Improving English Pronunciation Skills by Using English Phonetic Alphabet Drills in EFL Students

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Abstract

This study aims to investigate the improvement of EFL students' English pronunciation skills by using English phonetic alphabet drills. The samples of this study were 35 first-year students of English for International Communication major, Faculty of Humanities and Social Sciences, Rajamangala University of Technology Tawan-ok. They all registered for the English Pronunciation subject in the second semester. The instruments used for collecting data were English phonetic alphabet drills, English phonetic alphabet collecting forms, observation and focus group interview questions. The data were analyzed both statistically and descriptively. The results showed that all students were able to pronounce English consonant and vowel sounds more accurately after applying English phonetic alphabet drills. However, Nasal /m, n, ŋ/in the final position, and /l/ in the initial and medial position were still the problematic consonant sounds including central vowels, /ʌ/ and /ə/, and the back vowels, /ɒ/, /ʊ/, /u/ and /əʊ/. Students also had difficulties pronouncing voiced sounds. The causes of pronunciation errors were due to differences in the phonological system of the languages, mother tongue interference, and English spelling and pronunciation. From the findings, it was clear that the English phonetic alphabet knowledge could help student improve their English pronunciation.

Keywords: English pronunciation, English phonetic drills, Pronunciation errors

1. Introduction

English is an international language, which has recently played an important role in communication. English becomes an instrument for researching knowledge and information needed for a career. Therefore, it can be stated that speaking is the core of communication, and the most important component of speaking is pronunciation. Clear pronunciation will have effect on productive communication. Therefore, English pronunciation, including understanding the English phonological system is very essential for students leaning English as a second language or a foreign language. Huwingz (2004) mentioned that pronunciation is important for speaking and listening in communication. Speakers need to pronounce clearly and correctly, and listeners must be able to analyze the speech that they heard according to phoneme and phonological system to interpret it correctly. Therefore, pronouncing consonant and vowel sounds correctly is a basic element of pronunciation.

Moreover, pronouncing words accurately assists students in learning new vocabulary easily and gain more confidence in communication. For teaching English, Tauycharoen (2001) stated that learning vocabulary and structure is not enough for communication if students cannot pronounce the sounds that native speaker is able to understand. However, English pronunciation is one of the problems of Thai students due to the differences between Thai and English phonological systems. Some students do not understand the connections of unfamiliar letters, and sounds and cause them to miss pronunciation. Therefore, it is important and necessary to teach students how to pronounce correctly and understand the meaning of vocabulary (Torat, 2004). The study of Nokaew and Suksri (2005) showed that the phonic teaching is a form of language learning by learning the letter-sound correspondence, which has related phonemes. Weaver (1994) said that phonic teaching allows people to learn the character or symbol of each voice before actually reading it in the context of the written language and encourages awareness of the differences of sounds in each word.

In addition, having phonetic knowledge helps learners to acquire knowledge about speech organs, and places of articulation to make the English sounds accurate. The more students can understand and pronounce the words phonetically and correctly, the more likely they can pronounce English similarly to native speakers. As a result, students have confidence in their pronunciation. This makes communication more effective (Ruslansamae & Premin Karawi, 2015; Kulachit & Nuangchalerm, 2021). Learning pronunciation or having phonetics knowledge may be tools to practice the appropriate pronunciation. Therefore, research is aimed at studying the improvement of English pronunciation skills of students in English for International Communication major, Rajamangala University of Technology-ok. This study is also focused on developing pronunciation skills by using English phonetic alphabet drills to help them pronounce English correctly and effectively. The objective of the study is to investigate how English phonetic alphabet drills aid improvement of students' English pronunciation skills and to be a guideline for improving students' English pronunciation.

2. Review of the Study

2.1 The Similarities and Differences in Phonological System of Thai and English

Languages have a phonological system equivalent to the system of sounds in spoken languages. The phonological system in a specified language comprises the perceptually distinct units of sound that differentiate one word from another called phoneme. The difference between first and second language is a problem in learning pronunciation Bell, (1995). Consequently, one of the obstacles to realize satisfactory English pronunciation for most Thai students is to know the differences between the phonological system of English and Thai. Endoo (2017) investigated a comparative study of Thai and English consonants' phonemes and pointed out that the differences between the phonological system of English and Thai are. In English letter, there are twenty-six letters and twenty-four phonemes and in Thai letters and there are twenty-four letters and twenty-one phonemes. The twenty-one phonemes in Thai language consist of /p, t, c, k, ʔ, ph, th, ch, kh, tʃ, b, d, m, n, /ŋ/, f, s, h, l, r, w, y/ and the twenty-four phonemes of English contain /p, b, t, d, k, g, h, f, v, s, θ, ð, z, ʃ, ʒ, tʃ, dʒ, v, z, l, m, n, ŋ, r, w, j/. There are 9 phonemes that occur in the final position in Thai but there are 21 phonemes in English that occur in the final position. The number of plosive or stop sounds in Thai and English is different. There are six plosive phonemes in English, /p, b, t, d, k, g/, in English and nine in Thai, /p/, /t/, /k/, b/, /d/, /ph, /th/, /kh/ and /ʔ/. The sound /p/, /t/, and /k/ in Thai and English are similar. However, the sounds /p, t, k/ in English are voiceless which are aspirated sound, but in Thai, the three voiceless plosive or stop sounds, /p, t, k/, are the aspirated allophones [ph], [th], and [kh], the unaspirated allophones [p=], [t=], and [k=], and the unreleased allophones [p⁷], [t⁷], and [k⁷] (Jotikasthira, 2014). The /b/ and /d/ in both Thai and English phonological system are voiced sound. The difference is that /b/and /d/ in English are pronounced only by aspirated voiced sound, but /b/and /d/ in Thai appear in voiced sound and unaspirated sound. The /tʃ /in Thai and English are voiceless, but the difference in affricate between English and Thai is that /tʃ/ apart from being an aspirated sound is unaspirated sound. There are nine phonemes, /f, v, θ, ð, s, z, ʃ, ʒ, h/ in the fricative sound of English, but in Thai there are only three phonemes /f, s, h/. The phonemes /f, s, h/ in Thai can appear in only the initial position of word, but in English /f, v, θ, ð, z, ʃ, ʒ, h/can appear in both initial and final position, except /h/ that cannot be found in the final position of an English word.

