and /f/ are usually conflated and replaced by voiceless bilabial plosive [p] which is unreleased (Smyth, 2001).

e. Alveolar lateral approximant /l/ in final position is often treated as vocalized (Tuaycharoen 2003). For example, 'ball' /bɔːl/ is pronounced [bɔʊ]. It is sometimes pronounced as alveolar nasal [n] as [bɔn] (Smyth, 2001).

f. Final consonants that follow diphthong /aɪ/ and /oɪ/ are often omitted. For example, 'knife' /naɪf/, 'five' /faɪv/ and 'boil' /boɪl/ are pronounced /naɪ/, /faɪ/ and /boɪ/, respectively (Tuaycharoen, 2003).

3. The sound which is part of three-consonant clusters in initial position and four-consonant clusters in final position is usually omitted since it does not exist in Thai phonological system. Thai phonological system allows only two-consonant clusters in initial position and pure or isolate consonant in final position (Tuaycharoen, 2003).

Vowels

1. Thai speakers tend not to differentiate the distinction between tense and lax vowels in their pronunciation. Therefore, some pair of words

such as ‘live-leave’, ‘full-fool’, in case of pure vowels, and ‘cell-sail’, ‘bed-bade’ in case of diphthongs, may be identical in term of pronunciation. In this regard, only the tense vowels are heard (Tuaycharoen, 2003).

2. Diphthongs /eɪ/, /əʊ/ and /eə/ are usually pronounced as long monophthongs /eː/, /oː/ and /æː/ or /ɛː/*, respectively (Smyth, 2001). For example:

wage /weidʒ/ is pronounced as /weːdʒ/

show /ʃəʊ/ is pronounced as /ʃoː/

chair /tʃeə/ is pronounced as /tʃɛː/

(Tuaycharoen, 2003: 50)

* Smyth and Tuaycharoen perceive the monophthongized diphthong /eə/ in a different way. While the former perceives it as /æː/, the latter perceives it /ɛː/.

3. English words ending with a vowel usually have the final vowel lengthened to fit Thai phonological system by which the stress is placed on the final syllable (Smyth, 2001). For example:

bʉtter is pronounced as butʃer

ćoffee is pronounced as coffee

shʼopping is pronounced as shoppʹing

(Smyth, 2001: 347)

Stress patterns

Polysyllabic words are mostly stressed on the last syllable or sometimes all syllables receive equally strong accentuation. These results in distinctive rhythm and intonation practiced by Thai speakers.

Both Smyth and Tuaycharoen's studies are conducted in the perspective of English language teaching. Therefore, the emphasis is on how Thai English is developed by the 'interference' of learners' first language and how this interference could be reduced in order to improve the learners' performances. This idea is rather different from the perspective of World Englishes, which perceives localized forms of any new varieties as reflecting identity of a speaker.

However, the features collected by Smyth and Tuaycharoen might be viewed as an evidence of the coming of Thai English. This research study is going to prove the existence of them and find out to what extent they block the intelligibility in interaction between Thai and Singaporean English speakers.

CHAPTER III

RESEARCH PROCEDURE

3.1 Population and Samples

The subjects of this study were non-native competent users of English from Thailand and Singapore. For Thais, they were Master's Degree students of an international program at the Faculty of Economics, Chulalongkorn University. For Singaporeans, they were university students of various fields of the National University of Singapore. The range of their ages was from 19 to 27 years old. Both Thai and Singaporean subjects were unfamiliar to the English speech of their counterparts. In addition, they had been living and studying/working in their country for almost all of their life, so their use of English was nurtured within their ethnic cultures. All of them were asked to fill out a questionnaire (see Appendix A and B) in which their English backgrounds, experiences of communication with foreigners in English, and exposure to the English speech of their counterparts were investigated before they were selected to participate in this research study. The selection included 5 males and 5 females from each group. The backgrounds of Singaporean and Thai subjects are shown in Appendix C and D, respectively.

3.2 Research Instrument

The research instrument used in this study is called the phonemic contrast elicitation test. This type of test is selected because its scope of measurement is

limited at word level and its design is aimed to eliminate contextual clues that might interfere with the subjects' intelligibility.

- **Development of the Research Instrument**

The phonemic contrast elicitation test was developed by the researcher based on the guidelines by Kenworthy (1987) and the previous studies on intelligibility (Brown, 1968; Bansal, 1969; Atechi, 2004). The development process is as follows:

1. The previous contrastive analysis studies on Singapore English (Tay, 1979; Platt and Weber, 1980; Platt, 1982; Plat, Weber and Ho, 1983 and Richards, 1983) and Thai English (Smyth, 2001; Tuaycharoen, 2003) were reviewed in order to collect the distinctive phonetic features of consonant and vowel sounds of each variety. These phonetic features were then taken as criteria for choosing target words for the test tokens. (For the details of the distinctive phonetic features of the two varieties, see Chapter II).
2. 20 words containing Singapore English distinctive phonetic features and other 20 words containing Thai English distinctive phonetic features were selected from the 1,000 most frequent words collected from a variety of texts in Wordlists Page available from http://www1.harenet.ne.jp/~waring/vocab/wordlists/vocfreq.html. This was to ensure that the representative words were familiar to and generally used by people of various interests across different fields and that they did not require any

specialization in any fields for their usage. In addition, homonyms were avoided in this selection because the researcher would like to limit the chance of the correct response to be only one per word. (Appendix E provides the details of the selected words, the target distinctive phonetic features and the tentative pronunciation and responses by the informants).

3. The selected words were embedded into 20 sentences for each variety following the same pattern as "He said the word _____." The reason for presenting the target words in this pattern was to eliminate any situational context and linguistic knowledge beyond word level that might facilitate the recognition of the English sounds, causing invalid results of the investigation.

4. The 20 sentences for each variety were to be read aloud by 3 native speakers of English and 6 English speakers of either Singaporean or Thai ethnic based on the target group of test takers.

A. The Test for Thai Listeners

This is based on 20 sentences containing words representing phonetic features of Singapore English. From the reading in 4, the ones of 3 informants were selected: the English native reader whose speech represented typical General American[1] and 2 Singaporean English speakers whose pronunciation represented typical Singapore English.

From 3 selected speakers, 20 sentences each, 60 test tokens altogether for a test were made. These 60 sentences were then randomly arranged from 1 to 60 as presented in Appendix G.

B. The Test for Singaporean Listeners

This is based on 20 sentences containing words representing phonetic features of Thai English. From the reading in 4, the ones of 3 informants were selected: the English native reader whose speech represented typical General American (the same person as in A) and 2 Thai English speakers whose pronunciation represented typical Thai English.

From 3 selected speakers, 20 sentences each, 60 test tokens altogether for a test were made. These 60 sentences were then randomly arranged from 1 to 60 as presented in Appendix G.

All of the readers were of the same gender, which was male. The native speaker was also a reader of the test tokens because the intelligibility level towards typical General American will be used as the reference in comparison within the subject group.

The diagram below presents the test tokens that each group of subjects would listen to.

Speakers of test tokens / Listeners	Native	Sing1	Sing2	Thai1	Thai2	Total Amount
Singaporeans	20	-	-	20	20	60
Thais	20	20	20	-	-	60

3.3 Data Collection

Test tokens in A, performed by the Singaporeans and the native English speaker, were played to Thai subjects. In the same way, test tokens in B, performed by the Thais and the native English speaker, were played to Singaporean subjects. Dictation was taken as the method of test taking. The subjects were to write down only the target word, which follows the expression "He said the word_____" in each sentence. The sentences were played one by one and 3 seconds were allowed for the listeners to perform the task. The dictation performed by the listeners was the data to be analyzed.

3.4 Data Analysis

A. Within the Subject Group:

1. The written responses of each listener were compared with their respective test tokens. A correct response, which matches the target word in its respective test token, was counted as 1 point. Any error results in 0 point.
2. The points in no. 1 were then sorted into 3 sets according to the performers of its respective test tokens: native English speaker, Singapore/Thai English speaker1, Singapore/ Thai English speaker2. Of each set, the points would be added up and calculated into percentage based on total

score (=20 points) for each speaker, providing a level of intelligibility each listener had towards each speaker.

3. The levels of intelligibility of Singaporean and Thai subjects towards native speaker were taken as referential levels. They would be used as bases to compare with:

    i. intelligibility levels towards Singapore/Thai English speaker1

    ii. intelligibility levels towards Singapore/Thai English speaker2

    Besides, intelligibility level towards Singapore/Thai English speaker1 would be compared with that towards Singapore/Thai English speaker2.

4. The scores of all the 10 subjects were averaged and calculated into percentages. Then, they were compared with one another. Also, the standard deviation values of intelligibility levels would be computed. These would provide the overall picture of intelligibility level of a subject group towards each speaker.

5. The incorrect responses and their respective test tokens performed by each subject were transcribed into IPA and compared with each other. This was done to investigate the phonetic features of Singapore English and Thai English that block intelligibility.

6. Based on phonetic features in No. 5, common patterns causing intelligibility failure were summarized.

7. The reasons for the errors were provided.

B. Across the Subject Groups:

1. The average scores of the Singaporean subject group and the Thai subject group were compared. In doing this, Thais' average score of responses to each speaker was compared with its Singaporean counterpart. This was to find out whether Thais or Singaporeans had higher intelligibility towards the other's speech both at acrolectal and basilectal levels as well as towards native English speaker.
2. The reasons for the result of the comparison were provided.

Notes:

1. Typical General American means the pronunciation of American English speaker in which characteristic phonetic features commonly recognized as standard of American English are obvious. American English is taken as the norm-reference in this research study because it is the most commonly used as 'transnational language' in culture, arts, science, technology, commerce transportation and banking according to Celente (1997: 298 cited in Jenkins, 2003: 205-206). In addition, with the powerful American pop culture spreading all over the world and the economic empire of the US, the world population is open and being exposed to American English the most.

CHAPTER IV

INTELLIGIBILITY OF ENGLISH SPEECH BETWEEN SINGAPOREAN AND THAI ENGLISH SPEAKERS

This section presents intelligibility scores each listener has towards his/her counterpart variety and typical General American. Also, it includes the comparisons of those scores within the subject groups as well as those across subject groups.

4.1 Intelligibility Scores within the Subject Groups

4.1.1 Intelligibility Scores of Singaporean Listeners

The details of the intelligibility scores of each Singaporean subject are shown in the table as follows.

Table1: Intelligibility Scores of Singaporean Listeners towards Native and Thai English Speakers

Speaker / Listener	Native		Thai1		Thai2	
	Actual	**Percentage**	**Actual**	**Percentage**	**Actual**	**Percentage**
SL1	14	70	9	45	10	50
SL2	16	80	14	70	14	70
SL3	13	65	12	60	12	60
SL4	15	75	10	50	12	60
SL5	**12**	60	9	45	**12**	60
SL6	16	80	12	60	14	70
SL7	**10**	50	**10**	50	9	45
SL8	**10**	50	8	40	**13**	65
SL9	17	85	14	70	11	55
SL10	**13**	65	9	45	**14**	70
Mean	**13.6**	**68**	**10.7**	**53.5**	**12.1**	**60.5**
S.D.	**2.459**		**2.163**		**1.729**	

SL = Singaporean listener

From Table 1, the intelligibility scores of Singaporean listeners towards the native English speaker range from 10 to 17 out of 20, which equal 50% to 85%, respectively. The average score is 13.6 or 68% with a standard deviation of 2.459. The intelligibility scores towards Thai1 range from 8 to 14 out of 20, which equal 40% to 70%, respectively. The average score is 10.7 or 53.5% with a standard deviation of 2.163. The intelligibility scores towards Thai2 range from 9 to 14 out of 20, which equal 45% to 70%, respectively. The average score is 12.1 or 60.5% with a standard deviation of 1.729.

The average scores in percentages show that Singaporean listeners achieved an acceptable level of intelligibility towards the speech of all 3 speakers in case 50% is taken as a critical value for pass. However, it should be noticed that the range of the intelligibility scores and the standard deviation values show the most variation in intelligibility towards the speech of the native English speaker, who is

an American, whereas the least in that towards Thai2. To explain these findings, 2 important factors are concerned. First, the fact that Singapore was previously colonized by Britain (Platt, Weber and Ho, 1983; Platt and Weber, 1980; Platt, 1982 and Richards, 1983) has led Singaporeans, in general, to be more familiar with British English than American English. With this previous status, British English has been widely studied from the past and usually assumed to have provided the base for Singapore English (Deterding, 2003: 2). Actually, it is still generally regarded as the preferable standard in Singapore English education in the present time as reflected in the national campaign 'Speak Good English Movement'. The campaign, supported by the government, has been held in collaboration with the British Council (http://www.goodenglish.org.sg/SGEM/online_lesson/index.htm). Second, the subjects of this research study are university students who have exposure to limited varieties of English. From their personal background given in the questionnaire, most of them hardly have a chance to interact verbally with a foreigner in English. Therefore, besides sub-varieties within their own country, they might not be much familiar with other varieties of English. According to these factors, familiarity with General American pronunciation seems to be an additional skill that a Singaporean English speaker might obtain through his/her personal interest. Therefore, it is reasonable to find that intelligibility levels of Singaporeans towards the native English speaker fluctuate from one to another.

It is noticeable that almost all of the Singaporean listeners have higher intelligibility scores towards the native than towards Thai1 and Thai2. Exceptions are only in 4 cases: SL5 and SL7 whose intelligibility scores towards the native and Thais are equal (SL5 towards Thai2, SL7 towards Thai1), and, SL8 and SL10 whose intelligibility scores towards the native are lower than those towards Thai2.

However, the differences between the scores towards the native and Thai English speakers are quite small. To ensure whether or not they are statistically significant, the comparisons[1] are made between the native and Thais by using a t-Test for a dependent group[2]. The results of the test are presented in the following tables.

Table 2: Comparison of Intelligibility Scores of Singaporeans towards Native and Thai1

	N	Mean	S.D.	T
Native	10	13.6	2.459	5.513*
Thai1	10	10.7	2.163	

*p<0.05

Table 3: Comparison of Intelligibility Scores of Singaporeans towards Native and Thai2

	N	Mean	S.D.	T
Native	10	13.6	2.459	1.861*
Thai2	10	12.1	1.729	

*p<0.05

Table 2 and Table 3 show that the differences of intelligibility scores between the native and Thai1 or Thai2 are statistically significant at the significant level of $p<0.05$[3]. With this confirmation, it can be concluded that Singaporean listeners understand the English speech of native English speaker more than they do that of Thai English speakers. This conclusion is in agreement with what has been reported in Smith and Bisazza's (1983) investigation. That is, native English speakers are more intelligible to non-native English speakers in general, comparing

with speakers of other varieties. This should not be surprising, however, now that most non-native English speakers have primarily relied on the standard model of English in their learning, which is either British or American.

However, since there are also some differences between the scores towards Thai1 and Thai2, it is necessary to examine if those differences are as significant as those between the native speaker and the two Thais. The comparison between Thai1 and Thai2 is, then made by using a t-Test for a dependent group likewise. Its result is shown in Table 4 as follows.

Table 4: Comparison of Intelligibility Scores of Singaporeans towards Thai1 and Thai2

	N	Mean	S.D.	t
Thai1	10	10.7	2.163	-1.738*
Thai2	10	12.1	1.729	

*p<0.05

According to the table, it is found that the intelligibility scores of Singaporeans towards Thai1 and Thai2 are not significantly different at the significant level of $p<0.05$. As a result, it can be concluded that Singaporean listeners understand the English speech of Thai1 as statistically equal as they do that of Thai2 at the level of significance of $p<0.05$.

4.1.2 Intelligibility Scores of Thai Listeners

The details of the intelligibility scores of each Thai subject are presented in the following table.

Table 5: Intelligibility Scores of Thai Listeners towards Native and Singaporean English Speakers

Speaker / Listener	Native		Sing1		Sing2	
	Actual	**Percentage**	**Actual**	**Percentage**	**Actual**	**Percentage**
TL1	16	80	10	50	12	60
TL2	**10**	50	**12**	60	**10**	50
TL3	8	40	7	35	5	25
TL4	9	45	7	35	6	30
TL5	12	60	11	55	9	45
TL6	**11**	55	**11**	55	**11**	55
TL7	12	60	4	20	6	30
TL8	11	55	6	30	8	40
TL9	**9**	45	7	35	**11**	55
TL10	**11**	55	**13**	65	**11**	55
Mean	**10.9**	**54.5**	**8.8**	**44**	**8.9**	**44.5**
S.D.	**2.234**		**2.974**		**2.514**	

TL = Thai listener

From Table 5, the intelligibility scores of Thai listeners towards the native English speaker range from 8 to 16 out of 20, which equal 40% to 80%, respectively. The average score is 10.9 or 54.5% with a standard deviation of 2.234. The intelligibility scores towards Singaporean1 range from 4 to 13 out of 20, which equal 20% to 65%, respectively. The average score is 8.8 or 44% with a standard deviation of 2.974. The intelligibility scores towards Singaporean2 range from 5 to 12 out of 20, which equal 25% to 60%, respectively. The average score is 8.9 or 44.5% with a standard deviation of 2.514.

