

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This study aimed to explore the understanding of Malay speakers of English towards Arabic-accented English through three different experiments, namely, one discrimination test and two determination tests. Among these experiments, the way of multiple-choice testing was administered, which according to Boothroyd (1985) combined the properties of diagnostic ability, and offered ease and efficiency of application. In addition, vowels were chosen for study because they are affected by dialect variation more often than consonants (MacKay, 1997). In this paper, standard British English is used as a reference accent since it is a well-described accent (e.g. Gimson, 1980), and is deemed as a pronunciation model in many parts of the world.

3.1 Subjects

Five native Arabic speakers of English were selected as subjects, recruited primarily from the student populations at the University of Malaya in Malaysia. A questionnaire concerning the subjects' profiles was administered to obtain detailed information about each subject's age, language background, average daily use of English language, attitude towards the learning of English sound production.

As mentioned above, this study was listener-oriented, thus the focus would lay with the perception or understanding of the listeners' group, which consisted of the Malay

speakers of English, towards the production of target vowels produced by the subjects' group. In order to avoid interference of speaker variability and make the findings more valid, not many Arabic speakers were recruited. Ultimately, only one subject was adopted. This subject was elicited out of the five potential candidates being recorded for the target testing materials from the same country of the Arabian Peninsula. All the five potential informants were males between the ages of 29 to 33 years, most of whom grew in the south of Oman. All subjects participating learned English after the age of 7 and had varying degrees of exposure to English.

Amongst them, only postgraduate students were recruited for this study. Since most school subjects in Oman are held with English as the medium of instruction except Islamic and Culture Studies (Al-Issa, 2005) it could be anticipated that they did not have much difficulty using the English language. At the time of recording, they had been living in Malaysia for about 2 years, ranging from 1.5-3 years, and had been learning English for more than 23 years, the minimum being 22 years. They were likely to be exposed to an English environment on a day-to-day basis, for the language was mostly used by the participants in daily communication with their lecturers, classmates and friends other than those from their native countries; what is more, none of them spoke the official language of Malaysia, which is Bahasa Malaysia.

Since Modern South Arab languages have many dialects, for example, Soqotri, including Mehri, Hobyot, Harsusi, Bathari, and Jibbali (Simeone-Senelle, 2003), in order to avoid the influence of dialects as mentioned above, the sample of Arabic

speakers chosen was from one country of the Arabian Peninsula, the Sultanate of Oman. The variation in accent made the collection of data more difficult. All recordings of the speakers were examined by two native speakers of English and the researcher herself in order to collect the most appropriate English production for this study. Out of these five participants, only one was chosen for data collection. This chosen participant can be considered as a proficient speaker of English since he has a basic degree in Teaching of English as a Second Language. And being an English teacher, he is generally aware of the rules and knowledge of phonetics; and should be able to distinguish vowel pairs according to their length contrasts. In addition, through examination mentioned above, this subject was deemed to possess an Omani accent which represents the typical English pronunciation of Omani and is appropriate for the current study. Details of this specific subject were provided in Table 3.1 to 3.2; while for all five informants, a detailed description is given in the Appendix (cf. Appendix A).

Table 3.1

Studying Background of the Omani Subject

Speaker	Age	First Degree		Postgraduate	
		Major	MOI	Major	MOI
1	32	Teaching English as a Second Language	English	Master of English as a Second Language	English

Note: "MOI" indicates the medium of instruction of program.