2.2 Mother Tongue Interference

Several studies have claimed that in learning English as a second language or a foreign language, L1 always influences L2. Additionally, studies stated that mother tongue interference is the main cause of pronunciation errors in students. Hago and Khan (2015) investigated the pronunciation problems faced by Saudi EFL learners at secondary school. The results showed that learners had difficulties to pronounce eleven consonants sounds, /p/, /ʒ/, /ŋ/, /r/, /tʃ /, /ł /, /v/, /k/, /l/, /d/, and a great number of participants insert a vowel sound in English syllable to break up consonant clusters because the native language influenced their English pronunciation. Hassan (2014) investigated the problems in the English pronunciation of learners whose first language is Sudanese Spoken Arabic to find the problem sounds and

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factors that cause those problems. The finding showed that Sudanese students had problems with the pronunciation of English vowels that have more than one way to pronounce and some consonant sounds. The study concluded that the factors causing students English pronunciation errors were interference, different sound system, inconsistency of English sounds and spelling. Thai researchers also investigated the problems of pronunciation. Tanthanis (2012) studied English pronunciation problems of third-year interdisciplinary students at Thammasat University. The finding showed that the pronunciation problems of students were due to the need to simplify the pronunciation process or simplification process and mother tongue interference.

2.3 English Spelling and Pronunciation

English spelling is quite confusing because there is no one-to-one correspondence between the sounds that students hear and the letters that students see. That is, the English spelling system fails to represent the sounds of English. The inconsistency between spelling and sounds can pose issues for number of reasons (Kanoksillapatham, 2015). For instance, the vowel sounds in words *see*, *sea*, *me*, *people*, *receive* and *field* are represented by one phonetic symbol /i/. It shows that they are the same vowel sound. Meanwhile, the 's' letter in the word *sun*, *measure*, and *design* is represented by three different sounds, /s/, /ʒ/, and /z/. Fu and Aonsawat (2006) stated that the complexity of the sound creation process is different between a language with a complex writing system and an uncomplicated writing system. Spanish is an example of an uncomplicated writing system in that the alphabet system matches the sound system. That is, in Spanish, one letter represents one sound. On the other hand, English is a complex writing system in that one letter can represent more than one sounds. For example, the letter 't' in English can be pronounced three sounds ways, [th] in the word '*task*', [t=] in the word '*stand*' and [t⁷] in the word '*mat*'. The inconsistency between spelling and sounds in an uncomplicated writing system language becomes a problem for students studying English as a second or foreign language. To avoid such problems that a spelling system like English poses, it is essential to use the symbols representing the sound in exactly the way they are produced. A phonetic alphabet is a set of symbols representing sounds, and each sound is represented by only one symbol. Yim-on (2014) pointed out that studying the phonetic alphabet will help students break an incorrect correspondence between a letter and sound, and it helps students know the right pronunciation of the words they have to speak out. Moreover, having knowledge about phonetic alphabet will help students correct their English mistakes.

2.4 Thai Students' Pronunciation Problems

Several studies on English pronunciation problems were conducted, as well as the problems affecting the pronunciation skills of Thai undergraduate students. Chomphuboot (2015) found that Thai undergraduate students' pronunciation ability and presented that stress and intonation in English were the main problems, and they caused students fail in their communication. Mother tongue interference was the key factor that could enhance pronunciation problems. Dee-in (2006) studied about Thai people's problems with consonant sounds included /g/, /tʃ/, /dʒ/, /v/, /z/, /ʒ/, /θ/, /ð/, /ʃ/ and the problems with vowel sounds were

/i/, /I/, /e/, /ə/, /u/, /ʊ/, /aʊ/, /eI/ and /eə/. In addition to Thai's pronunciation problems, stress and intonation of English also play a part in their inability to produce the correct form of English speaking. Dee-in (2006) pointed that the manner of differences in the articulation of the two languages affected Thais' pronunciation errors in English. The study conducted by Phon-ngam (2008) revealed that Thai and Lao undergraduate students faced difficulty in pronouncing consonants. They always pronounced /r/ as /l/, pronounced /ð/ as /t/ and /d/, pronounced /θ/ as /t/ and /s/. To indicate Thai undergraduate students' pronunciation ability, Vairojanavong (2000) studied English pronunciation and found that students could not use their pronunciation ability to communicate understandably because of their English learning background, poor attitudes and motivation toward important roles of pronunciation and English learning. Wei and Zhou (2002) claimed that Thai students usually make use of Thai sense in English pronunciation, for example, neglecting to pronounce the final sounds, words with /r/ pronounced as /l/, word with /ð/ and /z/ pronounced as /s/. In addition, they used inappropriate intonation in Yes-No and Wh-questions. Stress is one of the biggest problems for them. Wei & Zhou pointed out many causes of those problems, for example, the language teachers' styles of pronunciation (always in Thai style) and the inhibitions to imitate native speakers' pronunciation.