The average scores in percentages show that, at a critical value of 50% for pass, Thai listeners could only achieve an acceptable level of intelligibility towards the speech of native English speaker. Unfortunately, their intelligibility levels towards the speech of both Singaporean English speakers are considered lower than acceptable level according to the same criteria.

The range of the intelligibility scores and the standard deviation values show the most variation in intelligibility towards the speech of Singaporean1 and the least in that towards the native English speaker. This is quite in contrast with what is found in Singaporean listeners whose standard deviation values show the most variation in the speech of native English speaker. This might be the result of differences in linguistic environment of the listeners. Unlike in Singapore, English in Thailand is based on both American and British standards. Besides, the Thai subjects are students of an international program, which is composed of students from various linguistic backgrounds. From their personal information, most of them have a chance to interact verbally with a foreigner in English at least monthly. It is found in the informal interview that the foreigners they interacted with were visiting professors from various countries, who came to lecture them for a month and most of them used American-based English. According to this information, they are expected to be more familiar with American accent than Singaporean accent. This could explain why Thai scores have less variation in their intelligibility towards the speech of the American English speaker than Singaporean scores.

Like Singaporean listeners, it is noticeable that most of the Thai listeners have higher intelligibility scores towards the native than towards Singaporean1 and Singaporean2 in this case. Exceptions are only in 4 cases: TL2 and TL10 whose intelligibility scores towards the native are lower than those towards Singaporean1 but equal to those towards Singaporean2, TL6 whose intelligibility scores towards the native, Singaporean1 and Singaporean2 are all equal, and, TL9 whose intelligibility score towards the native is lower than that towards Singaporean2. A t-Test for a dependent group is used to find out the

significance of the different scores between the native and Singaporean English speakers. The tables below demonstrate the results of the comparisons.

Table 6: Comparison of Intelligibility Scores of Thais towards Native and Singaporean1

	N	Mean	S.D.	t
Native	10	10.9	2.234	2.003*
Sing1	10	8.8	2.974	

*p<0.05

Table 7: Comparison of Intelligibility Scores of Thais towards Native and Singaporean2

	N	Mean	S.D.	t
Native	10	10.9	2.234	2.631*
Sing2	10	8.9	2.514	

*p<0.05

Table 6 and Table 7 show that the intelligibility scores of Thais towards the native and Singaporean1 or Singaporean2 are significantly different at the significant level of p<0.05. This brings confidence to the conclusion that Thai listeners understand the English speech of native English speaker more than they do that of Singaporean English speakers.

Between the 2 Singaporean English speakers, the intelligibility scores towards Singaporean1 and Singaporean2 are not significantly different at the significant level of p<0.05 as shown in table 8.

Table 8: Comparison of Intelligibility Scores of Thais towards Singaporean1 and Singaporean2

	N	Mean	S.D.	t
Sing1	10	8.8	2.974	-0.142*
Sing2	10	8.9	2.514	

*p<0.05

It can be concluded from Table 8 that Thai listeners understand the English speech of Singaporean1 as statistically equal as they do that of Singaporean2.

According to this section, it can be seen that the intelligibility scores of Thai listeners towards the native English speaker and the two Singaporeans are in the same direction as those of Singaporean listeners. That is, Thai listeners have higher intelligibility scores towards the native English speaker than towards Singaporean English speakers. The feasible explanation for such result should be the same as what is provided earlier for the case of Singaporean listeners. This implies that the native English is still used as reference in the outer circle as same as it is in the expanding circle.

4.2 Intelligibility Scores across Subject Groups

The mean scores of intelligibility of Singaporean and Thai listeners are provided in separate tables as follows. The tables are presented in adjacent position to facilitate the comparisons.

Table 9: Mean Scores of Intelligibility of Singaporean Listeners

Speaker / Listening scores	Thai1	Thai2	Average
Percentage	53.5	60.5	57
Mean	10.7	12.1	11.4
S.D.	2.163	1.729	1.487

Table 10: Mean Scores of Intelligibility of Thai Listeners

Speaker / Listening scores	Sing1	Sing2	Average
Percentage	44	44.5	44.25
Mean	8.8	8.9	8.85
S.D.	2.974	2.514	2.517

The comparisons of intelligibility scores of Singaporean and Thai listeners provided in Table 9 and 10 show that mean scores of intelligibility of Singaporean listeners towards both Thai English speakers are higher than those of Thai listeners towards both Singaporean English speakers. In addition, the standard deviation values of Singaporean listeners show that the variations of the scores are less comparing with those of Thai listeners. These might be the results of the status of English within the country. In Singapore, English is constitutionalized. This status has made English a vital language of everyday life, which implies equality of use among the people. Therefore, English proficiency of its people is supposed to be rather high and is expected to be of average level as well. On the contrary, in the country like Thailand, English is just an advantageous foreign language and is necessary in only some aspects of life. As a result, English proficiency of its people could fluctuate from one person to another person depending on one's linguistic and/or educational backgrounds. Besides, the domain of their proficiency might cover their occupational area only.

A t-Test for an independent group[4] is applied to justify the significance of the score differences. The table below demonstrates the result of t-Test for

independent group between the averages of overall intelligibility scores of Singaporean and Thai subjects.

Table 11: Comparison of the Averages of Overall Intelligibility Scores between Singaporean and Thai Listeners

	N	Mean	S.D.	t
Singaporeans	10	11.40	1.487	2.758*
Thais	10	8.85	2.517	

*p<0.05

In Table 11, the total scores of intelligibility that Singaporean listeners have towards both Thai English speakers and that Thai listeners have towards both Singaporean English speakers have been averaged before they are compared. The result of the comparison shows that overall intelligibility of Singaporean listeners is significantly higher than that of Thai listeners at the level of significance of $p<0.05$.

In addition to the comparison of the overall intelligibility scores, a specific investigation on the written responses was conducted in order to crosscheck the above result. According to this, the correct and incorrect written responses that were provided by all of the 10 listeners from each group are particularly focused. Following are the tables presenting the amounts of correct and incorrect written responses provided by all of the Singaporean and Thai listeners.

Table 12: Amounts of Correct and Incorrect Written Responses Given by All of the 10 Singaporean Listeners

Speaker / Amount	Native	Thai1	Thai2	Total
All correct	8	3	5	**16**
All wrong	1	1	-	**2**

Table 13: Amounts of Correct and Incorrect Written Responses Given by All of the 10 Thai Listeners

Speaker / Amount	Native	Sing1	Sing2	Total
All correct	4	1	1	**6**
All wrong	-	2	1	**3**

According to the above information, it can be seen that there are 3 words pronounced by Thai1 and 5 words pronounced by Thai2 (totaling 8) that every Singaporean listener succeeded in recognizing. On the other side, there are only 1 word pronounced by Singaporean1 and 1 word pronounced by Singaporean2 (totaling 2) that every Thai listener succeeded in recognizing. These figures reaffirm that Singaporean listeners understand Thai English speakers more than Thai listeners understand Singaporean English speakers.

To summarize, the overall findings in this section demonstrate the coherence of the results from the two subject groups in 3 aspects. First of all, they provide an evidence of an existence of intelligibility in communication between Singaporean and Thai English speakers. Second, they show that Singaporeans and Thais understand the speech of native English speaker more than they understand that of their counterpart variety. Third, they make it clear that between the two groups of English users, Singaporeans have higher intelligibility levels towards Thai English speakers than Thais have towards Singaporean English speakers. With the last aspect, it can be seen that the hypothesis of this research study, namely, without linguistic and situational context, Singaporean competent English speakers

understand Thai competent English speakers better than Thais do Singaporeans, is strongly confirmed.

Note:

1. All of the comparisons in this research are conducted by SPSS program, one of the most widely used programs for statistical analysis in social science. The program provides a variety of comparison test according to the purpose of the research. In this research, t-Test is used since it provides the critical value that determines whether the differences of means between two subject groups are significant. Due to the small amount of the test tokens, which resulted in little differences between the scores of intelligibility levels, critical values help make the precise judgments on their significance become more subjective and, therefore, more appropriate.

2. t-Test for a dependent group is used when comparing the means of the scores performed by the same test-takers. For this case, the critical value for t-distribution and t—Test is 1.753.

3. The significant value at $p<0.05$ means the possibility to get such result is 95%.

4. t-Test for an independent group is used when comparing the means of the scores performed by the different test-takers. For this case, the critical value for t-distribution and t-Test is 2.131.

CHAPTER V

PHONETIC FEATURES CAUSING INTELLIGIBILITY FAILURES

In this chapter, the phonetic features causing intelligibility failures are examined through the incorrect written responses given by the listeners. The examination is presented in 2 parts according to the communicative situations: those occurring between Singaporean listeners and Thai speakers, and those occurring between Thai listeners and Singaporean speakers. In each part, the speakers' actual performance is analyzed against their hypothesized one, then, its impact on listeners' perception is investigated.

5.1 Singaporean Listeners Towards Thai Speakers

5.1.1 Distinctive Phonetic Features Used by Thai English Speakers (= What is Said)

In developing the research instrument (see Chapter II), 20 words are selected as the test tokens to be pronounced by Thai English speakers because they are hypothesized to have contained distinctive phonetic features of Thai English. However, it is found that in real pronunciation of Thai English speakers, only some of them are actually realized.

The following table demonstrates the comparison between the hypothesized pronunciation and actual one used by Thai English speakers.

Table 14: Comparison between the Hypothesized Pronunciation and Actual One Used by Thai English Speakers

Test Token	Native	Hypothesized Pronunciation		Actual Pronunciation	
		Transcription	Description	Thai1	Thai2
share	[ʃɛr]	[tɕʰɛː]	- initial /ʃ/ is replaced by [tɕʰ] - lax /ɛ/ is treated as tense and lengthened - final /r/ is omitted	[ʃɛr]	[tʃæːr]
train	[tʰreɪn]	[tʰreːn]	- /eɪ/ is monophthongised and lengthened	[tʰren]	[tʰren]
already	[ɔrɛdɪ]	[ɔɾ̲ɛːdi],[ɔʊɾ̲ɛːdi] [ɔlɛːdi],[ɔʊlɛːdi]	- post-vocalic /l/ is vocalized to [ʊ] - /r/ is replaced by trill [r̲] or /l/ - lax /ɛ/ is treated as tense and lengthened - ending vowel /ɪ/ is lengthened	[ɔredi]	[ɔʊredi]
field	[fild]	[fiu], [fiud]	- post-vocalic /l/ is vocalized to [ʊ] - final /d/ is omitted	[fiu]	[fiud]
join	[dʒɔɪn]	[tɕɔɪn], [tɕɔɪ]	- /dʒ/ is devoiced or replaced by [tɕ] - final /n/ is omitted	[tɕɔ̃ɪn]	[tɕɔɪn]
food	[fud]	[futˀ]	- final /d/ is devoiced into /t/ and the /t/ is unreleased	[fuːd]	[fud]
very	[vɛrɪ]	[wɛːri]	- /v/ is replaced by /w/ - lax /ɛ/ is treated as tense and lengthened	[vɛrɪ]	[wɛrɪ]
bill	[bɪl]	[biu]	- /ɪ/ is lengthened - post-vocalic /l/ is vocalized to [ʊ]	[bɪl]	[biu]
them	[ðɛm]	[tʰɛːm], [s̪ɛːm], [d̪ɛːm]	- /ð/ is replaced by [tʰ], [s̪], or [d̪] - lax /ɛ/ is treated as tense and lengthened	[d̪ɛm]	[d̪ɛm]
while	[waɪl]	[waʊ], [waɪ]	- post-vocalic /l/ is vocalized to [ʊ] or omitted	[waʊl]	[waɪl]

Test Token	Native	Hypothesized Pronunciation		Actual Pronunciation	
		Transcription	Description	Thai1	Thai2
thank	[θæŋk]	[tʰæŋk], [tʰæŋ], [sæŋk], [sæŋ]	- /θ/ is replaced by [tʰ] or [s] - final /k/ is omitted	[θæŋk]	[θæŋk]
prime	[pʰraɪm]	[pʰraɪ]	- final /m/ is omitted	[pʰraɪm]	[pʰraɪm]
involve	[ɪnvɑlv]	[ɪnwoʊf], [ɪnwoʊpˀ], [ɪnwoʊʔ]	- /v/ is replaced by /w/ - post-vocalic /l/ is vocalized to [ʊ] - final /v/ is devoiced into /f/ or replaced by [pˀ] or glottalised	[ɪnvolv]	[ɪnvolv]
mother	[mʌðɚ]	[mɑtʰɚ], [mɑsɚ], [mɑdɚ]	- lax /ʌ/ is treated as tense and lengthened - /ð/ is replaced by [tʰ], [s], or [d] - /ɚ/ is changed to /ə/	[marɚ]	[maḍɚ]
foot	[fʊt]	[futˀ]	- /ʊ/ is lengthened - final /t/ is unreleased	[fʊt]	[fʊt]
appear	[əpʰɪɚ]	[əpʰɪə]	- /ɚ/ is changed to /ə/	[æpʰɪɚ]	[ɛpʰɪɚ]
future	[fyutʃɚ]	[fɪʊtɕʰɚ]	- /tʃ/ is replaced by [tɕʰ] - /ɚ/ is changed into /ə/	[fɪutʃɚ]	[fyutʃɚ]
watch	[wɑtʃ]	[wɔtˀ]	- final /tʃ/ is replaced by [tˀ]	[wɔtʃ]	[wɔtʃ]
prove	[pʰruv]	[pʰruf], [pʰrupˀ]	- final /v/ is devoiced into /f/ or replaced by [pˀ]	[pʰruf]	[pʰruːf]
film	[fɪlm]	[fim]	- lax /ɪ/ is treated as tense and lengthened - /l/ is omitted	[film]	[fĩːm]

From Table 14, it can be seen that several hypothesized distinctive phonetic features are really used by Thai English speakers. Among those, the replacement of [ʊ] for post-vocalic /l/ is most frequently found. Examples are: ‘already’ as pronounced [ɔʊredi] by Thai2; ‘field’ as pronounced [fiu] by Thai1 and [fiud] by Thai2; ‘bill’ as pronounced [biu] by Thai2; and ‘while’ as pronounced

[waʊl] by Thai1. Besides, lax vowels treated as tense and lengthened are often produced in real pronunciation. Examples are: ‘share’ as pronounced [tʃæːr] by Thai2; ‘already’ as pronounced [ɔredi] by Thai1 and [ɔʊredi] by Thai2; ‘bill’ as pronounced [biu] by Thai2; ‘mother’ as pronounced [marɚ] by Thai1 and [maḍɚ] by Thai2; and ‘film’ as pronounced [film] by Thai1 and [fĩːm] by Thai2. Other distinctive phonetic features found to be really pronounced are: the monophthongization of diphthong /eɪ/ in ‘train’ as pronounced [t^hren] by both Thais; the replacement of [tɕ] for /dʒ/ in ‘join’ as pronounced [tɕɔ̃ɪn] by Thai1 and [tɕɔɪn] by Thai2; and the devoicing of final /v/ in ‘prove’ as pronounced [p^hruf] by Thai1 and [p^hruːf] by Thai2.

By contrast, there are also several hypothesized distinctive phonetic features that are not used in real pronunciation of Thai English speakers. For example, the omission of final /r/, ‘share’ is still pronounced as [ʃɛr] by Thai1 and [tʃæːr] by Thai2; the devoicing of final /d/, ‘food’ is actually pronounced as [fuːd] by Thai1 and [fud] by Thai2; the replacement of [t^h] or [s] for /θ/ and the omission of final /k/, ‘thank’ is clearly pronounced as [θæŋk] by both Thais; the pronunciation of final /t/ as unreleased, ‘foot’ is still pronounced as [fʊt] by both of Thais; the change of /ɚ/ into /ə/, ‘mother’ is pronounced as [marɚ] by Thai1 and [maḍɚ] by Thai2, ‘appear’ is pronounced as [æp^hɪɚ] by Thai1 and [ɛp^hɪɚ] by Thai2 and ‘future’ is pronounced as [fɪutʃɚ] by Thai1 and [fyutʃɚ] by Thai2. This has not been realized in ‘mother’, ‘appear’ and ‘future’ as pronounced by both Thais.

There are three observations according to the above information. First of all, it can be noticed that some of the hypothesized distinctive phonetic features are similarly used in real pronunciation of both Thai English speakers whereas some are individually used. In this regard, the conflated sound replacement is usually found to be used individually by Thai2. For example, 'share' is pronounced as [tʃæːr] and 'very' is pronounced as [wɛrɪ]. Secondly, the deletion of final consonant is rather rare and can only be found in the words 'field' and 'bill' in which post-vocalic /l/ is replaced by [ʊ]. Thirdly, the hypothesized distinctive phonetic features are not found to be used at all in the following words: 'share', 'very', 'bill', 'thank', 'prime' and 'foot' as pronounced by Thai1; and 'food', 'while', 'thank', 'prime', 'foot' and 'future' as pronounced by Thai2. This means the speakers approached the native pronunciation when they pronounced those words.