Table 3.2

Characteristics of the Omani Subject

Speaker	Gender	E P	AOL	LOR	% English
1	M	GA	25	1.5	75

Note: “EP” indicates the English preference. “AOL” and “LOR” indicate the age of learning English and length of residence in Malaysia, in years, and “%English” self-estimated daily percentage use of English. The parameters used in the tables below were very similar to the ones used by Flege, MacKay & Meador (1999)

3.2 Listeners

As for the listeners group, in accordance with the needs of this study, there were altogether 20 participants involved, categorized into two groups, consisting of ten males and ten females each. They were a homogeneous group of English speakers: firstly, they were assigned from only one ethnicity of the Malaysian population, which is the local Malay ethnicity. And Bahasa Melayu being the first language was a prerequisite for recruitment. Secondly, they were all registered postgraduate students in the University of Malaya, this ensured their basic competence of English. English is considered a second language in Malaysia (Asmah, 1993). None of them had stayed overseas for study or other purposes. Thirdly, all of them were from the same age group with a range of 23 to 32 years. Finally, they were all chosen from the Department of Islamic Studies so that they bore similar language background. This eliminated the possibility of variations in the participants’ competency of English language. By the time of conducting the current study, they were all still doing their MA in the University of Malaya. The English language was mostly used in their daily communication and activities with lecturers, classmates and friends other than those from Malaysia.

According to learner profiles, this group of participants, who were native Malay speakers of English, had a mean age of 27.4 years. Years of learning English as a second language varied from 16 to 25 years with a mean of 25.4 years. When it came to the measurement of average daily use of English, a self-estimated percentage of daily use of English was adopted with a range from 0 to 100 percent representing “never” to “solely”. The mean scores of their daily communicative activities carried out through English were 34%, while that of the Omani group of informants was 61% respectively, though the percentage of their daily use of English in the specific skills of reading, writing and speaking varied.

Table 3.3

Studying Backgrounds of Malay Subjects

Subject	Age	First Degree		Postgraduate	
		Major	MOI	Major	MOI
1	27	Islamic Education	Malay English Arabic	Master of Syariah	Malay English Arabic
2	23	Applied Sciences with Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
3	24	Syariah and Law	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
4	24	Applied Sciences with Islamic Studies	Malay English Arabic	Master of Syariah	Malay English Arabic
5	24	Syariah and Law	Malay English Arabic	Master of Usuluddin	Malay English Arabic
6	25	Islamic Education	Malay English Arabic	Master of Usuluddin	Malay English Arabic

Table 3.3, continued

7	25	Usuluddin	Malay English Arabic	Master of Usuluddin	Malay English Arabic
8	26	Islamic Education	Malay English Arabic	Master of Syariah	Malay English Arabic
9	26	Applied Sciences with Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
10	32	Usuluddin	Malay English Arabic	Master of Usuluddin	Malay English Arabic
11	23	Usuluddin	Malay English Arabic	Master of Usuluddin	Malay English Arabic
12	24	Syariah	Malay English Arabic	Master of Syariah	Malay English Arabic
13	24	Islamic Education	Malay English Arabic	Master of Usuluddin	Malay English Arabic
14	24	Islamic Education	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
15	24	Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
16	25	Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
17	26	Islamic Studies	Malay English Arabic	Master of Usuluddin	Malay English Arabic
18	26	Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic
19	27	Islamic Studies	Malay English Arabic	Master of Syariah	Malay English Arabic
20	28	Islamic Studies	Malay English Arabic	Master of Islamic Studies	Malay English Arabic

Note: "MOI" indicates the medium of instruction of program.

Table 3.4**Characteristics of Malay Subjects**

Subject	Gender	E P	AOL	% English
1	F	GA	20	30
2	F	RP	16	20
3	F	RP	17	50
4	F	RP	17	35
5	F	RP	17	30
6	F	RP	18	20
7	F	RP	18	30
8	F	RP	19	43
9	F	RP	19	30
10	F	RP	25	25
11	M	RP	16	55
12	M	RP	17	15
13	M	RP	17	60
14	M	RP	17	30
15	M	RP	17	25
16	M	RP	18	25
17	M	GA	19	30
18	M	RP	19	50
19	M	RP	20	30
20	M	RP	21	15

Note: “EP” indicates the English preference. “AOL” indicates the age of learning English, in years, and “%English” self-estimated daily percentage use of English.