2.5 The Factors of Thai Students' Pronunciation Errors

There are many factors that cause students to make errors in their pronunciation. Winaitham and Suppasetseree (2012) found in the study of English pronunciation errors and factors affecting English pronunciation of Thai undergraduate students that the long vowel sounds and the compound vowel were less inaccurate. Factors affecting English pronunciation are as follows: Lack of basic pronunciation knowledge of English, using the Thai tonal for English pronunciations, lack of will and habituation to speak melodically, lack of English in everyday life, and being anxious when using English for communication. Additionally, they lack basic pronunciation knowledge of English and phonetics, the difference in articulation between Thai and English, the minimal use of English from the world around them, too much anxiety when facing foreigners, and too much worry about English grammar, tenses, and vocabulary. Negative attitudes toward studying English affected students' pronunciation. Dee-in (2006) and Palawongse (2005) pointed that the factors affecting pronunciation errors, a difference between languages such as structure and patterns, sound system, manners of articulation were a struggle for learners in learning another language.

3. Materials and Methods

This research applied mix-methods to investigate the improvement of students' English pronunciation skills by using the English phonetic alphabet drills.

3.1 Samples of the Study

The samples of this study were 35 first-year students of English for International Communication major, Faculty of Humanities and Social Sciences, Rajamangala University of Technology Tawan-Ok. They all registered for the English Pronunciation subject in the second semester. The purposive sampling was applied for selecting the samples in this study.

All samples were students with different English pronunciation abilities who have never been or studied in any English- speaking countries.

3.2 Research Instrument

3.2.1 English phonetic alphabet drills consist of consonant and vowel English phonetic alphabet drills, which were applied to practice English pronunciation for 45 hours during English Pronunciation class

3.2.2 English phonetic alphabet collecting forms were lists of consonants and vowels that students pronounced. The English consonant and vowel sounds pronounced by samples were recorded. These consonant and vowel lists were used before and after practice consonant and vowel English phonetic alphabet drills. Three experts analyzed all data by using Excel programs to determine the Mean, Standard Deviation (S.D.) and comparing the difference with the statistical value t-test to Pearson Correlation Coefficient.

3.2.3 Observation was used to obtain information about errors students made before, during, and after applying English phonetic alphabet drills. The researchers observed errors students made. Before English Pronunciation class, students were asked to pronounce the consonants in given consonant list consisting of stop, fricative, affricate, nasal, literal and approximate. The consonant list contained initial, medial, and final sound, including the list of vowel sounds containing monophthongs and diphthongs. During practice pronunciation English phonetic alphabet drills were applied. After applying English phonetic alphabet drills, the researcher took notes of sounds that students could not pronounce correctly. The researcher also took notes of the sounds, which students may substitute with other sounds close to them.

3.2.4 Focus group interview questions comprised of six open-ended questions, which are as follows: (1) What consonant sounds do you have problem with pronunciation? (2) What vowel sounds did you have problem with pronunciation? (3) In your opinion, what are the causes of the problem in your pronunciation? (4) What had you done for improving your pronunciation? (5) What should you do to improve your English pronunciation? (6) Does English phonetic alphabet drills help you improve your English pronunciation? The samples were divided in to seven groups, and each group was interviewed with informal talk that took thirty to forty minutes. The data was recorded by the researchers, and all of them were categorized and coded. The content analysis was used to interpret the student responses and factors affecting students' pronunciation and pronunciation errors.

3. Results

The results were divided into consonant pronunciation, voicing, vowel pronunciation, observation results, focus group interview results. The data was analyzed by 3 experts using Excel programs to determine the Mean, and Standard Deviation (S.D.), and for comparing the mean difference with the statistical value t-test to Pearson Correlation Coefficient. The results showed pronunciation problems in the initial consonants, medial consonants and final consonants, voicing, vowel pronunciation that students have difficulties. Pronouncing English in initial consonants, medial consonants, and final consonants are presented in the table below.

3.1 English Consonant Pronunciation

The English consonant pronunciation was divided into consonant pronunciation before and after applying the English phonetic alphabet d rills.

Table 1. Mean and Standard Deviation of English consonant pronunciation classified by initial consonants, medial consonant, and final consonants before using the English phonetic alphabet drills

Consonants distinguished by manner of articulation	Initial consonant			Medial consonant			Final consonant			Total		
	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%
1. Stop	0.713	0.219	71.3	0.774	0.293	77.4	0.249	0.332	24.9	0.579	0.251	57.9
2. Fricative	0.533	0.222	53.3	0.497	0.223	49.7	0.277	0.362	27.7	0.436	0.260	43.6
3. Affricate	0.505	0.309	50.5	0.450	0.397	45.0	0.319	0.413	31.9	0.425	0.331	42.5
4. Nasal	0.371	0.456	37.1	0.429	0.384	42.9	0.111	0.214	11.1	0.304	0.302	30.4
5. Lateral	0.305	0.438	30.5	0.300	0.441	30.0	0.152	0.317	15.2	0.302	0.432	30.2
6. Approximate	0.435	0.211	43.5	0.448	0.238	44.8	0.162	0.365	16.2	0.348	0.227	34.8

From Table 1, the findings of the consonant pronunciation of students before using the English phonetic alphabet drills showed that the overall of stop sound was 57.9%. The students could pronounce the initial consonants 71.3%, 24.9% in medial consonants, and 57.4% in final consonants. In fricative sound, students could pronounce 43.6% on the whole, 53.3% in initial consonant, 49.7 in medial consonants, and 27.7% in final consonants. In the affricate sounds, students could pronounce this sound at 42.5% on the whole, 50.5% in initial consonants, 45% in medial consonants, and 31.9% in final consonants. Overall when students pronounced nasal sounds were 30.4%, 37.1% in initial consonants, 42.9% in medial consonants, and 11.1% in final consonants. For the most part of lateral pronunciation, students could pronounce at 25.2%, 30.5% in initial consonants, 30% in medial consonants, and 15.2% in final consonants. Largely in pronouncing approximate sound, students could pronounce 34.8%, 43.5% in initial consonants, 44.8% in medial consonants, and 16.2% in final consonants. The students' correct pronunciation from the results showed that stop sounds were frequently pronounced at 57.9%, fricative sounds at 43.6%, affricate sounds at 42.5%, approximate sounds at 34.8%, nasal sounds at 30.4%, and lateral sounds at 30.2% respectively. It can be said that the most problematic sound of English pronunciation that students made was nasal sounds in the final position, and the most problematic consonant sound in the initial and medial position was lateral sounds.