5.1.2 Distinctive Phonetic Features Perceived by Singaporean Listeners (= What is Heard), Especially Those Causing Intelligibility Failures

In this part, the pronunciation of both Thai English speakers as perceived by Singaporean listeners is examined through the written responses. From the 20 test tokens, the examination focuses only on the words retrieving incorrect written responses from at least 5 Singaporean listeners. Based on them, the phonetic features causing intelligibility failures are analyzed. The written responses for the words of Thai1 and Thai2 are presented in Tables 15 and 16, respectively. (For the complete written responses, see Appendix H.)

Table 15: Written Responses Given by Singaporeans Listening to Thai Speaker1

Target Word	**Transcription of Thai1**	**Singaporean Listeners**									
		SL1	**SL2**	**SL3**	**SL4**	**SL5**	**SL6**	**SL7**	**SL8**	**SL9**	**SL10**
field	[fiu]	-	feel	-	him	feel	-	-	feel	*field*	-
food	[fu:d]	-	who	*food*	who	good	cool	rude	*food*	*food*	grew
bill	[bɪl]	*bill*	*bill*	-	feel	-	*bill*	-	bell	*bill*	veil
them	[d̪ɛm]	-	dam	then	damp	damp	-	*them*	dam	vamp	*them*
while	[waʊl]	-	*while*	woo!*	*while*	wild	wild	wow	wild	Wow	wild
prime	[p^{h}raɪm]	crime	*prime*	crime	crime	*prime*	climb	-	climb	*prime*	crime
involve	[ɪnvolv]	-	-	*involve*	-	-	-	-	-	-	-
prove	[p^{h}ruf]	-	who	cool	who	food	cool	cool	two	cool	-
film	[film]	-	*film*	-	*film*	-	*film*	-	-	-	-

* The answers provided here are the exact responses given by the test takers.
The italics represent correct answer, - = blank answer

According to Table 15, among the 9 words, ‘prove’ is the most unintelligible since none of Singaporeans recognized it accurately. It should be noticed that some words, such as ‘involve’ and ‘film’ elicit incorrect responses in form of blanks only whereas others elicit both blanks and substitutes. Besides, it is found that the substitute responses given by different Singaporeans usually reflect sound features in common with how the target word is pronounced. For example, the substitute responses for ‘while’, pronounced as [waʊl] by Thai1, are ‘woo’, ‘wild’ and ‘wow’. Comparing with the target word, all these three substitutes have the sound /w/ as onset, ‘wow’ has the sound /aʊ/ as nucleus and ‘wild’ has the sound /l/ as coda.

Table 16: Written Responses Given by Singaporeans Listening to Thai Speaker2

Target Word	**Transcription of Thai2**	**Singaporean Listeners**									
		SL1	**SL2**	**SL3**	**SL4**	**SL5**	**SL6**	**SL7**	**SL8**	**SL9**	**SL10**
share	[tʃæːr]	chair	chair	chair	chair	chair	chair	chair	chair	Chair*	chair
field	[fi̤ud]	*field*	feel	feel	fend	feel	feel	*field*	*field*	*field*	feel
very	[wɛrɪ]	-	*very*	really	*very*	*very*	weary	weary	weary	weary	*very*
them	[d̪ɛm]	-	dim	damp	damn	damp	*them*	-	dam	damn	*them*
while	[waɪl]	-	fine	wild	smile	acquire	-	-	-	-	-
prove	[pʰruːf]	-	*prove*	-	-	-	-	-	food	proof	fruit
film	[fr̃ːm]	-	theme	theme	him	theme	*film*	theme	theme	theme	theme

* The answers provided here are the exact responses given by the test takers.
The italics represent correct answer, - = blank answer

From Table 16, among the 7 words, ‘share’ and ‘while’ are found intelligible to none of Singaporeans. Unlike the cases of Thai1, it can be noticed that every word of Thai2 elicits incorrect responses in 2 forms, blanks and substitutes. Besides, the substitute responses given by different Singaporeans are almost in complete agreement for ‘field’, ‘very’, ‘film’ and are unanimous for ‘share’. However, substitute responses for ‘while’ and ‘prove’ are quite distinct from one another. Similar to the cases of Thai1, all the substitutes share sound features in common with how the target word is pronounced. For instance, the substitute responses for ‘film’, pronounced as [fr̃ːm] by Thai2, are ‘theme’ and ‘him’. Comparing with the target word, ‘theme’ has the sound /iː/ as nucleus and the sound /m/ as coda whereas ‘him’ only has the sound /m/ as coda.

The two types of responses: blanks and substitutes have different implication for analysis of intelligibility failures. As for blank responses, they can be perceived in 2 perspectives. On one hand, they imply that listeners were completely lost on what they just heard. On the other hand, they reflect the

listeners' lack of attempt to give an overt response for the target word because of the lack of enough phonetic clues. It is uncertain whether the cause of such responses is from the listeners' own distracted mind or the variation of speech sound, which is beyond their realization. In this regard, blank responses do not give clues to intelligibility failures due to phonological factors.

In contrast with blank responses, a substitute response of the target word is usually found to contain at least a phonetic feature or its variant that exists in the target word. The existence of such phonetic component could bring a clue to the confusion arose in listener's mind in recognizing the word. For example, in the case of 'bill', pronounced as [bɪl] by Thai1, the substitutes are 'feel', 'bell' and 'veil'. These substitute responses reflect that each listener could recognize only certain phonetic features of sounds in the word: a front vowel sound as nucleus and /l/ as coda, and /b/ as onset for 'bell' in particular. Assuming this, they tried to match what they heard or they thought they heard with some English words they knew. In cases of 'field', 'very', 'film' and 'share' by Thai2, the almost unanimous agreement of the substitutes as 'feel', 'weary', 'theme' and 'chair', respectively suggests that the listeners recognized every phonetic feature of sounds in the word. However, because certain features of sounds in the words as pronounced by the speakers are distinctive from their experience, they recognized the words accordingly. In these cases, intelligibility failures are clearly caused by the pronunciation of speakers. According to this, substitute responses are concrete evidence to intelligibility failures due to phonological factors.

According to the information so far, the words that are unintelligible to Singaporean listeners can be categorized into 2 groups: those pronounced with

distinctive phonetic features and those not pronounced with distinctive phonetic features. The two groups are discussed separately in the followings.

a. Words Pronounced with Distinctive Phonetic Features

It is obvious that the production of a distinctive phonetic feature in a word has caused the word to sound different from the pronunciation of the native English speaker. However, to prove whether this is also the cause of intelligibility failures, it is necessary to investigate the relationship between the distinctive features found in the words of Thai English speakers and the substitutes given by Singaporean listeners. If they match, we can safely conclude that it is the usage of distinctive phonetic features that causes intelligibility failures, leading to substitutes as responses. In this regard, only the recurrent substitutes, given by at least 2 listeners, are focused because they represent a tendency of how listeners at least 2 recognize the pronunciation of a certain test token. As for a sole and distinct substitute given by an individual listener, it could have resulted from several factors such as a temporary loss of concentration on listening, thus it would mainly be excluded from the analysis. The following table provides information on distinctive phonetic features used by Thai speakers and the substitute responses by Singaporean listeners.

Table 17: Correlation between Distinctive Phonetic Features Used by Thais and Substitute Responses Given by Singaporeans

	Test Tokens	Transcription	Distinctive Phonetic Features Used	Recurrent Substitute Responses by Singaporeans	Sounds Shared between Test Token and its Substitute Responses
Thai 1	field	[fiu]	replacement of /u/ for post-vocalic /l/; deletion of final consonant /d/	feel	/i/ as nucleus; **no final /d/**
	food	[fuːd]	lengthening of /u/	who	**/u/ as nucleus**
	them	[d̪ɛm]	dentalization of /d/ substituting for /ð/	dam, damp	**/d/ as onset** and /m/ as coda
	while	[waʊl]	change of diphthong /aɪ/ into /aʊ/	wild	/w/ as onset; /l/ as coda
				wow	/w/ as onset; **/aʊ/ as nucleus**
	prove	[p^{h}ruf]	devoicing of final consonant /v/	who, cool	/u/ as nucleus
Thai 2	share	[tʃɛːr]	conflated sound replacement of /tʃ/ for /ʃ/ lengthening of /ɛ/	chair	**/tʃ/ as onset**; **/ɛ/ as nucleus** and /r/ as coda
	field	[fiud]	replacement of /u/ for post-vocalic /l/	feel	/i/ as nucleus
	very	[wɛri]	conflated sound replacement of /w/ for /v	weary	**/w/ as onset** in the 1st syllable /r/ as onset and /i/ as nucleus in the 2nd syllable
	them	[d̪ɛm]	dentalization of /d/ substituting for /ð/	damp, damn	**dental /d̪/ as onset**; /m/ as coda
	film	[fɪ̃ːm]	lengthening and *nasalization of /ɪ/*; reduction of final consonant cluster /lm/ to /m/	theme	lengthened and nasalized **/i/ as nucleus**; **only /m̩/ as coda**

* - Italics represent distinctive phonetic features not recognized as characteristics of Thai English.
- Bolds represent distinctive phonetic features in substitute responses that correlate to those used by Thais

From Table 17, it can be seen that most of the distinctive phonetic features used by Thais are usually reflected in the substitute responses given by Singaporean listeners. Among those distinctive features, only nasalization of /ɪ/ in 'film' as pronounced by Thai2 is not recognized as a characteristic of Thai English whereas the others are. However, the substitute response 'theme' for this target word shows that the main cause of intelligibility failure in this word lies in the sound feature of onset. Therefore, the use of nasalization of /ɪ/ is insignificant for this analysis. As for distinctive phonetic features which are characteristics of Thai English, their reflection in substitute responses are categorized into 2 types: one that presents a direct correlation with the way the target word is pronounced and one that does not.

The former type consists of 'them', 'very' and 'share'.

In case of 'them' pronounced as [d̪ɛm] by Thai1 and Thai2, the distinctive phonetic feature found is dentalization of /d/ substituting for /ð/. It is the usage of this sound that triggers the substitute responses with initial d such as 'dim', 'dam' and 'damp', as many as 10 out of 12 substitute responses.

As in 'very' pronounced as [wɛrɪ] by Thai2, the distinctive phonetic feature found is conflated sound replacement of /w/ for /v/. The /w/ sound is reflected in the substitute response 'weary', given by 4 out of 5 listeners who gave substitute responses.

Similar in manner to 'very', conflated sound replacement of /tʃ/ for /ʃ/ is the distinctive feature found in 'share' pronounced as [tʃæːr] by Thai2. The /tʃ/

sound is reflected in ‘chair’, the substitute response unanimously given by all 10 of the listeners for this word of Thai2.

All examples in this type demonstrate that the distinctive phonetic features are the key elements that directly misled the listeners to incorrect responses. Therefore, it can be concluded that they are the cause of intelligibility failures of Singaporean listeners towards Thai English speakers.

On the other hand, there are words where distinctive phonetic features are used but the substitute responses do not show direct correlation with such usage. The words are ‘field’, ‘prove’, ‘food’, ‘while’ and ‘film’.

To begin with ‘field’, this word is pronounced as [fiu] by Thai1 and [fiud] by Thai2, without the post-vocalic /l/ but the two pronunciations still elicit the same recurrent substitute response ‘feel’ among the listeners. It can be claimed that though the post-vocalic /l/ is not actually pronounced by both Thais it is perceived by Singaporean listeners as though it were there.

In case of ‘prove’, its pronunciation as [p^hruf] by Thai1, with devoicing of final consonant /v/, has brought about ‘who’ as 2 substitute responses and ‘cool’ as 4 out of all 7 substitute responses. The devoicing /v/ to /f/ might trigger listeners to perceive the lack of final sound but the main cause of intelligibility failures seem to be the onset cluster [p^hr].

As for ‘food’, it is pronounced with lengthening of /u/ as [fuːd] by Thai1, eliciting ‘who’ as substitute response given by 2 out of 6 listeners who gave substitute responses. Even though ‘who’ shares the sound [uː] as nucleus with the

target word, it does not have sound features of onset and coda in common with the target word at all.

Regarding ‘while’, this word is pronounced as [waʊl] by Thai1, eliciting ‘wild’ as 4 substitute responses and ‘wow’ as 2 out of all 7 substitute responses. The usage of /aʊ/ as nucleus is reflected in ‘wow’, where /l/ does not exist but the usage of /l/ as coda is reflected in ‘wild’, where /d/ is inserted.

As for ‘film’, the way it is pronounced as [fr̃ːm] by Thai2 has brought about ‘theme’ as a substitute response given by 7 out of 8 listeners who gave substitute responses. Though the distinctive phonetic feature: omission of /l/ is used by the speaker and recognized by listeners, what become outstanding is the onset /θ/.

From these examples, it is obvious that distinctive phonetic features do not always lead to intelligibility failures. Instead, most intelligibility failures occur due to the loss of certain phonetic features of sounds as perceived by the listeners, not those produced by the speakers.

To summarize, only 1 word of Thai1 which is ‘them’ and 3 words of Thai2 which are ‘them’, ‘very’ and ‘share’ have been proved to be unintelligible because of the distinctive phonetic features used in pronunciation.

However, according to the information in Table 15, there are 9 words of Thai1 that are unintelligible to at least 5 from 10 Singaporean listeners. Since it has been proved that only 1 word of Thai1 is unintelligible due to the use of distinctive phonetic features, the proportion of this type of words to the words unintelligible to Singaporean listeners is 1:9. This means 11.1 percent of words

unintelligible to Singaporean listeners is proved to be the direct result of the use of distinctive phonetic features. According to this data, intelligibility failures towards Thai1 caused by distinctive phonetic features are very small in number comparing with those caused by other factors.

It is also demonstrated in Table 16 that there are 7 words of Thai2 that are unintelligible to at least 5 from 10 Singaporean listeners. Since it has been proved that only 3 words of Thai2 are unintelligible due to the use of distinctive phonetic features, the proportion of this type of words to the words unintelligible to Singaporean listeners is 3:7. This means 42.8 percent of words unintelligible to Singaporean listeners is proved to be the direct result of the use of distinctive phonetic features. These figures suggest that nearly a half of intelligibility failures towards Thai2 is caused by the use of distinctive phonetic features.

A big difference between the numbers of intelligibility failures caused by distinctive phonetic features occurring towards Thai1 and Thai2 shows the inconsistency of the impact that distinctive phonetic features have on intelligibility of a word. This means the use of distinctive phonetic features can sometimes moderately harm intelligibility as in the case of Thai2 while sometimes it is only a minor factor hindering intelligibility as in the case of Thai1. A further detailed analysis into acoustic phonetics might help clarify this point. Even so, it might be stated that distinctive phonetic features are not the only one important factor that causes intelligibility failures between Singaporean listeners and Thai English speakers. According to the data, it is quite obvious that listener's perception plays an important role in the degree of intelligibility as well. However, the pattern of intelligibility failures due to listener's perception is beyond the focus of the present study and hence remains tentative area for future research.

Regarding the common pattern of distinctive phonetic features causing intelligibility failures between Singaporean listeners and Thai English speakers, there are 2 general observations that should be noted. First, it is found that the words with distinctive features of initial consonants are usually unintelligible to Singaporean listeners. Examples of these words are ‘them’, ‘very’ and ‘share’. Second, lengthened vowels are the most recurrent in unintelligible words but not all of them harm intelligibility. This is quite obvious in the substitute ‘chair’ for ‘share’ given by Thai2; the vowel sound /ɛ/ is retained in the substitute response even though it is not only lengthened but also treated as tense in the pronunciation. This can be implied that the listeners realized it as /ɛ/ despite the fact that it is pronounced /æː/. According to these observations, it can be concluded that distinctive phonetic features of initial consonants harm intelligibility of Singaporean listeners more than those of vowels.

b. Words Not Pronounced with Distinctive Phonetic Features

It is shown in Tables 14, 15 and 16 that there are three words pronounced by Thais with native-like pronunciation yet still unintelligible to Singaporean listeners. The words are ‘bill’ and ‘prime’ pronounced by Thai1 and ‘while’ pronounced by Thai2. To find out the cause, the relationship between the phonetic features in the test tokens pronounced by Thai English speakers and the substitutes given by Singaporean listeners is investigated. The results are shown in the following table.