Participants from both groups had no history of speaking or hearing disorders. All of them signed a consent form assuring the confidentiality of their personal profiles and data collected. The detailed information of subjects was extracted through the “Learner Profile”, a copy of which is enclosed in the appendix (Appendix B).

3.3 The Research Instruments

There were two instruments adopted in this study. The core instrument was recording; whilst questions had been embedded into the “Learner Profile” to extract useful information accounting for the participants’ performances reacting to the recordings. These instruments were chosen so that the data elicited could contain both qualitative and quantitative information, thus the findings would be more objective.

3.3.1 Recordings

Tape recording serves a significant role in the collection of data. According to Labov (1972), to obtain a sufficient data of speech activity, tape-recording provides the most natural and objective source. Therefore, quite a portion of data was collected using a directional head-mounted microphone (Shure Model SM10A), which was deemed to “provide recordings suitable for auditory evaluation and acoustic analysis” (Flege, Frieda and Nozawa, 1997:173), through the professional voice processing software Goldwave in the Video Lab at the Main Library of the University of Malaya. The Omani subjects were seated with their lips approximately three inches from the microphone, as proposed by Ali Hubais (unpublished) this was deemed to produce the best recordings after test recordings were carried out. Prior to participating, the speakers passed a pure tone hearing screening from 500 to 4000 Hz and did not exhibit obvious speech hearing and production problems. This pre-screening was widely used by researchers conducting language perception and production researches (cf. Flege, MacKay and Meador, 1999; Schmidt, 1995). And before the recording took place, the requirements for recording were explained in detail to all speakers.

All five Omani English speakers were recorded in the same manner as mentioned above. Through each experiment, they followed the same instructions, using the same material presented in the same order. The reading materials prepared for each test were respectively: a word list of multiple-choice task, a discrimination task of a list of minimal pair words with two-two in pair, and a sentence list (cf. Appendix C, D, E). They were first familiarized with the orthography used in the lists. Pronunciation guides were available and used for some parts. For example, the vowel in the word “hawd” was elicited and embedded into “horse” with the cluster “or” underlined indicating the actual pronunciation. The readers were then provided with time to read through the materials to verify that they were able to produce them properly and fluently.

In addition, as for the selection of the Arabic speaker of English, in order to get a valid script of recording for the current study, the five candidates were asked to record the target testing materials designed by the researcher. And only one of these recordings was chosen to be used after careful inspection by the researcher herself and two native speakers of English, both from Kentucky in the south part of the USA.

3.3.2 Learner Profile

A questionnaire-like profile for the subjects was also administered to extract the detailed information of both the speakers and the listeners in order to adapt to the aim and design of the current research. Documented questions comprised were the subjects’ personal information, their English training background, attitude towards the necessity of learning basic phonetic knowledge in the L2, self-estimated percentage of daily use of

English as well as preference of two standard varieties of English, which were General American English and Received Pronunciation of British English.

3.4 Data

In order to gain valid data, the present study examined the reception of English monophthongs /ɪ/, /e/, /ʊ/, /ʌ/, /ɒ/, /æ/, /i:/, /ɔ:/, /ɜ:/, /ɑ:/, /u:/, which were contended by Lade Foged (2001, p. 81) that the lax vowels /ɪ/, /e/, /æ/, /ʊ/ and /ʌ/ tend to be “shorter, lower, and slightly more centralized” than their tense pair (for those that can be paired) by resorting to sound recordings of discrimination and determination tests as main tools of data collection. The schwa was not examined in this study as it only appears in unstressed syllables. The participants’ profiles were also documented to explore their personal details, hoping to get some hints for potential factors that might lead to their main problems of reception of target vowels. All speakers were required to finish the entire task individually, and only one of the five recordings was going to be adopted for the study. Before all the experiments, empirical pilot training work had been conducted to familiarize all the participants of the expected operations in order to achieve the ultimate goals of the tests successfully. They were presented with a recording elicited from the recording of one of the speakers other than the one whose recording was chosen to be the testing material.