Table 2. Mean and Standard Deviation of English consonant pronunciation classified by initial consonants, middle consonants, and final consonants after using the English phonetic alphabet drills

Consonants distinguished by manner of articulation	Initial consonant			Medial consonant			Final consonant			Total		
	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%	$\bar{x}$	SD	$\bar{x}$%
1. Stop	0.951	0.111	95.1	0.950	0.118	95.0	0.862	0.203	86.2	0.921	0.123	92.1
2. Fricative	0.781	0.236	78.1	0.790	0.238	79.0	0.739	0.284	73.9	0.770	0.249	77.0
3. Affricate	0.781	0.236	78.1	0.857	0.245	85.7	0.833	0.221	83.3	0.838	0.215	83.8
4. Nasal	0.905	0.468	90.5	0.857	0.243	85.7	0.816	0.275	81.6	0.804	0.314	80.4
5. Lateral	0.914	0.284	91.4	0.914	0.284	91.4	0.810	0.336	81.0	0.879	0.283	87.9
6.Approximate	0.825	0.250	82.5	0.852	0.372	85.2	0.571	0.447	57.1	0.734	0.267	73.4

From Table2, the findings of the consonant pronunciation of students after using the English phonetic alphabet drills showed that the overall of stop sound was at 92.1%, 95.1% in initial consonants, 95% in medial consonants, and 86.2% in final consonants. For the most part of lateral pronunciation, students could pronounce at 87.9%, 91.4% in initial consonants, 91.4% in medial consonants, and 81% in final consonants. In the affricate sound, students could pronounce this sound at 83.8% on the whole, 78.1% in initial consonants, 85.7% in medial consonants, and 83.3% in final consonants. When students pronounced nasal sounds, the overall was at 80.4%, 90.5% in initial consonants, 85.7% in medial consonants, and 81.6% in final consonants. In fricative sound, students could pronounce 77% on the whole, 78.1% in initial consonant, 79% in medial consonants, and 73.9% in final consonants. In pronouncing approximate sound, students could pronounce 73.4%, 82.5% in initial consonants, 85.2% in medial consonants, and 57.1% in final consonants. Students' correct pronunciation from the results showed that stop sounds were pronounced the most frequently at 92.1%, lateral sounds at 87.9%, affricate sounds at 83.8%, nasal sounds at 80.4%, fricative sounds at 77%, and approximate sounds at 73.4%, respectively.

It can be said that the most problematic sound of English pronunciation students made after using English phonetic alphabet drills was in the final position. Overall, the approximate sounds were the most problematic sound, followed by fricative sounds, lateral sounds, nasal sounds, affricate sounds, and stop sounds, respectively. On the other hand, students could pronounce stop sounds accurately in the initial position.

Table 3. Comparison of the accuracy of English consonant pronunciation before and after the use of English phonetic alphabet drills

Consonants distinguished by manner of articulation	t-test	df	Sig.
1. Stop	9.794	34	0.000**
2. Fricative	8.387	34	0.000**
3. Affricate	7.518	34	0.000**
4. Nasal	8.586	34	0.000**
5. Lateral	7.825	34	0.000**
6. Approximate	8.321	34	0.000**

From Table 3, the results showed that after students applied English phonetic alphabet drills for practicing English consonants pronunciation, they were able to pronounce all consonants, stop, fricative, affricate, nasal, lateral, and approximate sounds more accurately with statistically significant at 0.01 (Sig. = 0.000).

Table 4. Comparison of English Consonant Voicing before and after the use of English phonetic alphabet drills

English Phonetic Alphabet	t-test	df	Sig.
Voiceless	10.008	34	0.000**
/p/	8.762	34	0.000**
/t/	9.627	34	0.000**
/k/	8.130	34	0.000**
/f/	6.029	34	0.000**
/θ/	4.493	34	0.000**
/s/	7.013	34	0.000**
/ʃ/	7.590	34	0.000**
/h/	1.000	34	0.162
/tʃ/	7.395	34	0.000**
Voiced	10.420	34	0.000**
/b/	9.397	34	0.000**
/d/	7.153	34	0.000**
/g/	5.625	34	0.000**
/v/	6.588	34	0.000**
/ð/	5.104	34	0.000**
/z/	4.085	34	0.000**
/ʒ/	5.616	34	0.000**
/dʒ/	5.450	34	0.000**
/l/	7.825	34	0.000**
/m/	8.803	34	0.000**
/n/	8.439	34	0.000**
/ŋ/	6.429	34	0.000**
/r/	5.822	34	0.000**
/w/	0.339	34	0.368
/j/	9.956	34	0.000**

Table 4 shows the comparison of voicing of the English consonants before and after using English consonants phonetic alphabet drills. The results found that overall students were able to pronounce voiceless consonant, /p/ /t/ /k/ /f/ /θ/ /s/ /ʃ/ and /tʃ/ more accurately at 10.008 with statistically significant at 0.01(Sig.= 0.000) except /h/, which students were able to pronounce correctly before and after using English consonant phonetic alphabet drills. Similarly, students were able to pronounce voiced consonants, /b/, /d/, /g/, /v/, /ð/, /z/, /ʒ/, /dʒ/, /l/, /m/, /n/, /ŋ/, /r/, /w/, and /j/, more correctly on the whole with statistically significant at

0.01 (Sig. = 0.000).