Table 18: Correlation between Phonetic Features in the Test Tokens Pronounced by Thais and Substitute Responses Given by Singaporeans

	Test Tokens	Transcription	Recurrent Substitute Responses by Singaporeans	Sounds Shared between Test Token and Its Substitute Responses
Thai 1	bill	[bɪl]	feel	labial consonant as onset; high front vowel as nucleus; /l/ as coda
			bell	/b/ as onset; front vowel as nucleus; /l/ as coda
			veil	labial consonant as onset; front vowel as nucleus; /l/ as coda
	prime	[p^{h}raɪm]	crime	/r/ as a component in initial cluster; /aɪ/ as nucleus; /m/ as coda
			climb	cluster as onset; /aɪ/ as nucleus; /m/ as coda
Thai2	while	[waɪl]	fine	labial consonant as onset; /aɪ/ as nucleus
			wild	/w/ as onset; /aɪ/ as nucleus; /l/ as part of coda
			smile	labial consonant as a component of onset; /aɪ/ as nucleus; /l/ as coda
			acquire	/w/ as part of onset; /aɪ/ as nucleus

From Table 18, it can be seen that the substitute responses are rather various even though they are for the same test tokens. However, all of them share some phonetic features with their target words; the distinction depends on how precise the substitutes are. In case of 'bill' pronounced by Thai1, its substitute responses are 'feel', 'bell' and 'veil'. Comparing with the target word, only 'bell' has the sound /b/ as onset whereas 'feel' and 'veil' have labial consonants as onsets. All of them have a front vowel as nucleus and /l/ as coda.

As for 'prime' pronounced by Thai1, its substitute responses are 'crime' and 'climb'. Comparing with the target word, 'crime' has the /r/ sound as a component in initial cluster whereas 'climb' has a totally different cluster /kl/. Both have the vowel /aɪ/ as nucleus and the /m/ sound as coda.

Regarding ‘while’ pronounced by Thai2, its substitute responses are ‘fine’, ‘wild’, ‘smile’ and ‘acquire’. Comparing with the target word, ‘fine’ has the labial consonant /f/ as onset, ‘wild’ has the labial consonant /w/ as onset, ‘smile’ has the labial consonant /m/ as a component of onset and ‘acquire’ has the labial consonant /w/ as part of onset. All of them have the vowel /aɪ/ as nucleus but only ‘wild’ and ‘smile’ have the /l/ sound as coda.

According to the information above, it is quite obvious that the listeners missed some phonetic features of sounds in the words and the substitutes are the result of their assumption from certain phonetic features they could recognize. These cases are evidence to show that sometimes the acoustic perception of the listeners themselves is the cause of intelligibility failures now that the words are all pronounced with a manner very close to that of native speakers.

5.2 Thai Listeners Towards Singaporean Speakers

5.2.1 Distinctive Phonetic Features Used by Singaporean English Speakers (= What is Said)

Based on the same criteria for developing the research instrument, 20 words are selected as the test tokens to be pronounced by Singaporean English speakers because they are hypothesized to have contained distinctive phonetic features of Singapore English. However, it is found that in real pronunciation of Singaporean English speakers, only some of them are produced.

The following table demonstrates the comparison between the hypothesized pronunciation and actual one used by Singaporean English speakers.

Table 19: Comparison between the Hypothesized Pronunciation and Actual One Used by Singaporean English Speakers

Test Token	**Native**	**Hypothesized Pronunciation**		**Actual Pronunciation**	
		Transcription	**Description**	**Sing1**	**Sing2**
oil	[oɪl]	[oɪ]	- final /l/ is deleted	[ɔɪ]	[ɔɪ]
both	[boʊθ]	[boːt̪ˀ],[boːd̪]	- /oʊ/ is monophthongised and lengthened - /θ/ is replaced by [t̪ˀ]or [d̪]	[boʊθ]	[bɔθ]
decide	[dɪsaɪd]	[dɪsaɪtˀ], [dɪsaɪʔ]	- final /d/ is devoiced or deleted or treated as glottal stop	[dɪsaɪʔ]	[dɪsaɪʔ]
child	[tʃaɪld]	[tʃaʊd],[tʃaɪd], [tʃaʊ], [tʃaɪ]	- post-vocalic /l/ is vocalized to [ʊ] or omitted - final /d/ is omitted	[tʃaʊl]	[tʃaʊld]
arrive	[əraɪv]	[aɾaɪf], [aɾaɪʔ]	- unstressed /ə/ is pronounced with its full vowel quality as /a/ - final /v/ is devoiced or treated as glottal stop	[əraɪf]	[əraɪf]
defence	[dɪfɛns]	[dɪfɛn], [dɪfɛ], [dɪfɛnʔ], [dɪfɛʔ],	- two final consonants are reduced to one or both are omitted or modified to glottal stop	[dɪfɛns]	[dɪfɛns]
each	[itʃ]	[ɪtˀ], [ɪʔ]	- long vowel /i/ is shortened - final /tʃ/ is replaced by [tˀ] or glottalised	[itʃ]	[ɪtʃ]
throw	[θroʊ]	[t̪roː], [t̪ˢroː], [sro̪ː]	- initial /θ/ is treated as [t̪], [t̪ˢ] or [s̪] - /oʊ/ is monophthongised and lengthened	[θroʊ]	[tʰroʊ]
happen	[hæpən]	[hæpɛn]	- unstressed /ə/ is pronounced with its full vowel quality as /ɛ/	[hæpɛn]	[hæpən]
leg	[lɛg]	[lɛk],[lɛkˀ],[lɛʔ]	- final /g/ is devoiced into /k/ and unreleased or treated as glottal stop	[lɛgˀ]	[lɛgˀ]

Test Token	Native	Hypothesized Pronunciation		Actual Pronunciation	
		Transcription	Description	Sing1	Sing2
feature	[fitʃɚ]	[fitʃɚ]	- long vowel /i/ is shortened	[fitʃɚ]	[fitʃɚ]
poor	[pʰʊə]	[pʰʊəː], [pʰʊɑː]	- the second component in the diphthong is lengthened	[pʰʊə]	[pʰʊa]
staff	[staːf]	[stʌf]	- long vowel /aː/ is shortened	[staːf]	[stʌf]
than	[ðæn]	[d̪æn], [z̪æn]	- initial /ð/ is treated as [d̪] or [z̪]	[ðɛn]	[d̪ɛn]
fill	[fɪl]	[fɪʊ]	- post-vocalic /l/ is vocalized to [ʊ]	[fɪu]	[fɪu]
series	[sɪriz]	[sɪrɪs],[sɪrɪ]	- final /z/ is devoiced or omitted	[sɪris]	[sɪris]
allow	[əlaʊ]	[alaʊ]	- unstressed /ə/ is pronounced with its full vowel quality as /a/	[əlaʊ]	[əlaʊ]
attend	[ətʰɛnd]	[ætɛn],[ætɛ], [ætɛnʔ]	- unstressed /ə/ is pronounced with its full vowel quality as /æ/ - two final consonants are reduced to one or both are omitted or modified to glottal stop	[ətʰɛn]	[ətʰɛn]
build	[bɪld]	[bɪʊd], [bɪʊ], [bɪʊʔ]	- post-vocalic /l/ is vocalized to [ʊ] - final /d/ is deleted or glottalised	[bɪuʔ]	[bɪuʔ]
wife	[waɪf]	[waɪpˀ], [waɪ] [waɪʔ]	- final /f/ is replaced by [pˀ] or deleted or glottalised	[waɪf]	[waɪf]

From Table 19, it can be seen that most of the hypothesized distinctive phonetic features are really used by Singaporean English speakers. Among those, the deletion or glottalisation of final consonants are most frequently found. For example, ‘oil’ as pronounced [ɔɪ], ‘decide’ as pronounced [dɪsaɪʔ], ‘leg’ as pronounced [lɛgˀ], ‘attend’ as pronounced [ətʰɛn], ‘build’ as pronounced [bɪuʔ] by both Singaporeans and ‘child’ as pronounced [tʃaʊl] by Singaporean1. Besides, the

devoicing of final consonants is also produced in real pronunciation. Examples are: ‘arrive’ as pronounced [ərаɪf] and ‘series’ as pronounced [sɪris] by both Singaporeans. Other distinctive phonetic features found to be really pronounced are: the replacement of /ʊ/ for post-vocalic /l/ in ‘child’ as pronounced [tʃaʊl] by Singaporean1 and [tʃaʊld] by Singaporean2, and in ‘fill’ as pronounced [fɪu] by both Singaporeans; and unstressed /ə/ pronounced with its full vowel quality in ‘happen’ as pronounced [hæpɛn] by Singaporean1.

By contrast, only one of the hypothesized distinctive phonetic features is not used in real pronunciation of Singaporean English speakers. It is the replacement of [t̪] or [d̪] for final /θ/ which is hypothesized to be found in ‘both’.

Likewise, it is found that some of the hypothesized distinctive phonetic features are similarly used in real pronunciation of both Singaporean English speakers whereas some are individually used. In this regard, the shortening of long vowels is only found in the pronunciation Singaporean2. For example, ‘each’ is pronounced as [ɪtʃ], ‘feature’ is pronounced as [fɪtʃɚ] and ‘staff’ is pronounced as [stʌf].

It should also be noticed that some of distinctive phonetic features that are not hypothesized to be used are used by these two Singaporean English speakers. They are: the change of diphthong /oʊ/ into /ɔ/ in ‘both’ as pronounced [bɔθ] by Singaporean2 and the change of vowel /æ/ into /ɛ/ in ‘than’ as pronounced [ðɛn] by Singaporean1 and [d̪ɛn] by Singaporean2. Regarding the latter, the fact that it is similarly used by both Singaporeans provokes an idea of a common practice when Singaporeans pronounce this word. According to this, it could be hypothesized that

change of monophthong /æ/ into /ɛ/ is a tentative feature to be recognized as a characteristic of Singapore English in the future.

Finally, the hypothesized distinctive phonetic features are not found to be used at all in the following words: 'both', 'defence', 'each', 'throw', 'feature', 'staff' 'allow' and 'wife' as pronounced by Singaporean1; and 'defence', 'happen', 'allow' and 'wife' as pronounced by Singaporean2. This means the speakers approached the native pronunciation when they pronounced those words.

5.2.2 Distinctive Phonetic Features Perceived by Thai Listeners (= What is Heard), Especially Those Causing Intelligibility Failures

In this part, the pronunciation of both Singaporean English speakers as perceived by Thai listeners is examined through the written responses. From the 20 test tokens, the examination focuses only on the words retrieving incorrect written responses from at least 5 Thai listeners. Based on them, the phonetic features causing intelligibility failures are analyzed. The written responses for the words of Singaporean1 and Singaporean2 are presented in Tables 20 and 21. (For the complete written responses, see Appendix I.)

Table 20: Written Responses Given by Thais Listening to Singaporean Speaker1

Target Word	Transcription of Sing1	Thai Listeners									
		TL1	TL2	TL3	TL4	TL5	TL6	TL7	TL8	TL9	TL10
both	[boʊθ]	*both*	broke	book	broke	broke	broke	-	-	*both*	broke
decide	[dɪsaɪʔ]	*decide*	beside	beside	beside	desire	*decide*	beside	beside	beside	beside
child	[tʃaʊl]	-	shall	shout	shout	shout	*child*	shall	show	show	*child*
arrive	[ɔraɪf]	*arrive*	*arrive*	life	light	*arrive*	alike	alive	alive	alive	*arrive*
throw	[θroʊ]	show	*throw*	show	flow	*throw*	*throw*	show	show	*throw*	*throw*
leg	[lɛgˀ]	late	*leg*	red	*leg*	late	neck	-	*leg*	*leg*	red
feature	[fitʃɚ]	-	*feature*	teacher	pitch	*feature*	teacher	teacher	teacher	teacher	chair
than	[ðɛn]	bench	bend	tense	bench	then	then	-	-	when	then
fill	[fɪu]	seal	feel	field	full	feels	few	feel	hill	feel	*fill*
series	[sɪrɪs]	-	she	cheese	cheese	release	-	-	he	-	-
wife	[waɪf]	Wive*	*wife*	wise	white	white	write	wise	white	right	right

* the answers provided here are the exact responses given by the test takers.
The italics represent correct answer, - = blank answer

According to Table 20, among the 11 words, only ‘than’ is intelligible to none of Thais. Besides, it is found that some words, such as ‘both’, ‘child’, ‘leg’, ‘features’, ‘than’ and ‘series’ elicit incorrect responses in forms of blanks and substitutes whereas others elicit substitutes only. Similar to those found in the responses of Singaporean listeners, the substitutes given by different Thais usually reflect sound features in common with how the target word is pronounced. For example, the substitute responses for ‘wife’ are ‘wive’, ‘wise’, ‘white’, ‘write’ and ‘right’. Comparing with the target word, all of these words, except for ‘right’, have the sound /w/ as onset whereas without exception, they all have the sound /aɪ/ as nucleus. It should be noticed that none of the substitutes has the same coda as the target word. This can be implied that most Thai listeners realized the existence of the sounds /w/ and /aɪ/ as onset and nucleus of the word but did not recognize the sound of coda clearly. As a result, they supplied the missing sound independently. It seems that most English words of Singaporean1 are recognized more or less along

this line by Thai listeners. This can be inferred from the disagreement among substitutes for the same target word seen in most cases.

Table 21: Written Responses Given by Thais Listening to Singaporean Speaker2

Target Word	**Transcription of Sing2**	**Thai Listeners**									
		TL1	**TL2**	**TL3**	**TL4**	**TL5**	**TL6**	**TL7**	**TL8**	**TL9**	**TL10**
both	[bɔθ]	bow	book	book	above	book	book	book	book	*both*	bowl
child	[tʃaʊld]	-	saw	shout	shout	shout	*child*	-	-	show	*child*
feature	[fɪtʃɚ]	-	*feature*	-	shirt	t-shirt	teacher	*feature*	*feature*	*feature*	picture
staff	[stʌf]	stop	stop	tough	stop	stop	oak	stop	stop	*staff*	stop
than	[ðɛn]	bend	bend	then	send	then	pen	bend	-	bell	then
fill	[fɪu]	feel	feel	sell	feel	feel	few	*fill*	few	feel	*fill*
series	[sɪris]	*series*	TV	beef	beef	TV	he	-	-	-	*series*
wife	[waɪf]	white	white	white	white	white	voice	wise	white	*wife*	white

The italics represent correct answer, - = blank answer

From Table 21, among the 8 words, ‘than’ is the only one that no Thais recognized correctly. Besides, it is found that 4 words, which are ‘child’, ‘feature’, ‘than’ and ‘series’ elicit incorrect responses in forms of blanks and substitutes whereas ‘both’, ‘staff’, ‘fill’ and ‘wife’ elicit substitutes only. It can be seen that the majority of substitutes for ‘both’, ‘child’, ‘staff’, ‘fill’ and ‘wife’ are identical across different listeners. This might be implied that Thai listeners tend to recognize some particular sound components in those words in the same way, which result in similarity in their perception of a whole word.

It can be seen in general that the incorrect responses of Thai listeners are quite similar in nature to those of Singaporean listeners. That is, there are 2 types: one that has substitutes of the target words and one that is left blank. However, the smaller amount of blank responses and the bigger amount of substitute responses of Thai listeners suggests that fewer Thais than Singaporean listeners are completely lost at the words they heard. Unfortunately, the disagreement in most of their

substitute responses provides a clue that they only recognized some phonetic features of sounds in the words of Singaporeans, not thoroughly.

According to the information so far, the words that are unintelligible to Thai listeners can be categorized into 2 groups: those pronounced with distinctive phonetic features and those not pronounced with distinctive phonetic features. The two groups are discussed separately in the followings.

a. Words Pronounced with Distinctive Phonetic Features

It can be seen that distinctive phonetic features caused the English speech of Singaporeans to sound different from the pronunciation of a native English speaker. To prove whether they are also the cause of intelligibility failures, the relationship between the distinctive features found in the pronunciation of Singaporean English speakers and the substitutes given by Thai listeners are investigated. In this regard, the substitute responses are selected according to the same criteria as taken in section 5.1.2 *a.* Namely, only the recurrent substitutes, given by at least 2 listeners, are focused. Table 22 demonstrates the correlation between distinctive phonetic features used by Singaporeans and the substitute responses given by Thais.