The role of the researcher during the tests was as a guide to provide explanations and promoting the respondents to complete the task successfully. If the respondents had any problems over the equipment or recordings, the researcher promptly help ensure the

ongoing of the test. The rate at which the listeners heard those stimuli was fixed, and they were not allowed to stop during the tasks. Between every two experiments a five minute break was given. All the auditory prompts were presented via a loudspeaker.

3.4.1 Experiment One: Multiple-Choice Segmental Determination Test

The purpose of this experiment, as mentioned above, was to evaluate the native Omani subjects' production of eleven English vowels. This was realized through a determination test gotten by the development of a multiple-choice segmental intelligibility test on word bases, where a list of words was embedded in a /hVd/ format. It was designed to address two objectives in specific: estimate the degree of intelligibility of the production of English vowel monophthongs by Omani speakers of English for Malay subjects; and estimate the degree of intelligibility of each vowel individually in order to provide a description of the frequency of occurrence of its being misunderstood.

Since there were 11 English vowel monophthongs being examined in the current study, a total of 11 tokens were formed, with /V/ as the variable (Refer to Appendix C). The target vowels, namely, /ɪ/, /e/, /ʊ/, /ʌ/, /ɒ/, /æ/, /i:/, /ɔ:/, /ɜ:/, /ɑ:/, /u:/ were embedded in the tokens written in standard orthography: heed, hid, head, had, hod, hawed, Hudd, hard, herd, who'd, hood, where all the words were adapted from Ladefoged (2006: 39). Concerning the actual operation, in the "directions" of this test, each word was listed and assigned to each speaker; while there was another list of the target vowels those words represented correspondingly with the research.

The Omani speakers were instructed to notify the researcher upon encountering any unfamiliar words. Those words with uncertain pronunciation were defined and cued by the list of correspondingly vowel sounds. Moreover, the speakers were asked to repeat any words produced with an obvious dysfluency.

These tokens were recorded in a sentence frame “Say ____ again” by each Arab participant and were recorded in random order. There were a total of 44 items used in the test after selection from all the recordings of the five speakers (1 talker×11 tokens×4 randomizations). The target words were carefully separated from the carrier sentences and were digitized at 48 kHz (cf. Rogers, 1997) using the Goldwave software. The test was divided into two sessions of 22 multiple-choice questions each labeled with its respective sequence number. And there was a space between every four lines. In each session all the 11 tokens were read out at the beginning in order to refresh the listeners with a clear picture of all the vowels tested. One more word selected from the eleven was articulated only once at the end. And the informants, who were Malay speakers of English in the study, were asked to verify the very last sound they heard in each session.

They were provided each with a printed multiple-choice response sheet containing the tokens in each session, and were instructed to circle the word among the eleven given words they thought they heard. A voice would announce the number of each question so that error in circling words would be minimized. The task would last 15 minutes. Three sample items were given to familiarize the participants about the procedure before the actual task began.

3.4.2 Experiment Two: Minimal-Pair Discrimination Test

A sufficient number of researches concerning acoustic characteristics or degree of intelligibility of a certain language, variety or accent of language have resorted to the way of using minimal-pairs to probe acoustic dimensions distinct in their subjects (cf. Ansel & Kent, 1992; Rogers, 1997; Flege, 1999). Regarding test 2 (Appendix D), where the discrimination test was carried out, a list of words with the target vowels embedded in a CVC context were used for data collection, which were arranged in ABX design. The C is a stop consonant to ensure easy identification of the target vowel as well as to minimize the effects of co-articulatory features (Hubai, unpublished). Each target vowel was embedded in two stimuli. Since the schwa was not examined in this paper, there was no corresponding minimal pair word for the “central, front vowel /ɜ:/” (Peter Ladefoged, 2006: 88). Therefore, both the schwa and this particular vowel were not studied in this experiment. This made 20 tokens of the target vowels altogether. These tokens were sorted out into pairs to attain a list of 10 minimal pairs, where 2 sets of words representing each pair of corresponding vowels, for example, coed/could, hood/who’d were used to stand for vowels /u:/ and /ʊ/. Some of the words were adapted from Ladefoged (2006: 39) as test one and the rest were derived from Rogers (1997).