3.2 English Vowel Pronunciation

The English vowel pronunciation was divided into vowel pronunciation before and after applying the English phonetic alphabet Drills.

Table 5. Mean and Standard Deviation of English vowel pronunciation Classified by Monophthongs and Diphthongs before and after Using the English phonetic alphabet drills

0	Pre-test			Post-test			t-test	df	Sig.
	x̄	SD	x̄%	x̄	SD	x̄%			
Monophthong	0.390	0.282	39.0	0.798	0.281	79.8	8.774	34	0.000**
Front vowel	0.483	0.344	48.3	0.821	0.283	82.1	6.955	34	0.000**
/i/	0.546	0.450	54.6	0.843	0.339	84.3	4.196	34	0.000**
/I/	0.488	0.401	48.8	0.729	0.373	72.9	4.142	34	0.000**
/e/	0.543	0.435	54.3	0.886	0.280	88.6	4.955	34	0.000**
/æ/	0.354	0.326	35.4	0.825	0.272	82.5	8.808	34	0.000**
Central vowel	0.344	0.287	34.4	0.773	0.289	77.3	8.113	34	0.000**
/ɜ/	0.421	0.403	42.1	0.850	0.310	85.0	6.047	34	0.000**
/ʌ/	0.200	0.320	20.0	0.643	0.401	64.3	6.741	34	0.000**
/ə/	0.229	0.363	22.9	0.764	0.306	76.4	8.548	34	0.000**
/a/	0.525	0.336	52.5	0.836	0.276	83.6	4.632	34	0.000**
Back Vowel	0.343	0.294	34.3	0.800	0.301	80.0	8.038	34	0.000**
/u/	0.361	0.357	36.1	0.721	0.352	72.1	5.251	34	0.000**
/ʊ/	0.364	0.374	36.4	0.811	0.341	81.1	5.830	34	0.000**
/ɔ/	0.450	0.359	45.0	0.814	0.328	81.4	5.797	34	0.000**
/ɒ/	0.196	0.349	19.6	0.854	0.293	85.4	9.684	34	0.000**
Diphthong	0.227	0.332	22.7	0.614	0.399	61.4	6.765	34	0.000**
/aI/	0.189	0.366	18.9	0.629	0.430	62.9	6.229	34	0.000**
/aʊ/	0.200	0.339	20.0	0.604	0.441	60.4	6.093	34	0.000**
/ɔI/	0.282	0.413	28.2	0.611	0.459	61.1	4.626	34	0.000**
/eI/	0.204	0.352	20.4	0.621	0.404	62.1	6.273	34	0.000**
/eə/	0.336	0.415	33.6	0.604	0.446	60.4	3.996	34	0.000**
/əʊ/	0.196	0.368	19.6	0.600	0.452	60.0	5.499	34	0.000**
/Iə/	0.182	0.364	18.2	0.629	0.437	62.9	6.156	34	0.000**

Table 5 shows English vowel pronunciation classified by monophthongs and diphthongs before and after using the English vowel phonetic alphabet drill. The findings of monophthong pronunciation showed that students' accuracy before using the English vowel alphabet drill was at 39% and after the drill was at 79.8% with statistically significant at 0.01(Sig. = 0.000). For the front vowels before applying the English vowel alphabet drill, students were able to pronounce /i/ at 54.6%, /e/ at 54.3%, /I/ at 48.8% and /æ/ at 35.4%. After using the English vowel alphabet drill, students were able to improve all front vowels at 82.1%, /e/ at 88.6%, /i/ at 84.3%, /æ/ at 82.5%, and /I/ at 72.9%, respectively. Students were able to pronounce central vowels on the whole before using the English vowel alphabet drill at 34.4%, /ɑ/at 52.5%, /ɜ/ at 42.1%, /ə/ at 22.9% and /ʌ/ at 20%, and the central vowel pronunciation of students got better after applying the English vowel alphabet drills at 77.3%, /ɜ/ at 85.5%, /ɑ/ at 83.6%, /ə/at 76.4%, and /ʌ/ at 64.3% respectively. For vowel sounds in the back position, students were able to pronounce them overall before using the English vowel alphabet drill at 34.3%, /ɔ/ at 45%, /ʊ/ at 36.4%, /u/ at 36.1%, and /ɒ/ at 19.6%. After using the English vowel alphabet drill, students were able to pronounce the back vowel at 80%, /ɒ/at 85.4%, /ɔ/ at 81.4%, /ʊ/at 81.1%, and /u/ at 72.1% respectively. As a matter of fact, the problematic monophthongs in this study were central vowels, /ʌ/ and /ə/, and the back vowels, /ɒ/, /ʊ/, and /u/.

The study also shows the results of diphthong pronunciation of students before using the English vowel alphabet drill. The findings of diphthongs pronunciation showed that the accuracy of students before using the English vowel alphabet drill was at 22.7% and after using the drill was at 61.4% with statistically significant at 0.01(Sig.=0.000). The students were able to pronounce /eə/ at 33.6%, /ɔI/ at 28.2%, /eI/ at 20.4%, /aʊ/ at 20.0%, /əʊ/ at 19.6%, /aI/ at 18.9%, and /Iə/ at 18.2%. After using the English vowel alphabet drill, students were able to pronounce diphthong more accurately, which are as follows, /aI/ and /Iə/ at 62.9%, /eI/ at 62.1%, /aʊ/, and /eə/ at 60.4%, /ɔI/ at 61.1%, and /əʊ/ at 60% respectively.