Table 22: Correlation between Distinctive Phonetic Features Used by Singaporeans and Substitute Responses Given by Thais

	Test Tokens	Transcription	Distinctive Phonetic Features Used	Recurrent Substitute Response by Thais	Sounds Shared between Test Token and its Substitute Responses
Singaporean 1	decide	[dɪsaɪʔ]	glottalisation of final /d/	beside	/ɪ/ as nucleus of the unstressed syllable; /s/ as onset and /aɪ/ as nucleus of the stressed syllable
	child	[tʃaʊl]	change of diphthong /aɪ/ into /aʊ/; deletion of final consonant /d/	shout	**/aʊ/ as nucleus**
				shall	/l/ as coda
				show	-
	arrive	[ɔraɪf]	devoicing of final /v/	alive	/ə/ as nucleus of the unstressed syllable; /aɪ/ as nucleus of the stressed syllable
	leg	[lɛgˀ]	unreleased /g/	late	/l/ as onset
				red	/ɛ/ as nucleus
	than	[ðɛn]	*change of monophthong /æ/ into /ɛ/*	then	/ð/ as onset; **/ɛ/ as nucleus** and /n/ as coda
				bench	**/ɛ/ as nucleus** and /n/ as coda
	fill	[fɪu]	replacement of /u/ for post-vocalic /l/	feel	/f/ as onset
	series	[sɪrɪs]	devoicing of final /z/	cheese	/i/ as nucleus and **/s/ as coda of the stressed syllable**
Singaporean 2	both	[bɔθ]	*change of diphthong /oʊ/ into /ɔ/*	book	/b/ as onset and a back rounded vowel sound as nucleus
	child	[tʃaʊld]]	change of diphthong /aɪ/ into /aʊ/	shout	**/aʊ/ as nucleus**
	staff	[stʌf]	*change of monophthong /ɑː/ into /ʌ/*	stop	/st/ as onset and an unrounded lax vowel sound as nucleus
	than	[ðɛn]	*change of monophthong /æ/ into /ɛ/*	bend	**/ɛ/ as nucleus** and /n/ as coda
				then	/ð/ as onset; **/ɛ/ as nucleus** and /n/ as coda
	fill	[fɪu]	replacement of /u/ for post-vocalic /l/	feel	/f/ as onset
				few	/f/ as onset and **/ɪu/ as nucleus**
	series	[sɪrɪs]	devoicing of final /z/	TV	two-syllabled word; /i/ as nucleus
				beef	/i/ as nucleus of the stressed syllable

* - Italics represent distinctive phonetic features not recognized as characteristics of Singapore English.
- Bolds represent distinctive phonetic features in substitute responses that correlate to those used by Thais

According to Table 22, only some of the distinctive phonetic features used by Singaporeans are reflected in the substitute responses given by Thai1. Among those distinctive features, three are not recognized as characteristics of Singapore English. They are: change of monophthong /æ/ into /ɛ/in 'than' as pronounced by both Singaporeans; change of diphthong /oʊ/ into /ɔ/ in 'both' as pronounced by Singaporean2; and change of monophthong /aː/ into /ʌ /in 'staff' as pronounced by Singaporean2. It is found that only the sound /ɛ/ is similarly reflected as nucleus in the substitute responses 'then', 'bench' and 'bend', which are for the target word 'than'. In contrast, the sound /ɔ/ is not reflected in 'book', the substitute response for 'both', and the sound /ʌ / is not reflected in 'stop', the substitute response for 'staff'. The former case, the presence of a direct correlation between change of monophthong /æ/ into /ɛ/in 'than' and the substitute responses, proves that this distinctive phonetic feature has caused the listeners to recognize the word accordingly. On the opposite side, the latter case, the lack of a direct correlation between change of diphthong /oʊ/ into /ɔ/ in 'both' and change of monophthong /aː/ into /ʌ /in 'staff' and their substitute responses proves that these distinctive phonetic features are not the cause of intelligibility failures.

As for distinctive phonetic features that are characteristics of Singapore English, all of those reflected in substitute responses present a direct correlation with the target word. This can be perceived in the cases of 'child' and 'fill'. To begin with 'child', this word is pronounced as [tʃaʊl] by Singaporean1 and as [tʃaʊld] by Singaporean2, eliciting 'shout' as many as 6 out of 12 substitute responses. It is noticeable that diphthong /aʊ/ is reflected in the substitute response 'shout'. As for

‘fill’, this word is pronounced as [fɪu]by Singaporean2, eliciting ‘few’ as 2 substitute responses. Likewise, replacement of /u/ for post-vocalic /l/ is reflected in the substitute response ‘few’. Such a direct correlation proves that these two distinctive phonetic features are the key elements that misled listeners to incorrect responses. Therefore, they are the cause of intelligibility failures of Thai listeners towards Singaporean English speakers.

It should be noticed that even though the following words of Singaporean1: ‘fill’, pronounced as [fɪu]; ‘arrive’, pronounced as [ɔraɪf]; ‘decide’, pronounced as [dɪsaɪʔ]; and ‘leg’, pronounced as [lɛgˀ] contain distinctive phonetic features, the distinctive phonetic features are not reflected in substitute responses. Similarly, even though a word of Singaporean2: ‘series’, pronounced as [sɪris] contains a distinctive phonetic feature, the distinctive phonetic feature is not reflected in substitute responses, either. This information suggests that the distinctive phonetic features used by Singaporeans do not cause intelligibility failures in these cases. Instead, there is evidence that the listeners did not recognize certain words correctly because they did not hear them clearly. Examples can be perceived in substitute responses for ‘decide’ pronounced by Singaporean1 and ‘series’ pronounced by Singaporean2.

As for ‘decide’ which is pronounced as [dɪsaɪʔ], it can be seen that the substitutes for this word are nearly unanimous as ‘beside’. The fact that Thai listeners provided the same responses with final /d/ as the sound of coda shows that the glottal quality used by Singaporean speakers does not harm intelligibility of this word. The real problem is the onset /d/, which was taken as /b/ instead. It should be noticed that

intelligibility failure occurs in the first syllable of the word, which is unstressed. Being unstressed, the syllable is lighter, shorter and lower in pitch than a stressed syllable. Therefore, the status of being unstressed might be the actual cause of intelligibility failure since it makes the sound unclear to the listeners.

Concerning ‘series’, which is pronounced as [sɪris], this word of Singaporean2 elicits two substitute responses; ‘beef’ and ‘TV’. While ‘series’ has two syllables, ‘beef’ has one. This implies that Thai listeners failed to recognize even the number of the syllable of the word. It seems that they only realized an existence of /i/ sound in the word. The same thing is reflected in ‘TV’ despite the word having two syllables. According to this fact, devoicing of final /z/ is not the cause of intelligibility failure as Thai listeners actually failed to recognize all other phonetic components of the word: onset, coda and number of syllables.

In addition, there is also evidence that Thai listeners could recognize certain phonetic features in certain words as they are meant to be although Singaporean speakers pronounced them distinctively. Example can be perceived in substitute responses for ‘arrive’ as pronounced by Singaporean1.

The devoicing of final /v/ in ‘arrive’ as [əraɪf] elicits a recurrent substitute response ‘alive’ 3 out of all 6. It is obvious that Thai listeners recognized the sound of this final consonant accurately as /v/ as it is meant to be, even though it is devoiced by the speaker. Besides, the more interesting phonetic feature in the word turns to be /r/ rather than the final /v/. It should be noticed that /l/ replaced /r/ in this substitute. This shows that the main cause of intelligibility failure in this word lies in the /r/ sound, not the final /v/ sound.

To summarize, only 2 words of each Singaporean speaker: ‘than’ and ‘child’ have been proved to be unintelligible because of the distinctive features used in pronunciation.

According to the information in Table 20, there are 11 words of Singaporean1 that are unintelligible to at least 5 from 10 Thai listeners. Since it has been proved that only 2 words of Singaporean1 are unintelligible due to the use of distinctive phonetic features, the proportion of this type of words to the words unintelligible to Thai listeners is 2:11. This means 18.2 percent of words unintelligible to Thai listeners is proved to be the direct result of the use of distinctive phonetic features. According to this data, intelligibility failures towards Singaporean1 caused by distinctive phonetic features are rather small in number comparing with those caused by other factors.

It is also demonstrated in Table 21 that there are 8 words of Singaporean2 that are unintelligible to at least 5 from 10 Thai listeners. Since it has been proved that only 2 words of Singaporean2 are unintelligible due to the use of distinctive phonetic features, the proportion of this type of words to the words unintelligible Thai listeners is 2:8. This means 25.0 percent of words unintelligible to Thai listeners is proved to be the direct result of the use of distinctive phonetic features. These figures suggest that a quarter of intelligibility failures towards Singaporean2 is caused by the use of distinctive phonetic features.

This finding is similar to that in the case of Singaporean listeners. That is, distinctive phonetic features are not the only one important factor that causes intelligibility failures between Thai listeners and Singaporean English speakers. It is clear from the above examples that more words of Singaporean speakers are unintelligible because Thai listeners missed some sound components of the words.

Therefore, it might be stated that more intelligibility failures are caused by listener's perception than by distinctive phonetic features used by speakers in communication between Singaporean English speakers and Thai listeners.

Regarding the common pattern of distinctive phonetic features causing intelligibility failures between Thai listeners and Singaporean English speakers, there are 2 general observations that should be noted. First, the words with distinctive features of vowels are usually found to be unintelligible to Thai listeners. Examples are 'than' and 'child' as pronounced by both Singaporeans. Second, very few distinctive phonetic features of final consonants are found to cause the word unintelligible. Examples are 'arrive' and 'decide' as pronounced by Singaporean1. This might be the result of the fact that final consonant omission is also a common practice of Thai English speakers. Therefore, Thais tend not to rely much on sound features of a final consonant in their recognition of a word.

b. Words Not Pronounced with Distinctive Phonetic Features

It is shown in Tables 19, 20 and 21 that there are five words pronounced by Singaporeans with native-like pronunciation yet still unintelligible to Singaporean listeners. The words are 'both', 'throw', 'feature' and 'wife' pronounced by Singaporean1 and 'wife' pronounced by Singaporean2. To find out the cause, the relationship between the phonetic features in the test tokens pronounced by Singaporean English speakers and the substitutes given by Thai listeners is investigated. The results are shown in the following table.

Table 23: Correlation between Phonetic Features in the Test Tokens Pronounced by Singaporeans and Substitute Responses Given by Thais

	Test Tokens	Transcription	Recurrent Substitute Responses by Thais	Sounds Shared between Test Token and Its Substitute Responses
Sing1	both	[boʊθ]]	broke	/b/ as onset; /o/ as nucleus
			book	/b/ as onset; back vowel as nucleus
	throw	[θroʊ]	show	fricative sound as onset; /o/ as nucleus
			flow	fricative cluster as onset; /o/ as nucleus
	feature	[fɪtʃɚ]	teacher	high front vowel as nucleus of the 1st syllable; /tʃ/ as onset; [ɚ] as nucleus of the 2nd syllable
			pitch	labial consonant as onset; /ɪ/ as nucleus; /tʃ/ sound
			chair	/tʃ/ as onset (the 2nd syllable of the test token)
	wife	[waɪf]	wise	/w/ as onset; /aɪ/ as nucleus; fricative consonant as coda
			white	/w/ as onset; /aɪ/ as nucleus
			write	/aɪ/ as nucleus
			right	/aɪ/ as nucleus
Sing2	wife	[waɪf]	white	/w/ as onset; /aɪ/ as nucleus
			voice	labial consonant as onset; fricative consonant as coda
			wise	/w/ as onset; /aɪ/ as nucleus; fricative consonant as coda

According to Table 23, it can be seen that even though the substitute responses for the same test tokens are various, they share some phonetic features with the test tokens themselves. To begin with 'both' pronounced by Singaporean1, its substitute responses are 'broke' and 'book'. Comparing with the target word, both of them have /b/ as onset and a back vowel as nucleus.

In case of 'throw' pronounced by Singaporean1, its substitute responses are 'show' and 'flow'. Comparing with the target word, both of them have a fricative sound as onset and /o/ as nucleus.

As for 'feature' pronounced by Singaporean1, its substitute responses are 'teacher', 'pitch' and 'chair'. Comparing with the target word,

'teacher' has a front vowel as nucleus of the 1st syllable, /tʃ/ as onset and [ɚ] as nucleus of the 2nd syllable; 'pitch' has labial consonant as onset; /ɪ/ as nucleus and contains /tʃ/ sound; and 'chair' has /tʃ/ as onset which is found in the 2nd syllable of the test token. What all substitute responses share is the /tʃ/ sound.

Regarding 'wife' pronounced by Singaporean1 and 2, its substitute responses are 'wise', 'white', 'write', 'right' and 'voice'. Comparing with the target word, 'wise' and 'white' have the /w/ sound as onset whereas 'voice' have labial consonant as onset. Except for 'voice', all of them have the vowel /aɪ/ as nucleus but only 'wise' and 'voice' have fricative consonant as coda.

According to the information above, it is found that listeners, Singaporeans or Thais alike, sometimes fail to recognize some phonetic features of sounds in the words even though they are not distinctive ones. The correlation between the phonetic features as presented in the table clarifies that the substitutes are resulted from the listeners' assumption based on certain phonetic features they could recognize. These findings, therefore, reaffirm the idea that the use of distinctive phonetic features is not a major cause of intelligibility failures between Singaporean and Thai English speakers.

5.3 Summary of the Findings

To summarize the overall findings, 3 observations are made according to the results from the two subject groups. First of all, among the unintelligible words either of Singaporean or Thai English speakers, more are pronounced with

distinctive phonetic features than without. Looking closely into the words pronounced with distinctive phonetic features, very few of the distinctive phonetic features are really the cause of intelligibility failures.

Secondly, two third of the distinctive phonetic features having been proved to cause the words of Thai speakers to be unintelligible to Singaporean listeners are uniquely used by Thais, hence, not found in Singapore English. These features are replacement of /w/ for /v/ in 'very' and replacement of /tʃ/ for /ʃ/ in 'share'. Since Singaporeans do not use these two distinctive phonetic features in their variety, it is logical that they did not recognize 'very' and 'share' correctly when Thais pronounced them as [wɛrɪ] and [tʃæːr]. In similar nature, one of the distinctive phonetic features proved to cause the words of Singaporean speakers to be unintelligible to Thai listeners is uniquely used by Singaporeans, hence, not found in Thai English, either. The feature is the change of monophthong /æ/ into /ɛ/ in 'than'. Since Thais do not practice this distinctive phonetic feature, they did not realize that Singaporean speaker was saying the word 'than' if it were pronounced as /ðɛn/.

Lastly, 2 distinctive phonetic features proved to be the cause of intelligibility failures between Singaporean and Thai English speakers are found to be shared characteristics of both varieties. These features are dentalization of /d/ substituting for /ð/ in 'them'; and change of diphthong /aɪ/ into /aʊ/ in 'child'. It is interesting why such distinctive phonetic features could even block intelligibility between these speakers despite the fact that they are equally common in both varieties. The feasible explanation would involve a mismatch between the speakers and the distinctive phonetic features they produced. The fact that Singapore English

and Thai English have these two distinctive phonetic features as parts of their characteristics brings out the idea of general practice of the speakers within their speech community. As a result of this, they are supposed to recognize these two features whenever they hear them from their community fellows. However, because of the lack of knowledge about the characteristic phonetic features shared between the two varieties, they might not expect to find such features in the speech of the outsiders, in this case, the speakers of their counterpart variety. Therefore, their recognition of a word would primarily rely on the acoustic signal by which the standard model of pronunciation is taken as reference, instead of their local model. As a result, they fail to recognize the speech sound as it is meant to be. Their familiarity with the features does not help with intelligibility since it was not extended beyond their community.

CHAPTER VI

CONCLUSION

6.1 Conclusion

This study was aimed to investigate intelligibility of English speech between Singaporean and Thai English speakers. The investigation scope was limited to word recognition level by using phonemic contrast elicitation test as the instrument and dictation as the method. In addition to comparing intelligibility levels between speakers of these two varieties of English, the study is aimed to investigate phonetic features that are the cause of intelligibility failures between them.

The results of this research study show that, at word level, intelligibility scores of Singaporean English speakers towards Thai English speakers remains at approximately 57 percent where as those of Thai English speakers towards Singaporean English speakers are approximately at 44.25 percent. However, both are considered moderately sufficient for communication. In addition, between the two speaker groups, Singaporeans have higher intelligibility level towards Thai English speakers than Thais do towards Singaporean English speakers. This means Singaporeans understand Thai English better than Thais do Singapore English and, therefore, the hypothesis stated in Chapter I has been confirmed.

Regarding phonetic features blocking intelligibility, only 3 distinctive features, namely, replacement of /w/ for /v/ in ‘very’; replacement of /tʃ/ for /ʃ/ in ‘share’; and dentalization of /d/ substituting for /ð/ in ‘them’ can be proved to be the

cause of intelligibility failures of Singaporean listeners towards Thai speakers. On the other side, only 2 distinctive features, namely, change of monophthong /æ/ into /ɛ/ in 'than' and change of diphthong /aɪ/ into /aʊ/ in 'child' can be proved to be the cause of intelligibility failures of Thai listeners towards Singaporean speakers.

It is also found that some words with native-like pronunciation are also unintelligible to listeners, Singaporeans and Thais alike. Such findings are evidence that the distinctive phonetic features alone cannot block intelligibility between speakers from different varieties of English since intelligibility failures could result from other factors as well.

6.2 Implication

The implication of this study is concerned with 2 aspects: one of English as an international language and the other of English language teaching.

6.2.1 Implication for English as an International Language

The finding that Singaporean and Thai English speakers moderately understand each other despite the use of distinctive phonetic features of their own varieties implies that there remains intelligibility between non-native English speakers from the outer circle and the expanding circle. Therefore, the idea that English might be disintegrated into mutually unintelligible languages due to emergence of new varieties seems to lack supporting evidence here. Besides, since rather a few of intelligibility failures are actually caused by the use of distinctive

phonetic features, an attempt to establish a lingua franca core as initiated by Jenkins (2001; 2004) might not be necessary in enhancing intelligibility of English speech between speakers from different varieties. Rather, exposure to more varieties should be emphasized because it helps facilitate listener's perception, a major source of intelligibility failures.