According to Judit (2007), a minimal pair is formed by two word forms that differ only in one segment in the same location. The rest of the segments must be phonologically identical with each identical pair at the same location. Many researchers conducted their studies by sorting words into minimal pairs (Cf, Flege and Port, 1981; Rogers, 1997; Yoshida and Hirasaka, 1983) as the acoustic segments of each pair of words are

identical except for the very vowel, it provides more convenience for the assessing of the speakers' articulation for the target vowels. Same as test one, the words containing the target minimal pairs were articulated and recorded by the native Arabic speaker of English; while the Malay subjects were going to discriminate the heard word from the two stimuli of minimal pairs given. The list of words can be obtained in Appendix D. All speakers were required to read at normal speed.

In this experiment, for each minimal pair words, the speaker was to read both of the words once throughout the recording process. At the end, one of them was chosen randomly and recorded by the very speaker. This recording was used later for the informants to decide what the third word was based on the discrimination of the previous two sounds heard. Also, before the listening test began, there would be two sets of examples ensuring that the subjects be refreshed and familiarized with the speaker's speed as well as way of pronunciation. In other words, the 20 subjects were designed to listen to one of the stimuli (A) first, then a different one (B), followed by the third (X) which was the same as one of the first two. The task of the subject after hearing each triad was to verify whether X is like A or like B.

The words for discrimination were also printed on a response sheet with all the minimal pairs listed. And during this experiment all the pairs were given in randomization. There were altogether twenty questions to be answered with four sets for each minimal pair.

3.4.3 Experiment Three: Word Determination Test

In this experiment there were a group of sentences constructed for the informants. The sentence materials were consisted of two sessions of twenty unrelated sentences selected from the Harvard Sentences (IEEE,1969) with ten sentences for each session. All of them were phonemically balanced so that the participants would be designated in a comparatively natural context where less phoneme or segment awareness would take place. Thus the result obtained would be more reliable and valid.

According to the research design, the Omani speakers were instructed to read through the sentence list before starting to record. All unfamiliar words were notified to the researcher on spot, and a fluency of reading was required as well. The two sets of sentences are shown in Appendix E. The listeners were played with the recording which lasted for a period of around 3 minutes. In each sentence there was one word missing, and their tasks were to fill in the blanks with the words they heard.

This experiment, though differing from the last two experiments, was to exhibit from another angle that speech perception could also be affected by the presence of context as in a real situation when conversation takes place rather than simply word or segmental based. Therefore comparison between results from the experiments that were non-context-based and the context-based one could be drawn. It was anticipated that the percentage of correct answers of this experiment would be higher than the previous two.

3.5 Data Analysis

For the sorting of data, since both qualitative and quantitative data were collected in this study they were analyzed separately and then combined to make a synthetical study which was contingent upon the different analysis systems.

The individual analysis may provide diagnostic information indicating the weakness to be highlighted and emphasized in training. Thus when managing the quantitative data, an individual performance of the vowel discrimination and determination task would be examined thoroughly for each listener in the subjects' group and contrasted according to their gender so that gender differences as a dimension affecting vowel perception in the current study would be discussed. In addition, error profile would be established diagnostically to reveal the vowel(s) which needed the most and least attention in teaching and learning processes of Omani L2 speakers of English. This could also benefit textbook writers, curriculum designers and academics who dedicated themselves to the research of second language learning and teaching. During the whole process the software SPSS was adopted to generate intended data.

The other critical portion of data was generated by resorting to the Learner Profile. Questions were elicited accounting for the potential resolution of the third research question (cf. Appendix B) .

3.6 Summary

This chapter describes the methodology used to examine the intelligibility of English monophthong vowels of Omani English speakers from the perspective of listener perception. The following chapter will present and discuss the results of the study.