3.3 The results from the Observation

The results from observation before students applied English phonetic alphabet drills showed that the errors that students made in stop sounds, /p/, /b/, /t/, /d/, /k/, /g/, were at the final position. In the other word, students did not pronounce the stop final consonants, and they also had problems with pronouncing voiced stop consonants, /b, d, g/. In the fricative, /f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, the problematic consonants for students were /v/, /θ/, /ð/, /z/, /ʃ/, /ʒ/. They could not pronounce these initial and final consonants correctly, so in the initial consonants, they substituted /w/ for /v/, /t or tʰ/ for /θ/, /t/ for/ ð/, /s/ for /z/, /s or ʒ/ for /ʃ/, and /ʃ/ for /ʒ/. In the final consonants, students substituted /p, t, or f/ for /v/, /t or d/ for /θ/, /t or z/ for /ð/, /s/ for /z/, /d/ for /ʃ/, and /ʃ/ for /ʒ/. Sometimes they had no final pronunciation or voicing in voiced consonants. In affricate, students substituted /ʃ/ for /tʃ/, and /ʒ/ for /dʒ/.

In nasal, /m/, /n/, and /ŋ/, the problems that students had in these sounds were that they did not pronounce the nasal sounds in the final position, and they made weak vibration of the vocal cords. In lateral, /l/, in the initial consonant, students made less vibration of the vocal cords, and in the final consonant they substitute /n/ for /l/. In Approximate, /r/, /w/, /j/, the

problematic sounds were /r/ and /j/. For /r/, students substituted /l/ for /r/, and for /j/, they did not make strong voicing.

In vowel sounds, students pronounce some vowels completely different from the particular sound of monophthongs and diphthongs, because of the problem with English spelling and pronunciation. For example, for the word with 'a' in *album* students substitute /a/ for /æ/. In monophthongs, the problematic sounds that student made errors were that /ɒ/ in the word *clock*. It was substituted by /ɔ/, in the word *seven*, it was substituted by /e/, /ʊ/ in the word *cook*, it was substituted by /u/, and /u/ in the word *soup*, it was substituted by /ʊ/.

In diphthongs, students substitute monophthongs for diphthongs, for example, /ɔI/ in the word *oil*, students substitute /ɔ /for /ɔI/, and in the word *where* they substitute /æ/ for /eə/.

Additionally, it was noticeable that voicing in vowel sounds was pronounced weakly, and articulations were not correct.

3.4 The Results from Six Focus Group Open-End Questions

The data from open-ended questions were analyzed after students completed the forty-five-hours English phonetic alphabet drills practice. Students joined the focus group interview. They were asked six questions, which are as follows: (1) What consonant sounds do you have a problem pronouncing? (2) What vowel sounds did you have a problem pronouncing? (3) In your opinion, what are the causes of the problem in your pronunciation? (4) What had you done to improve your pronunciation? (5) What should you do to improve your English pronunciation? (6) Does English phonetic alphabet drills help you to improve your English pronunciation?

The content analysis was used to interpret the students' responses and factors affecting students' pronunciation and pronunciation errors. The findings indicated that the problematic sounds of consonants were fricative, affricate, lateral, nasal, and stop sounds respectively. The problematic sounds of vowels were central vowels, back vowels, and front vowels respectively. The causes of problems in students' pronunciation of consonants and vowels are as follows: (1) The lack of knowledge about English spelling and pronunciation, (2) Articulation differences between Thai and English, (3) The difference of phonological system and (4) Mother tongue interference. Additional findings, also indicated that, students lack confidence to make the English sounds, they are afraid of making mistakes, the time-limit in practice in the class, and overcorrection in pronouncing sounds. To improve their English pronunciation, students stated that they must realize the significance of pronunciation and intend to practice pronunciation seriously. Moreover, they had to plan and find time to learn and practice out of class with TV shows, Radio programs, Internet, YouTube or applications about English pronunciation, listening to English songs and movies. In another way, they set group pronunciation practices to validate each other's accuracy. They checked correct pronunciations with teachers to increase the confidence in speaking and find opportunities to speak English as often as possible. Phonetic alphabets were very helpful to students to develop their English pronunciation skills.

4. Discussion

Findings indicated that the students were able to improve their consonant and vowel pronunciation after applying English phonetic alphabet drills because they know the correct phonetics principles to pronounce English consonants and vowels accurately. Moreover, they were able to know how to use speech organs to produce speech sounds, so students were able to pronounce English sounds similarly to native speakers. This finding conforms to Kotcharay and Limsiriruengrai's (2014) finding. Of that the accomplishment of students' English pronunciation increased after using English phonetic alphabet drills. The results were similar to suggestions in the previous studies by Thapornpard (1995), Wei and Zhou (2002), Phon-ngam (2008) and Jukpim (2009). The results stated that language rules of pronunciation, phonetics and/or phonology is very helpful in EFL/ESL classes.

It was evident from the observation data that before applying English phonetic alphabet drills, students made pronunciation errors in the final consonant pronunciation. Of that the students did not pronounce stop and nasal final consonant. In the fricative final consonants, students substitute /p, t, or f/ for /v/, /t or d/ for /θ/, /t or z/ for /ð/, /s/ for /z/, /d/ for /ʃ/, and /ʃ/for /ʒ/, /ʃ/ for /tʃ/, and /ʒ/ for /dʒ/, /n/ for /l/, /l/ for /r/. The results of the study were similar to Wei and Zhou (2002). They claimed that Thai students usually make a use of Thai sense in English pronunciation, for example, neglecting to pronounce the final sounds, words with /r/ pronounced as /l/, word with /ð/ and /z/ pronounced as /s/. In addition, Thai graduate students hardly pronounced the final sounds /l/, /f/, /s/, /b/, /p/, /t/, /k/. Those sounds were mentioned as a pronunciation problem for EFL or ESL learners (Kelly, 2003; YangKlang, 2006; Winaitham & Suppasetseree, 2012).