6.2.2 Implication for English Language Teaching

The results of the study will be beneficial to the English language teaching as follows.

6.2.2.1 Curriculum Design

Since it is found that the standard native-speaker pronunciation does not guarantee intelligibility between non-L1 English speakers, other practical model(s) of English pronunciation should be considered to be included in the curriculum. In this regard, it is necessary to consider first which model(s) will be practical in real communication in the environment of the language learners. This idea is in agreement with several linguists (Kachru, 1983, 1986 and 1987; Kenworthy, 1987; Strevens, 1992; Crystal, 1997; Jenkins, 2001; Kachru and Nelson, 2001; Bent and Bradlow, 2003), who raise the question of intelligibility as "to whom?" With this consideration, it will be ensured that the curriculum answers the communicative goals of language learners. Also, the status of English as an international language is re-emphasized.

6.2.2.2 Teaching Materials

In consequence of the curriculum design, a variety of pronunciation models of English should be employed in the class. This will allow the language learners exposure to more varieties of English. According to Lee (2004), a lot of experience to various pronunciations of English helps promote learner's intelligibility towards speakers from different language background.

6.2.2.3 Testing and Evaluation

The assessment and evaluation in language teaching should be in correspondent to the aim of the course and teaching materials. That is, the criteria for pass and fail should not rely on the achievement of learners to communicate successfully with native English speakers alone. Rather, they should also be able to recognize the utterance of English speakers whose pronunciation is different from that of native English speakers, as well, given that English is now an international language.

6.3 Suggestions for Further Study

There are some suggestions for further study as follows.

First of all, a broader scale should be investigated in similar studies. For example, the studies might investigate intelligibility between the same groups of English speakers but at phrase, sentence or text level.

Secondly, the focus could be shifted to other population, such as between other two groups of English speakers. According to this, population could be English speakers from different countries in the outer circles or expanding circle or one is from a country in the outer circle and another is from a country in the expanding circle.

With further studies, intelligibility of English speech between speakers from different varieties of English will be investigated in various aspects. In case the findings of those studies are in the same direction as those of the present one, the idea of distinctive phonetic features as being a minor factor hindering intelligibility between English speakers from different varieties will be re-assured. More importantly, all of the findings will enhance the understanding about intelligibility of English speech in real situation in the context of World Englishes.

REFERENCES

Atechi, S. N. 2004. "The Intelligibility of Native and Non-native English Speech: A Comparative Analysis of Cameroon English and American and British English." Doctoral dissertation, Graduate school, Technischen Universität Chemnitz.

Bansal, R. K. 1969. The Intelligibility of Indian English. Monograph 4, Hyderabad: Central Institute of English and Foreign Language. Cited in J. Jenkins. (2001). The Phonology of English as an International Language: New Models, New Norms, New goals. 2nd ed. Hong Kong: Oxford University Press.

Begum, R., and Kandiah, T. 1997. "Misrecognitions of Variability in New Varieties of Tamil Minority Usage in Singapore English." In E. W. Schneider (ed.), Englishes Around the World: Studies in Honour of Manfred Görlach, pp. 189-204. Amsterdam: John Benjamins Publishing.

Benrabah, M. 1997. "Word-stress – A Source of Unintelligibility in English." IRAL [Online]. Available from: http://wilsontxt.hwwilson.com/pdfhtml/02653/OYT44 /2S5.html [2004, Dcember 8]

Brent, T, and A. R. Bradlow. 2003. "The Interlanguage Speech Intelligibility Benefit." Journal of the Acoustical Society of America, 114/3: 1600-1610.

Brodkey, D. 1972. "Dictation as a Measure of Mutual Intelligibility: A Pilot Study." Language Learning, 22/2: 203-220.

Brown, A. 1986. "The Pedagogical Importance of Consonantal Features of the English of Malaysian and Singapore." RELC Journal, 17/2: 1-25.

Brown, K. 1968. "Intelligibility." In A. Davies (ed.), Language Testing Symposium, pp. 180-191. London: Oxford University Press.

Catford, J. C. 1950. "Intelligibility." English Language Teaching, 5/1: 7-15.

Chutisilp, P. 1984. "A Sociolinguistic Study of an Additional Language: English in Thailand." Dissertation, University of Illinois at Urbana Champaign.

CIE Online. Qualification and Awards [Online]. (n.d.). Available from: http://www.cie.org.uk/CIE/WebSite/qualificationsandawardshub/ qualification [2004, December 15].

Crystal, D. 1997. English as a Global Language. Cambridge: Cambridge University Press.

Davies, A. 1968. "Oral English Testing in West Africa." In A. Davies (ed.), Language Testing Symposium, pp. 150-179. London: Oxford University Press.

Deterding, D. 2003. "An Instrumental Study of The Monophthong Vowels of Singapore English." English World-Wide, 24/1: 1-16.

Fry, D. B. 1955. "Articulation Tests." PhD Thesis, University of London. Cited in S. N. Atechi. 2004. "The Intelligibility of Native and Non-native English Speech: A Comparative Analysis of Cameroon English and American and British English." Doctoral dissertation, Graduate school, Technischen Universität Chemnitz.

Gass, S., and E. Varonis. 1984. "The Effect of Familiarity on the Comprehensibility of Non-native Speech." Language Learning 34/1: 65-89.

Görlach, M. 1991. Englishes. Studies in Varieties of English 1984-1988. Amsterdam: John Benjamins Publishing Company.

Gramley, S., and K. Pätzold. 2004. A Survey of Modern English. 2nd ed. London: Routledge.

Gupta, A. F. 2004. Singapore English [Online]. Last updated 20 August 2004. Available from: http://www.leeds.ac.uk/english/staff/afg/singen2.html [2004, October 29]

Ingram, E. 1968. "Attainment and Diagnostic Testing." In A. Davies (ed.), Language Testing Symposium, pp. 71-97. London: Oxford University Press.

Jayasuriya, K., and A. Rosser. 2001. "Economic Crisis and the Political Economy of Economic Liberalisation in Southeast Asia." In G. Rodan, K. Hewison, and R. Robinson (eds.), The Political Economy of South-east Asia: Conflicts, Crisis, and Change. 2nd ed. Oxford: Oxford University Press.

Jenkins, J. 2001. The Phonology of English as an International Language: New Models, New Norms, New Goals. 2nd ed. Hong Kong: Oxford University Press.

Jenkins, J. 2003. World Englishes. London: Routledge.

Kachru, B. B. (ed.). 1983. The Other Tongue: English Across Cultures. 1st edition. Oxford: Pergamon Press.

Kachru, B. B. 1986. The Alchemy of English: The Spread, Functions, and Models of Non-native Englishes. Oxford: Pergamon Press, reprinted 1990, Urbana: University of Illinois Press.

Kachru, B. B. 1987. "The Bilingual's Creativity: Discoursal and Stylistic Strategies in Contact Literature." In L. E. Smith (ed.), Discourse Across Cultures, pp. 125-140. London: Prentice Hall.

Kachru, B. B., and C. L. Nelson. 2001. "World Englishes." In Burns, Anne and Caroline Coffin (eds.), Analyzing English in a Global Context, pp. 9-25. London: Routledge.

Kenworthy, J. 1987. Teaching English Pronunciation. London: Longman.

Lee, J. 2004. "A Study of L1 Influence on Speech Intelligibility between NNS from Various L1." M.A. Thesis in Linguistics, School of Arts, University of Surrey.

Nelson, C. L. 1983. "Intelligibility and Non-Native Varieties of English." In B. B. Kachru (ed.), The Other Tongue: English Across Cultures, pp. 58-73. 1st Pergamon Press edition. Oxford: Pergamon Press.

Olsson, M. 1972. Intelligibility: A Study of Errors and Their Importance. The GUME Project. Gothenburg: Department of Educational Research, Gothenburg School of Education.

Perren, G. E. 1968. "Testing Spoken Language: Some Unsolved Problems." In A. Davies (ed.), Language Testing Symposium, pp. 107-116. London: Oxford University Press.

Pingkarawat, N. 2002. "Cohesive Features in Documentary Articles from English Newspapers in Thailand and in America." Asian Englishes, 5/2: 24-43.

Platt, J. 1982. "English in Singapore, Malaysia, and Hong Kong." In R. W. Bailey and M. Görlach (eds.), English as a World Language, pp. 384-414. Ann Arbor: The University of Michigan Press.

Platt, J., and H. Weber. 1980. English in Singapore and Malaysia: Status: Features: Functions. Oxford: Oxford University Press.

Platt, J., H. Weber, and M. L. Ho. 1983. Singapore and Malaysia. Amsterdam: John Benjamins Publishing Company.

Prasithrathasint, A. 1996. "What is 'Good English' for Thais?" In M. Newbrook (ed.), English is an Asian Language: The Thai Context, pp. 64-70. NSW: The Macquarie Library.

Richards, J. C. 1983. "Singapore English: Rhetorical and Communicative Styles." In B. B. Kachru (ed.), The Other Tongue: English Across Cultures. 1st Pergamon Press ed. Oxford: Pergamon Press.

Rodan, G. 2001. Singapore: "Globalization and the Politics of Economics Restructuring." In G. Rodan, K. Hewison, and R. Robinson (eds.), The Political Economy of South-east Asia: Conflicts, Crisis, and Change. 2nd ed. Oxford: Oxford University Press.

Smith, L. E. 1992. "Spread of English and Issues of Intelligibility." In B. B. Kachru (ed.), The Other Tongue: English Across Cultures. 2nd ed. Urbana: University of Illinois Press.

Smith, L. E., and J. A. Bisazza. 1983. "The Comprehensibility of Three Varieties of English for College Students in Seven Countries." Language Learning, 32/2: 259-269.

Smyth, D. 2001. "Thai Speakers." In M. Swan, and B. Smith (eds.), Learner English, pp. 343-356. 2nd ed. Cambridge: Cambridge University Press.

Speak Good English Movement, Singapore. Speak Good English Movement2005 [Online]. (n.d.). Available from: http://www.goodenglish.org.sg/SGEM/online_lesson/index.htm [2005, November 24]

Strevens, P. 1992. "English as an International Language: Directions in the 1990s." In B. B. Kachru (ed.), The Other Tongue: English Across Cultures, pp. 27-47. 2nd ed. Urbana: University of Illinois Press.

Talone, E., and G. Yule. 1987. "Communication Strategies in East-West Interactions." In L. E. Smith (ed.), Discourse Across Cultures, pp. 49-65. London: Prentice Hall.

Tay, M. 1979. "The Uses, Users and Features of English in Singapore." In J. Richards (ed.), Occasional Papers No. 8. New Varieties of English: Issues and Approaches. Singapore: SEOMEO Regional Language Center.

Tiffen, B. 1974. "The Intelligibility of Nigerian English." Unpublished Doctoral Thesis, University of London. Cited in S. N. Atechi. 2004. "The Intelligibility of Native and Non-native English Speech: A Comparative Analysis of Cameroon English and American and British English." Doctoral dissertation, Graduate school, Technischen Universität Chemnitz.

Toh, Koon Peng. 1996. "English is an Asian Language: Is This Reflected in our Textbooks?" In M. Newbrook (ed.), English is an Asian Language: The Thai Context, pp. 43-58. New South Wales: Macquarie Library Pty Ltd.

Trudgrill, P. and J. Hannah. 2002. International English. London: Cambridge University Press.

Tuaycharoen, P. 2003. "A Reflection of Thai English." Language and Linguistics, 21/2: 47-65.

Wordlists Page. The Word Frequency Lists [Online]. (n.d.). Available from: http://www1.harenet.ne.jp/~waring/vocab/wordlists/vocfreq.html [2005, February 27].

APPENDICES

Appendix A

Questionnaire for Singaporean Subjects
Survey Questionnaire on Experiences in English

Name:_____
Age: _____
Sex: _____
Highest Education_____
Occupation_____
Number of years studying English _____

Instruction: Please answer all of the questions.

1. Have you ever been living abroad in any English speaking country for at least 3 years?
   _____ Yes. Specify the country _____
   _____ No.

2. How often do you have any chances to communicate verbally with any foreigners using English as a medium?
   _____ Daily.
   _____ Weekly.
   _____ Monthly.
   _____ Yearly.
   _____ Less frequent than all of the above

3. Have you ever had any chances to interact with Thais in English?
   _____ Yes.
   _____ No.

4. How often do you have the contact in number 3?
   _____ Daily.
   _____ Weekly.
   _____ Monthly.
   _____ Yearly.
   _____ Less frequent than all of the above

5. When did your most recent encounter with Thais occur?

   _____

6. For how long did that most recent encounter with Thais last?

   _____

Thank you!

□□□

Appendix B

Questionnaire for Thai Subjects
Survey Questionnaire on Experiences in English

Name:_____
Age: _____
Sex: _____
Highest Education_____
Occupation_____
Number of years studying English _____

Instruction: Please answer all of the questions.

1. Have you ever been living abroad in any English speaking country for at least 3 years?
   _____ Yes. Specify the country _____
   _____ No.

2. How often do you have any chances to communicate verbally with any foreigners using English as a medium?
   _____ Daily.
   _____ Weekly.
   _____ Monthly.
   _____ Yearly.
   _____ Less frequent than all of the above

3. Have you ever had any chances to interact with Singaporeans in English?
   _____ Yes.
   _____ No.

4. How often do you have the contact in number 3?
   _____ Daily.
   _____ Weekly.
   _____ Monthly.
   _____ Yearly.
   _____ Less frequent than all of the above

5. When did your most recent encounter with Singaporeans occur?

   _____

6. For how long did that most recent encounter with Singaporeans last?

   _____

Thank you!

□□□

Appendix C

Backgrounds of Singaporean Subjects

Subject Code	Age	Sex	Highest Education*	Occupation	No. of Years Studying English	Experience in Living Abroad in English Speaking Country	Chance to Communicate Verbally with Foreigners in English	Chance to Interact with Thais	Most Recent Chance to Interact with Thais in English	Duration of the Chance
S1m	21	M	A Level	Student	12	No	Less than yearly	Less than yearly	2 years ago	1 week
S2m	23	M	University	Student	20	No	Less than yearly	Less than yearly	15 years ago	2 weeks
S3m	24	M	Undergraduate	Student	18	No	Yearly	Less than yearly	4 years ago	A few minutes
S4m	22	M	A Level	Student	13	No	Less than yearly	Less than yearly	A few months ago	A few minutes
S5m	21	M	A Level	Student	12	No	Yearly	None	-	-
S1f	21	F	Junior College	Student	21	No	Weekly	Less than yearly	July 2004 (1 year ago)	3 days
S2f	20	F	Undergraduate	Student	12	No	Less than yearly	Less than yearly	Aug. - Nov. 2003 (2 years ago)	A few months
S3f	21	F	Undergraduate	Student	12	No	Less than yearly	None	-	-
S4f	19	F	A Level	Student	12	No	Less than yearly	Less than yearly	Year 2001 (4 years ago)	1 day
S5f	25	F	Undergraduate	Student	18	No	Monthly	None	-	-

* All Singaporean subjects are university students at the present time but their answers are various due to their different interpretation of 'highest education'.

Appendix D

Backgrounds of Thai Subjects

Subject Code	Age	Sex	Highest Education*	Occupation	No. of Years Studying English	Experience in Living Abroad in English Speaking Country	Chance to Communicate Verbally with Foreigners in English	Chance to Interact with Singaporeans	Most Recent Chance to Interact with Singaporeans in English	Duration of the Chance
T1m	25	M	Master's Degree	Student	7	USA	Weekly	Less than yearly	Last year	1 month
T2m	23	M	Master's Degree	Student	12	No	Monthly	Less than yearly	2 months ago	1 month
T3m	27	M	Master's Degree	Student	18	No	Monthly	None	-	-
T4m	27	M	Master's Degree	Student	21	No	Monthly	Less than yearly	5 months ago	3 weeks
T5m	23	M	Master's Degree	Student	12	No	Yearly	Less than yearly	3 months ago	1-2 weeks
T1f	24	F	Master's Degree	Student	20	No	Monthly	Less than yearly	4 months ago	1 month
T2f	23	F	Master's Degree	Student	18	No	Less than yearly	None	-	-
T3f	25	F	Master's Degree	Student	20	USA	Monthly	None	-	-
T4f	26	F	Master's Degree	Student	23	No	Monthly	Less than yearly	3 months ago	2-3 hours
T5f	27	F	Master's Degree	Student	15	No	Weekly	Less than yearly	3 months ago	3 weeks

* All Thai subjects are first-year graduate students at the present time.

Appendix E

Details of the Selected Words

The tables below provide details of the selected words, the target distinctive phonetic features and the tentative pronunciation and responses by the informants.