From the results of problematic English vowel sounds, students pronounce some vowels completely different form the particular sound both monophthongs and diphthongs because of problem from English spelling and pronunciation. For example, the word with 'a' in album students substitute /a/ for /æ/. Mostly, in the problematic monophthongs in this study found that one was frequently substituted for another such as /ɒ/ in the word *clock*, which was substituted by /ɔ/ including diphthongs, /ɔI/ in the word *oil* was substitute for /ɔ/. Additionally, it was noticeable that voicing in vowel sounds was pronounced weakly, and articulations were not correct. A similar finding was reported by Kelly (2003) who claimed that Thai undergraduate students' pronunciation problems especially vowel sounds were from articulation mistakes.

The findings of this study pointed to the problem sounds made by students. Therefore, the factors affecting students' pronunciation errors found in this study should be considered. The major factors which caused to students' pronunciation errors were the differences in sound system between Thai and English including structure and patterns, manners of articulation being a struggle for making voiced sounds, mother tongue interference and, inconsistency of English sounds and spelling (Hassan, 2014). Jotikasthira (2014) pointed out that some of the English sounds which are considered problem sounds for Thai students are those that do not occur in Thai such as pronouncing final consonant sounds. Some of the English sounds are different from their Thai equivalents as to their distribution, including phonetical difference

from their Thai equivalent (Intasena & Nuangchalerm, 2022).

According to the main factors causing students' pronunciation errors, we can see that students substituted Thai sounds for English sounds by moving articulation in the position of Thai sound and tried to make those sounds similar to English (Natakorn, 2001; Fu & Lun, 1999). In other words, this was simplification process, which was how student tried to make the pronunciation process (Rachanee, 1999; Natenapit, 2001). The findings from open-ended response showed that, good attitude to learning and practicing English phonetics are very important. Tanthanis (2012) stated that the key components of English pronunciation that attitude, purpose, and physical and emotional conditions influence pronunciation. Moreover, pronunciation learning strategies will help learners realize what they should do to improve pronunciation. Morley (1991) said that pronunciation learning strategies play significant roles to shape and train students continuously understand the correct use of pronunciation learning strategies. Therefore, students must focus on recognizing self-responsibility, developing of self-monitoring skills and recognition of self-accomplishment.

5. Conclusion

This study applied English phonetic alphabet drills to improve students' English consonant and vowel pronunciation. The results showed that students were able to pronounce English consonants and vowels more accurately after applying the drills, but the nasal sound in final position, and the lateral sound in the initial and the medial position were still the problematic sounds. For English vowel sounds, central and back vowels were the problematic sounds for students. It was clear that students had difficulties pronouncing voiced sounds. The results of the observation and the focus group interview found the causes of pronunciation errors were from the differences in sound system between Thai and English, including structure and patterns, manners of articulation, mother tongue interference, and inconsistency of English sounds and spelling. Therefore, to improve English pronunciation especially consonant and vowel is important to have an appropriate way. English phonetic alphabet drills effected the students' pronunciation development. It can be said that if students have phonetic knowledge, their pronunciation can be improved. Moreover, students should pay attention to their pronunciation learning strategies. In light of the finding of this study, we suggest further studies should drive the motivation and good attitude about English competence and pronunciation, provide a wide and interesting variety of listening, speaking and pronunciation drills in stress and intonation and interesting English pronunciation activities to develop students' pronunciation skills in higher level. Additionally, English instructors should provide a conductive English learning environment for students such as technology-aided instruction set in a classroom, and various educational materials. Improving English pronunciation has to take time to see the obvious changes, so we suggest the researchers should be concerned about the duration of the study in this field, including instruments in the study.

References

Alqazweeni, A. (1990). *Pronunciation difficulties as experienced by Kuwaiti students learning English as a Foreign Language* (Article ID 303867024). The Florida State University, UMI Desertation Plublishing.

Bell, J. S. (1995). The relationship between L1&L2 Literacy: Some complicating factors. TESOL Quarterly. *TESOL Quarterly, 29*(4), 687-704. https://doi.org/10.2307/3588170

Chomphuboot, S. (2005). *The development of compoter-assisted language learning materials for practicing word stress and intonation in English for second-year-English major, Faculty of Education, Silpakorn University* (Thesis of Master of Arts in TEFL, Silpakorn University, Nakhon Phathom).

Dee-In, W. (2006). The development of computer-assisted instruction lessons promoting oral skills for English problem sound for students of English majoring in international communication, Rajamangala University of Technology Lanna Phitsanulok Campus (Thesis of Master of Education, Uttaradit Rajabhat University, Uttraradit).

Endoo, P. (2017). A Comparative Study of Thai and English Consonants' Phonemes. *WIWITWANNASAN, 1*(1). Retrieved from https://so06.tci-thaijo.org/index.php/wiwitwannasa n/article/view/192667/137003

Fu, W. Y., & Lun, Z. Y. (1999). Correct Pronunciation. *Naresuan University Journal, 7*(1).

Hago, O. E., & Khan, W. A. (2015). The Pronunciation Problems Faced by Saudi EFL Learners at Secondary Schools. *Education and Linguistics Research, 1*(2). https://doi.org/ 10.5296/elr.v1i2.7783

Hassan, E. M. I. (2014). Pronunciation Problems: A Case Study of English Language Students at Sudan University of Science and Technology. *English Language and Literature Studies, 4*(4). https://doi.org/10.5539/ells.v4n4p31

Hewinng, M. (2004). *Pronunciation Practice Activities*. Cambridge: University Press.