The Selected Words for Singaporean Speakers

Selected Words	Target Distinctive Phonetic Features	Tentative Pronunciation by Singaporean Speakers	Tentative Responses by Thai Listeners*
1. oil	- final /l/ is deleted	[oɪ]	oil
2. both	- /oʊ/ is monophthongised and lenghtened - /θ/ is replaced by [t̪ˀ]or [d̪]	[boːt̪ˀ], [boːd̪]	both, boat, bode
3. decide	- final /d/ is devoiced or deleted or treated as glottal stop	[dɪsaɪtˀ], [dɪsaɪʔ]	decide, design
4. child	- post-vocalic /l/ is vocalized to [ʊ] or omitted - final /d/ is omitted	[tʃaʊd], [tʃaɪd], [tʃaʊ], [tʃaɪ]	child, shout, shy, shine, Charles
5. arrive	- unstressed /ə/ is pronounced with its full vowel quality as /a/ - final /v/ is devoiced or treated as glottal stop	[aɾaɪf], [aɾaɪʔ]	arrive, alive, alike, arise
6. defence	- two final consonants are reduced to one or both are omitted or modified to glottal stop	[dɪfɛn], [dɪfɛʔ], [dɪfɛnʔ], [dɪfɛ]	defence, defend
7. each	- long vowel /i/ is shortened - final /tʃ/ is replaced by [tˀ] or glottalised	[ɪtˀ], [ɪʔ]	each, eat, it
8. throw	- initial /θ/ is treated as [t̪], [t̪ˢ] or [s̪] - /oʊ/ is monophthongised and lengthened	[t̪roː], [t̪ˢroː], [sroː̪]	throw, troll, slow

Selected Words	Target Distinctive Phonetic Features	Tentative Pronunciation by Singaporean Speakers	Tentative Responses by Thai Listeners*
9. happen	- unstressed /ə/ is pronounced with its full vowel quality as /ɛ/	[hæpɛn]	happen, have been
10. leg	- final /g/ is devoiced into /k/ and unreleased or treated as glottal stop	[lɛk], [lɛk˺], [lɛʔ]	leg, lake
11. feature	- long vowel /i/ is shortened	[fɪtʃə˞]	feature, fisher
12. poor	- the second component in the diphthong is lengthened	[pʰʊəː], [pʰʊɑː]	poor
13. staff	- long vowel /aː/ is shortened	[stʌf]	staff, stuff
14. than	- initial /ð/ is treated as [d̪] or [z̪]	[d̪æn], [z̪æn]	than, Dan, sand
15. fill	- post-vocalic /l/ is vocalized to [ʊ]	[fɪʊ]	fill, few, feel, field
16. series	- final /z/ is devoiced or omitted	[sɪrɪs], [sɪrɪ]	series
17. allow	- unstressed /ə/ is pronounced with its full vowel quality as /a/	[alaʊ]	allow, aloud
18. attend	- unstressed /ə/ is pronounced with its full vowel quality as /æ/ - two final consonants are reduced to one or both are omitted or modified to glottal stop	[ætɛn], [ætɛ] [ætɛnʔ]	attend, at ten
19. build	- post-vocalic /l/ is vocalized to [ʊ] - final /d/ is deleted or glottalised	[bɪʊd], [bɪʊ] [bɪʊʔ]	build, built, bill, billed
20 wife	- final /f/ is replaced by [p˺] or deleted or glottalised	[waɪp˺], [waɪ] [waɪʔ]	wife, white, wise, wide, why

The Selected Words for Thai Speakers

Selected Words	Target Distinctive Phonetic Features	Tentative Pronunciation by Thai Speakers	Tentative Responses by Singaporean Listeners*
1. share	- initial /ʃ/ is replaced by [tɕʰ] - lax /ɛ/ is treated as tense and lengthened - final /r/ is omitted	[tɕʰɛː]	share, chair
2. train	- /eɪ/ is monophthongised and lengthened	[tʰreːn]	train, trend
3. already	- post-vocalic /l/ is vocalized to [ʊ] - /r/ is replaced by trill [r̲] or /l/ - lax /ɛ/ is treated as tense and lengthened - ending vowel /ɪ/ is lengthened	[ɔr̲ɛːdi],[ɔʊr̲ɛːdi] [ɔlɛːdi],[ɔʊlɛːdi]	already
4. field	- post-vocalic /l/ is vocalized to [ʊ] - final /d/ is omitted	[fiu], [fiud]	field, few, fill, feel
5. join	- /dʒ/ is devoiced or replaced by [tɕ] - final /n/ is omitted	[tɕɔɪn], [tɕɔɪ]	join, joy
6. food	- final /d/ is devoiced into /t/ and the /t/ is unreleased	[futˀ]	food, foot
7. very	- /v/ is replaced by /w/ - lax /ɛ/ is treated as tense and lengthened	[wɛːri]	weary
8. bill	- /ɪ/ is lengthened - post-vocalic /l/ is vocalized to [ʊ]	[biu]	bill, build
9. them	- /ð/ is replaced by [tʰ], [s], or [d] - lax /ɛ/ is treated as tense and lengthened	[tʰɛːm], [s̪ɛːm], [d̪ɛːm]	them, tame
10. while	- post-vocalic /l/ is vocalized to [ʊ] or omitted	[waʊ], [waɪ]	while, why, white, wide, wine, wow

Selected Words	Target Distinctive Phonetic Features	Tentative Pronunciation by Thai Speakers	Tentative Responses by Singaporean Listeners*
11. thank	- /θ/ is replaced by [t^h] 0r [s] - final /k/ is omitted	[t^hæŋk], [t^hæŋ], [sæŋk], [sæŋ]	thank, tank, sank, sang
12. prime	- final /m/ is omitted	[p^hraɪ]	prime, pride, pry
13. involve	- /v/ is replaced by /w/ - post-vocalic /l/ is vocalized to [ʊ] - final /v/ is devoiced into /f/ or replaced by [p˺] or glottalised	[ɪnwoʊf], [ɪnwoʊp˺], [ɪnwoʊʔ]	involve
14. mother	- lax /ʌ/ is treated as tense and lengthened - /ð/ is replaced by [t^h], [s], or [d] - /ɚ/ is changed to /ə/	[mɑt^hə], [mɑsə], [mɑdə]	mother
15. foot	- /ʊ/ is lengthened - final /t/ is unreleased	[fut˺]	foot, food
16. appear	- /ɚ/ is changed to /ə/	[əp^hɪə]	appear
17. future	- /tʃ/ is replaced by [tɕ^h] - /ɚ/ is changed to /ə/	[fɪʊtɕ^{h}ɚ]	future
18. watch	- final /tʃ/ is replaced by [t˺]	[wɔt˺]	watch, what, wash
19. prove	- final /v/ is devoiced into /f/ or replaced by [p˺]	[p^hruf], [p^hrup˺]	proof
20 film	- /l/ is omitted	[fim]	film

Remarks: * Since some distinctive features are shared between Singapore English and Thai English, they are expected not to block intelligibility. As such, the correct responses are included in this table. However, other possible responses expected to appear in the answer sheets are based on characteristics of each variety, which could influence the listeners' phonetic realization. Besides, null responses are possible in all cases; this means the listeners completely do not recognize the speech sounds.

Appendix F

Models of Test Tokens

I. Sentences for Singaporean and native English speakers

The target words are written in italics.

1. He said the word *oil.*
2. He said the word *both.*
3. He said the word *decide.*
4. He said the word *child.*
5. He said the word *arrive.*
6. He said the word *defence.*
7. He said the word *each.*
8. He said the word *throw.*
9. He said the word *happen.*
10. He said the word *leg.*
11. He said the word *feature.*
12. He said the word *poor.*
13. He said the word *staff.*
14. He said the word *than.*
15. He said the word *fill.*
16. He said the word *series.*
17. He said the word *allow.*
18. He said the word *attend.*
19. He said the word *build.*
20. He said the word *wife.*

II. Sentences for Thai and native English speakers

The target words are written in italics.

1. He said the word *share.*
2. He said the word *train.*
3. He said the word *already.*
4. He said the word *field.*
5. He said the word *join.*
6. He said the word *food.*
7. He said the word *very.*
8. He said the word *bill.*
9. He said the word *them.*
10. He said the word *while.*
11. He said the word *thank.*
12. He said the word *prime.*
13. He said the word *involve.*
14. He said the word *mother.*
15. He said the word *foot.*
16. He said the word *appear.*
17. He said the word *future.*
18. He said the word *watch.*
19. He said the word *prove.*
20. He said the word *film.*

@@@@@

Appendix G

Presentation of the Test Tokens*

1. Sentences for Thai Listeners

1. He said the word feature. *NS-11*
2. He said the word defence. *NS-6*
3. He said the word oil. *S2-1*
4. He said the word series. *S1-16*
5. He said the word wife. *S2-20*
6. He said the word than. *S2-14*
7. He said the word throw. *NS-8*
8. He said the word happen. *S1-9*
9. He said the word both. *S1-2*
10. He said the word staff. *NS-13*
11. He said the word fill. *S1-15*
12. He said the word each. *S2-7*
13. He said the word attend. *S2-18*
14. He said the word feature. *S1-11*
15. He said the word build. *NS-19*
16. He said the word feature. *S2-11*
17. He said the word defence. *S1-6*
18. He said the word arrive. *S1-5*
19. He said the word oil. *NS-1*
20. He said the word both. *NS-2*
21. He said the word poor. *S1-12*
22. He said the word throw. *S2-8*
23. He said the word wife. *S1-20*
24. He said the word decide. *S1-3*
25. He said the word fill. *NS-15*
26. He said the word poor. *NS-12*
27. He said the word decide. *NS-3*
28. He said the word happen. *S2-9*
29. He said the word child. *S2-4*
30. He said the word staff. *S1-13*
31. He said the word than. *NS-14*
32. He said the word allow. *NS-17*
33. He said the word attend. *NS-18*
34. He said the word throw. *S1-8*
35. He said the word leg. *S1-10*
36. He said the word than. *S1-14*
37. He said the word build. *S2-19*
38. He said the word both. *S2-2*
39. He said the word decide. *S2-3*
40. He said the word each. *S1-7*
41. He said the word allow. *S1-17*
42. He said the word child. *S1-4*

2. Sentences for Singaporean Listeners

1. He said the word thank. *NS-11*
2. He said the word food. *NS-6*
3. He said the word share. *T1-1*
4. He said the word appear. *T2-16*
5. He said the word film. *T1-20*
6. He said the word mother. *T1-14*
7. He said the word bill. *NS-8*
8. He said the word them. *T2-9*
9. He said the word train. *T2-2*
10. He said the word involve. *NS-13*
11. He said the word foot. *T2-15*
12. He said the word very. *T1-7*
13. He said the word watch. *T1-18*
14. He said the word thank. *T2-11*
15. He said the word prove. *NS-19*
16. He said the word thank. *T1-11*
17. He said the word food. *T2-6*
18. He said the word join. *T2-5*
19. He said the word share. *NS-1*
20. He said the word train. *NS-2*
21. He said the word prime. *T2-12*
22. He said the word bill. *T1-8*
23. He said the word film. *T2-20*
24. He said the word already. *T2-3*
25. He said the word foot. *NS-15*
26. He said the word prime. *NS-12*
27. He said the word already. *NS-3*
28. He said the word them. *T1-9*
29. He said the word field. *T1-4*
30. He said the word involve. *T2-13*
31. He said the word mother. *NS-14*
32. He said the word future. *NS-17*
33. He said the word watch. *NS-18*
34. He said the word bill. *T2-8*
35. He said the word while. *T2-10*
36. He said the word mother. *T2-14*
37. He said the word prove. *T1-19*
38. He said the word train. *T1-2*
39. He said the word already. *T1-3*
40. He said the word very. *T2-7*
41. He said the word future. *T2-17*
42. He said the word field. *T2-4*

43.	He said the word poor.	*S2-12*	43. He said the word prime. *T1-12*
44.	He said the word defence.	*S2-6*	44. He said the word food. *T1-6*
45.	He said the word arrive.	*S2-5*	45. He said the word join. *T1-5*
46.	He said the word wife.	*NS-20*	46. He said the word film. *NS-20*
47.	He said the word happen.	*NS-9*	47. He said the word them. *NS-9*
48.	He said the word series.	*NS-16*	48. He said the word appear. *NS-16*
49.	He said the word oil.	*S1-1*	49. He said the word share. *T2-1*
50.	He said the word allow.	*S2-17*	50. He said the word future. *T1-17*
51.	He said the word leg.	*NS-10*	51. He said the word while. *NS-10*
52.	He said the word series.	*S2-16*	52. He said the word appear. *T1-16*
53.	He said the word fill.	*S2-15*	53. He said the word foot. *T1-15*
54.	He said the word each.	*NS-7*	54. He said the word very. *NS-7*
55.	He said the word attend.	*S1-18*	55. He said the word watch. *T2-18*
56.	He said the word arrive.	*NS-5*	56. He said the word join. *NS-5*
57.	He said the word staff.	*S2-13*	57. He said the word involve. *T1-13*
58.	He said the word child.	*NS-4*	58. He said the word field. *NS-4*
59.	He said the word build.	*S1-19*	59. He said the word prove. *T2-19*
60.	He said the word leg.	*S2-10*	60. He said the word while. *T1-10*

Remarks: - Italics specify code for test tokens.

- NS = native speaker
- S1 = Singaporean speaker No. 1
- S2 = Singaporean speaker No. 2
- T1 = Thai speaker No. 1
- T2 = Thai speaker No. 2

- Numbers indicate the order of sentences in Appendix VI
  - Sentences for Thai listeners are based on Model I
  - Sentences for Singaporean listeners are based on Model II

Appendix H

Written Response: Singaporeans Listening to Native and Thai English Speakers

Item No.	Subject Code / Target word	IPA Transcripts	SL1	SL2	SL3	SL4	SL5	SL6	SL7	SL8	SL9	SL10
1	thank (NS)	[θæŋk]	bank	saints	thank	thank	think	thank	thank	sand	thank	thank
2	food (NS)	[fud]	-	food	food	two	food	food	who	two	food	food
3	share (T1)	[ʃɛr]	share	share	share	share	share	share	share	share	share	shared
4	appear (T2)	[ɛpʰɪɚ]	up here	appear	appear	appear	appear	appear	appeal	appear	up here	appear
5	film (T1)	[fɪlm]	-	film	-	film	-	film	-	-	-	-
6	mother (T1)	[marɚ]	mother	mother	mother	mother	mother	mother	mother	mother	mother	mother
7	bill (NS)	[bɪl]	bill	bill	feel	bill	nail	bill	-	tell	bill	fail
8	them (T2)	[d̪ɛm]	-	dim	damp	damn	damp	them	-	dam	damn	them
9	train (T2)	[tʰreːn]	train	train	train	train	train	train	train	train	claim	train
10	involve (NS)	[ɪnvɑlv]	-	involve	involve	-	-	involve	-	involve	involve	involve
11	foot (T2)	[fʊt]	foot	foot	foot	fruit	food	fort	-	foot	foot	foot
12	very (T1)	[vɛrɪ]	-	very	very	very	-	very	-	girl	-	very
13	watch (T1)	[wɔtʃ]	watch	watch	what	what	watch	watch	watch	what	watch	watch
14	thank (T2)	[θæŋk]	bank	thank	thank	thanks	thank	thank	bank	thank	thank	thank
15	prove (NS)	[pʰruv]	who	who	who	crew	clue	-	true	through	pure	cool
16	thank (T1)	[θæŋk]	bank	bank	thank	thank	-	thank	bank	bound	thank	thank
17	food (T2)	[fud]	food	food	food	who	food	food	food	food	food	food
18	join (T2)	[tɕɔɪn]	join	join	join	join	join	join	join	join	join	join
19	share (NS)	[ʃɛr]	share	share	share	share	share	share	share	share	share	share
20	train (NS)	[tʰreɪn]	train	train	train	train	train	train	train	train	train	train
21	prime (T2)	[pʰraɪm]	-	prime	prime	prime	prime	prime	rhyme	climb	crime	prime
22	bill (T1)	[bɪl]	bill	bill	-	feel	-	bill	-	bell	bill	veil
23	film (T2)	[fĩːm]	-	theme	theme	him	theme	film	theme	theme	theme	theme
24	already (T2)	[ɔɹedi]	already	already	already	already	already	already	already	already	already	already
25	foot (NS)	[fʊt]	foot	watch	fudge	watch	watch	watch	watch	fort	watch	watch
26	prime (NS)	[pʰraɪm]	crime	prime	crime	crime	trying	prime	try	-	prime	-
27	already (NS)	[ɔɾedɪ]	already	already	already	already	already	already	already	already	already	already
28	them (T1)	[d̪ɛm]	-	dam	then	damp	damp	-	them	dam	vamp	them
29	field (T1)	[fiu]	-	feel	-	him	feel	-	-	feel	field	-
30	involve (T2)	[ɪnvolv]	-	invoke	involve	involve	involve	involve	involve	involve	involve	kimbo

Written Response: Singaporeans Listening to Native and Thai English Speakers (Cont.)

Item No.	Subject Code / Target word	IPA Transcripts	SL1	SL2	SL3	SL4	SL5	SL6	SL7	SL8	SL9	SL10
31	mother (NS)	[mʌ́ðɚ]	mother	mother	mother	mother	mother	mother	mother	mother	mother	mother
32	future (NS)	[fyutʃɚ]	future	future	teacher	future	future	future	teacher	teacher	future	proture
33	watch (NS)	[wɑtʃ]	watch	watch	watch	watch	watch	watch	watch	watch	watch	watch
34	bill (T2)	[biu]	bill	bill	peel	bill	-	bill	bail	bill	bill	bill
35	while (T2)	[waɪl]	-	fine	wild	smile	acquire	-	-	-	-	-
36	mother (T2)	[maḍɚ]	mother	mother	mother	mother	mother	mother	mother	mother	mother	mother
37	prove (T1)	[pʰruf]	-	who	cool	who	food	cool	cool	two	cool	-
38	train (T1)	[tʰreːn]	train	train	train	frame	train	plan	train	train	train	safe
39	already (T1)	[ɔɾedi]	already	already	already	already	already	already	already	already	already	already
40	very (T2)	[wɛrɪ]	-	very	really	very	very	weary	weary	weary	weary	very
41	future (T2)	[fyutʃɚ]	future	future	future	future	future	future	future	future	future	future
42	field (T2)	[fiud]	field	feel	feel	fend	feel	feel	field	field	field	feel
43	prime (T1)	[pʰraɪm]	crime	prime	crime	crime	prime	climb	-	climb	prime	crime
44	food (T1)	[fuːd]	-	who	food	who	good	cool	rude	food	food	grew
45	join (T1)	[tɕɔ̃ɪn]	join	join	join	join	join	join	join	join	join	done
46	film (NS)	[fɪlm]	film	film	film	film	film	film	helm	film	film	film
47	them (NS)	[ðɛm]	them	them	them	them	them	them	them	dam	them	them
48	appear (NS)	[əpɪɚ]	up here	appear	appear	appear	appear	appear	appear	appear	appear	appear
49	share (T2)	[tʃæːr]	chair	chair	chair	chair	chair	chair	chair	chair	chair	chair
50	future (T1)	[fɪutʃɚ]	future	future	future	future	-	future	future	teacher	future	-
51	while (NS)	[waɪl]	while	wild	wild	while	wild	wild	wild	wild	wild	wild
52	appear (T1)	[æpʰɪɚ]	up here	appear	appear	appear	appear	appear	appear	appear	appear	appear
53	foot (T1)	[fʊt]	foot	foot	foot	food	foot	foot	foot	foot	foot	foot
54	very (NS)	[vɛri]	very	very	very	very	very	very	very	very	very	very
55	watch (T2)	[wɔtʃ]	watch	watch	watch	watch	watch	watch	watch	watch	watch	watch
56	join (NS)	[dʒɔɪn]	join	join	join	join	join	join	join	join	join	join
57	involve (T1)	[ɪnvolv]	-	involce	involve	-	-	-	-	-	-	-
58	field (NS)	[fild]	field	field	feel	field	feel	feel	heel	heal	field	feel
59	prove (T2)	[pʰruːf]	-	prove	-	-	-	-	-	food	proof	fruit
60	while (T1)	[waʊl]	-	while	woo!	while	wild	wild	wow	wild	wow	wild

Appendix I

Written Response: Thais Listening to Native and Singaporean English Speakers

Item No.	Subject Code / Target word	IPA Transcripts	TL1	TL2	TL3	TL4	TL5	TL6	TL7	TL8	TL9	TL10
1	feature (NS)	[fitʃɚ]	feature	teacher	picture	picture	teacher	picture	feature	teacher	teacher	picture
2	defence (NS)	[dɪfens]	defense	defense	-	defend	defense	defend	defense	-	prefence	defend
3	oil (S2)	[ɔɪ]	oil	oil	oil	oil	oil	oil	-	oil	oil	oil
4	series (S1)	[sɪris]	-	she	cheese	cheeze	release	-	-	he	-	-
5	wife (S2)	[waɪf]	white	white	white	white	white	voice	wise	white	wife	white
6	than (S2)	[ɖen]	bend	bend	then	send	then	pen	bend	-	bell	then
7	throw (NS)	[θrou]	throw	slow	low	role	slow	roll	throw	flow	floor	throw
8	happen (S1)	[hæpen]	happen	happen	happen	happen	happen	happen	-	haven	-	happen
9	both (S1)	[bouθ]	both	broke	book	broke	broke	broke	-	-	both	broke
10	staff (NS)	[staːf]	staff	staff	scare	fat	staff	dark	start	staff	star	duck
11	fill (S1)	[fɪu]	seal	feel	field	full	feels	few	feel	hill	feel	fill
12	each (S2)	[ɪtʃ]	each	each	hit	hit	each	each	each	eat	-	fish
13	attend (S2)	[ətʰen]	attend	attend	-	coin	attend	happen	-	attend	a pen	attend
14	feature (S1)	[fitʃɚ]	-	feature	teacher	pitch	feature	teacher	teacher	teacher	teacher	chair
15	build (NS)	[bɪld]	bill	bill	bill	fail	feel	build	-	bill	bill	bill
16	feature (S2)	[fitʃɚ]	-	feature	-	shirt	t-shirt	teacher	feature	feature	feature	picture
17	defence (S1)	[dɪfens]	defend	defense	even	present	defence	defense	defense	prefence	prefence	defense
18	arrive (S1)	[ɚraɪf]	arrive	arrive	life	light	arrive	alike	alive	alive	alive	arrive
19	oil (NS)	[oɪl]	oil	oil	oil	oil	oil	oil	oil	oil	oil	oil
20	both (NS)	[bouθ]	both	boat	boat	bowl	boat	bowl	-	blow	both	bowl
21	poor (S1)	[pʰuə]	poor	poor	poor	poor	poor	-	-	-	-	poor
22	throw (S2)	[tʰrou]	throw	throw	trow	flow	throw	throw	-	throw	ture	throw
23	wife (S1)	[waɪf]	wive	wife	wise	white	white	write	wise	white	right	right
24	decide (S1)	[dɪsaɪʔ]	decide	beside	beside	beside	desire	decide	beside	beside	beside	beside
25	fill (NS)	[fɪl]	pill	hell	fail	fail	fail	fail	flow	fill	fail	fail
26	poor (NS)	[pʰuə]	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
27	decide (NS)	[dɪsaɪd]	decide	desire	desired	design	desired	decided	desire	design	preside	design
28	happen (S2)	[hæpɚn]	happen	happen	happen	happen	happen	happen	-	happen	happen	apple
29	child (S2)	[tʃauld]	-	saw	shout	shout	shout	child	-	-	show	child
30	staff (S1)	[staːf]	-	staff	staff	stuff	staff	staff	start	staff	staff	staff

Written Response: Thais Listening to Native and Singaporean English Speakers (Cont.)

Item No.	Subject Code / Target word	IPA Transcripts	TL1	TL2	TL3	TL4	TL5	TL6	TL7	TL8	TL9	TL10
31	than (NS)	/ðæn/	van	dame	dam	dam	than	than	land	ramp	van	damn
32	allow (NS)	[əlaʊ]	allow	around	around	allow	allow	allow	allow	allow	allow	allow
33	attend (NS)	[ətʰend]	attend	attend	attend	attend	attend	attend	attend	attend	attend	attend
34	throw (S1)	[θroʊ]	show	throw	show	flow	throw	throw	show	show	throw	throw
35	leg (S1)	[leg˺]	late	leg	red	leg	late	neck	-	leg	leg	red
36	than (S1)	[ðen]	bench	bend	tense	bench	then	then	-	-	when	then
37	build (S2)	[bɪu?]	build	build	built	build	build	build	build	bill	bill	build
38	both (S2)	[bɔθ]	bow	book	book	above	book	book	book	book	both	bowl
39	decide (S2)	[dɪsaɪ?]	decide	delight	decide	beside	fight	decide	beside	beside	beside	beside
40	each (S1)	[itʃ]	each	each	each	pitch	age	each	which	each	age	each
41	allow (S1)	[əlaʊ]	allow	around	around	allow	allow	allow	allow	allow	allow	allow
42	child (S1)	[tʃaʊl]	-	shall	shout	shout	shout	child	shall	show	show	child
43	poor (S2)	[pʰʊa]	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
44	defence (S2)	[dɪfens]	defend	defend	decide	design	defend	defense	defend	defend	defence	defend
45	arrive (S2)	[əraɪf]	arrive	arrive	around	allow	arrive	alive	alive	alive	arrive	arrive
46	wife (NS)	[waɪf]	wife	wife	wife	wife	wife	wife	wife	wife	wife	white
47	happen (NS)	[hæpən]	happen	happen	happen	happen	happen	happen	happen	happen	happen	happen
48	series (NS)	[sɪriz]	silly	serious	see	series	cheese	series	-	see	-	series
49	oil (S1)	[ɔɪ]	oil	oil	oil	oil	oil	oil	oil	oil	oil	oil
50	allow (S2)	[əlaʊ]	allow	around	allow	allow	around	allow	allow	allow	allow	allow
51	leg (NS)	[leg]	leg	length	leg	leg	lake	lack	leg	leg	leg	leg
52	series (S2)	[sɪris]	series	TV	beef	beef	T.V.	he	-	-	-	series
53	fill (S2)	[fɪu]	feel	feel	sell	feel	feel	few	fill	few	feel	fill
54	each (NS)	[itʃ]	each	each	each	pitch	each	each	each	each	-	each
55	attend (S1)	[ətʰen]	attend	happen	attend	attend	attend	attend	-	attend	attend	attend
56	arrive (NS)	[əraɪv]	arrive	arrive	alive	arrive	arrive	alive	alive	alive	arrive	arrive
57	staff (S2)	[stʌf]	stop	stop	tough	stop	stop	oak	stop	stop	staff	stop
58	child (NS)	[tʃaɪld]	child	child	child	shout	child	child	child	child	children	child
59	build (S1)	[bɪu?]	build	build	build	build	build	build	build	bill	built	build
60	leg (S2)	[leg˺]	leg	leg	lip	leg	leg	leg	-	leg	leg	leg

Appendix J

IPA Transcripts: Native and Singaporean Speakers

Item No.	Target Word	IPA Transcripts		
		Native	Sing1	Sing2
1	oil	[oɪl]	[ɔɪ]	[ɔɪ]
2	both	[boʊθ]	[boʊθ]	[bɔθ]
3	decide	[dɪsaɪd]	[dɪsaɪʔ]	[dɪsaɪʔ]
4	child	[tʃaɪld]	[tʃaʊl]	[tʃaʊld]
5	arrive	[əraɪv]	[əraɪf]	[əraɪf]
6	defence	[dɪfɛns]	[dɪfɛns]	[dɪfɛns]
7	each	[itʃ]	[itʃ]	[ɪtʃ]
8	throw	[θroʊ]	[θroʊ]	[t^hroʊ]
9	happen	[hæpən]	[hæpɛn]	[hæpən]
10	leg	[lɛg]	[lɛgˀ]	[lɛgˀ]
11	feature	[fitʃɚ]	[fitʃɚ]	[fitʃɚ]
12	poor	[p^hʊə]	[p^hʊə]	[p^hʊa]
13	staff	[stɑ:f]	[stɑ:f]	[stʌf]
14	than	[ðæn]	[ðɛn]	[d̪ɛn]
15	fill	[fɪl]	[fɪu]	[fɪu]
16	series	[sɪriz]	[sɪris]	[sɪris]
17	allow	[əlaʊ]	[əlaʊ]	[əlaʊ]
18	attend	[ət^{h}ɛnd]	[ət^{h}ɛn]	[ət^{h}ɛn]
19	build	[bɪld]	[bɪuʔ]	[bɪuʔ]
20	wife	[waɪf]	[waɪf]	[waɪf]

Appendix K

IPA Transcripts: Native and Thai Speakers

Item No.	Target Word	IPA Transcripts		
		Native	Thai1	Thai2
1	share	[ʃɛr]	[ʃɛr]	[tʃæːr]
2	train	[tʰreɪn]	[tʰren]	[tʰren]
3	already	[ɔrɛdɪ]	[ɔredi]	[ɔuredi]
4	field	[fild]	[fiu]	[fiud]
5	join	[dʒɔɪn]	[tɕɔ̃ɪn]	[tɕɔɪn]
6	food	[fud]	[fuːd]	[fud]
7	very	[vɛrɪ]	[vɛrɪ]	[wɛrɪ]
8	bill	[bɪl]	[bɪl]	[biu]
9	them	[ðɛm]	[d̪ɛm]	[d̪ɛm]
10	while	[waɪl]	[waʊl]	[waɪl]
11	thank	[θæŋk]	[θæŋk]	[θæŋk]
12	prime	[pʰraɪm]	[pʰraɪm]	[pʰraɪm]
13	involve	[ɪnvɑlv]	[ɪnvolv]	[ɪnvolv]
14	mother	[mʌðɚ]	[marɚ]	[mad̪ɚ]
15	foot	[fʊt]	[fʊt]	[fʊt]
16	appear	[əpʰɪɚ]	[æpʰɪɚ]	[ɛpʰɪɚ]
17	future	[fyutʃɚ]	[fɪutʃɚ]	[fyutʃɚ]
18	watch	[wɑtʃ]	[wɔtʃ]	[wɔtʃ]
19	prove	[pʰruv]	[pʰruf]	[pʰruːf]
20	film	[fɪlm]	[film]	[fɪ̃ːm]

Appendix L

Statistical Data

T-Test: Comparison of Intelligibility Scores of Singaporeans towards Native and Thai1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NATIVE2	13.6000	10	2.45855	.77746
	THAI1	10.7000	10	2.16282	.68394

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	NATIVE2 & THAI1	10	.748	.013

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	NATIVE2 - THAI1	2.9000	1.66333	.52599	1.7101	4.0899	5.513	9	.000

T-Test: Comparison of Intelligibility Scores of Singaporeans towards Native and Thai2

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NATIVE2	13.6000	10	2.45855	.77746
	THAI2	12.1000	10	1.72884	.54671

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	NATIVE2 & THAI2	10	.298	.403

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	NATIVE2 - THAI2	1.5000	2.54951	.80623	-.3238	3.3238	1.861	9	.096

T-Test: Comparison of Intelligibility Scores of Singaporeans towards Thai1 and Thai2

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	THAI1	10.7000	10	2.16282	.68394
	THAI2	12.1000	10	1.72884	.54671

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	THAI1 & THAI2	10	.157	.664

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	THAI1 - THAI2	-1.4000	2.54733	.80554	-3.2222	.4222	-1.738	9	.116

T-Test: Comparison of Intelligibility Scores of Thais towards Native and Singaporean1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NATIVE	10.9000	10	2.23358	.70632
	SING1	8.8000	10	2.97396	.94045

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	NATIVE & SING1	10	.214	.553

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	NATIVE - SING1	2.1000	3.31495	1.04828	-.2714	4.4714	2.003	9	.076

T-Test: Comparison of Intelligibility Scores of Thais towards Native and Singaporean2

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NATIVE	10.9000	10	2.23358	.70632
	SING2	8.9000	10	2.51440	.79512

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	NATIVE & SING2	10	.493	.148

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	NATIVE - SING2	2.0000	2.40370	.76012	.2805	3.7195	2.631	9	.027

T-Test: Comparison of Intelligibility Scores of Thais towards Singaporean1 and Singaporean2

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	SING1	8.8000	10	2.97396	.94045
	SING2	8.9000	10	2.51440	.79512

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	SING1 & SING2	10	.681	.030

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	SING1 - SING2	-.1000	2.23358	.70632	-1.6978	1.4978	-.142	9	.891

T-Test: Comparison of the Averages of Overall Intelligibility Scores between Singaporean and Thai Listeners

Group Statistics

	LISTENER	N	Mean	Std. Deviation	Std. Error Mean
TSAVR	singapore	10	11.4000	1.48698	.47022
	thai	10	8.8500	2.51716	.79600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
TSAVR	Equal variances assumed	5.762	.027	2.758	18	.013	2.5500	.92451	.60767	4.49233
	Equal variances not assumed			2.758	14.600	.015	2.5500	.92451	.57473	4.52527

BIOGRAPHY

Miss Tagsina Sripracha was born in Phetchaburi, on June 17, 1977. She graduated from Chulalongkorn University, Thailand with B.A. in 1999. For four years she worked in the business sector before deciding to pursue her interest in the field of education. In 2003, she joined the English as an International Language Program at Chulalongkorn University. At present, she works part-time as a subcontractor to Information Research and Development Division, National Electronics and Computer Technology Center (NECTEC) contributing to English-to-Thai Computer-Based Translation Service on the Internet Project.