Intasena, A., & Nuangchalerm, P. (2022). Problems and Needs in Instructing Literacy and Fluency of Reading and Writing Skills of Thai L1 Young Learners. *Journal of Education and Learning, 11*(2), 63-70. https://doi.org/10.5539/jel.v11n2p63

Jotikasthira, P. (2004). *Introduction to the English Language: System and Structure*. Chulalongkorn Printing House.

Jukpim, C. (2009). An investigation of KU CSC students' pronunciation performance reflects pronouncing needs improving. *Proceedings of the 13th International Conference on English in Southeast Asia, Nanyang Technological University, Singapore* (pp. 391-398).

Kanoksilapatham, B. (2005). Intonation meaning in English discourse: A study of Thai speakers. *Indonesian Journal of English Language Teaching, 1*(2), 136-163.

Kanoksilapatham, B. (2015). *Pronunciation in Action*. Silpakorn University Publishing

House.

Kelly, G. (2003). *How to teach pronunciation*. London: Pearson Press.

Korsuwan, N. (2001). *A Study of English Loan Words in Standard Thai: A Preliminary Phonological Analysis of Their Assimilation* (Thesis of Master of Arts, Ramkhamhang University, Bangkok).

Kulachit, N., & Nuangchalerm, P. (2021). Empirical study on English primary teachers and active learning classroom practices in Thailand. *PalArch's Journal of Archaeology of Egypt/Egyptology, 18*(4), 2929-2942. Retrieved from https://archives.palarch.nl/index.php/jae/article/view/6738/8174

Mano-Im, R. (1999). *The pronunciation of English final consonant clusters by Thai students* (Thesis of Master of Arts, Chulalongkorn University, Bangkok).

Morley, J. (1991). The Pronunciation Component in teaching English to Speakers of other Languages. *TESOL Quartery, 25*(1), 51-74. https://doi.org/10.2307/3586981

Nokaew, P., & Suksri, P. (2005). *The Basic information of the learning and teaching management of foreign languages at secondary education level in the Northern Part of Thailand*. Bangkok: The Thailand Research Fund.

Palawongse, P. (2005). English pronunciation teaching: Methods and approaches for ESL/EFL learners. *Ramkhamhaeng University Journal, 22*(3), 28-39.

Phon-ngam, P. (2008). Developing innovation instruction for improvement Thailand and Lao' pronunciation problems in English consonants. *Proceedings in Thailand Research Expo 2008*. Bangkok: National Research Council of Thailand.

Plailek, T. (2011). *The Development of English Final Consonant Pronunciation Skills of Prathomsuksa 6 Students at Demonstration School, Suan Sunandha Rajabhat University*. Bangkok: Suan Sunandha Rajabhat University.

Samae, R., & Karavi, P. (2015). Behaviors of Accentual pronunciation in English Words from the Results of Listening-Speaking Teaching and the Linguistic Teaching: A Case Study of Matthayomsuksa 4 at Siriratsamakkee School, Mayo District, Pattani Province. *Journal of Education, prince of Songkha University, Pattani Campus, 9*(3), 93-108.

Sangkhayanon, W. (2012). *A Development of English Vocabulary Pronunciation Ability of First-Year Vocational Certificate Students in Plant Sciences* (Duo Vocational Education Program of Semester 1/2012). Roi-Et: College of Agriculture and Technology.

Tanthanis, T. (2011). English pronunciation problems of third year interdisciplinary studies students of Thammasat University. *Proceedings of 51st Kasetsart University Annual Conference: Education, Economics and Business Administration, Humanities and Social Sciences* (pp. 170-177). Bangkok: Kasetsart University.

Tanthanis, T. (2012). *English pronunciation problems of third year interdisciplinary studies students of Thammasat University*. Bangkok: Thammasat University.

Thapornpard, T. (1995). *A study of English Pronunciation Problems of Matthayomsuksa 3 Students in Thai-Khmer-Speaking Communities in Surin* (Thesis of Master of Education in English, Mahasarakham University, Mahasarakham).

Torat, B. (2001). *Teaching material for Linguistic Teachers (466408), Semester 1 Academic Year 2001*. Nakornpathom: Faculty of education Silapakorn University.

Tuaycharoen, P. (2001). *Communication in English under the Principles of Linguistic* (3rd ed.). Bangkok: Thammasat University Press.

Ur, P. (1999). *A Course in Language Teaching Practice and Theory: Teaching Pronunciation*. Cambridge University Press. https://doi.org/10.1017/CBO9780511732928

Ur, P. (2000). *A Course in Language Teaching Practice and Theory: Teaching Pronunciation*. Cambridge University Press.

Weaver, C. (1994). *Reading Process and Practice*. Portsmounth: N.H. Heinemann.

Winaitham, W., & Suppasetseree, S. (2012). The Investigation of English Pronunciation Errors and Factors Affecting English Pronunciation of Thai Undergraduate Students. *Silpakorn Educational Research Journal, 4*(2), 304-320. Retrieved from https://so05. tci-thaijo.org/index.php/suedureasearchjournal/article/download/28332/24361/62396

YangKlang, W. (2006). *Improving English Final /-l/ Pronunciation of Thai Students through Computer-Assisted Instruction Program* (Thesis of Master of Arts in ELS, Suranaree University of Technology, Nakhonratchasima).

Yim-on, Y. (2014). *English Phonetics*. Bangkok University Press.

You, H. (2008). *An Interview Study of Native Chinese-speaking English as a Foreign Language University Students Experience of Acquiring English Pronunciation* (Ph.D Dissertations, University of Kansas, USA).

Youfu, W., & Yalun, Z. (2002). *Insights into English pronunciation problems of Thai students* (pp. 1-11). ERIC. https://files.eric.ed.gov/fulltext/ED476746.pdf