An approach to tackle pronunciation errors in Thai language among Vietnamese students by linguistic and speech recogniton

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Abstract. The purpose of this study is to present a solution to solve the problem of Thai pronunciation among Vietnamese students learning Thai in University of Foreign Language Studies,, The University of Danang. The pronunciation of Thai and Vietnamese differ in initial consonants, vowels, fina consonants, and tone. Throughout this research, the researcher conducted a survey of students' Thai pronunciation. The findings revealed that they produced incorrect pronunciation of initial consonants, vowels, final consonants and tone. To address these linguistic difficulties effectively, the researcher created 13 sets of electronic minimal pair cards. Each card contained 10 minimal pair of similar words to point out the pronouncing differences. Linguistic methods and speech recognition were therefore taken in a thorough usage. As a result, the students showed a significant improvement in their pronunciations, more accurate and clear by applying the method above.

Keywords: Thai pronunciation, linguistic, speech recognition, electronic minimal pair word cards, Vietnamese students

1   Introduction

The teaching and learning of Thai language were initiated in Vietnam in 1996 under the cooperation of Thailand International Cooperation Agency (TICA). This developmental project started in Southern business region Vietnam, which was later implemented into multiple Vietnamese universities to satisfy the needs in business sector - Thailand and Vietnam. Thus, language was the method to bridge the two countries, to create relationship in both public and business communication sectors.

Speaking is one of the skills in communication, especially pronunciation which is considered importance since it influences on how effective human communicates. Furthermore, pronunciation is perceived to be the problem in speaking a foreign language. Hewing states that in communication, pronunciation is important for speaking and listening. Speaker must pronounce clearly and correctly while listener analyzes the heard words according to the phonemes in the sound system to interpret the meaning correctly [1]. Thus, pronunciation an important component in learning a foreign language.

Thai and Vietnamese are isolating languages, but have the same word structure, namely, consonants, vowels, and tone marks. Moreover, both have the same basic morphological structure of sound [2].

In Vietnam, the teaching and learning of Thai as a foreign language have encountered numerous problems. The problems are different in each region due to multiple local languages. However, Vietnamese students majoring in Thai language studying in University of Foreign Language Studies, and The University of Danang (UFLS) have encountered the problems in, namely, consonants, vowels, and tone marks. The problems have been due to the influence of local language of each region students are using. This resulted in that the communication of Thai language is not as accurate as it should be.

The pronunciation mistakes produced by Vietnamese students majoring in Thai language from UFLS are due to the absent and unfamiliarity of some sounds in the first language [3]. Moreover, 90 percent of students speaks Southern Vietnamese. Here are the phonemes that exist in Thai but not in Southern Vietnamese language: initial consonants - /p/ /ph/ /c/ /ch/, tone mark – falling tone. In Southern Vietnamese sound system, vowels clusters are not present, and there are only final consonant sounds /- k / and /- ŋ / [4]. From the above mentioned, this resulted in that students have a problem producing those sounds.

According to the problem mentioned above, it is obvious that the differences in the sound system especially phonemes have caused problem to Vietnamese students learning Thai language pronunciation. Thus, the researcher constructed the minimal pairs chart to help students practice those problematic sounds in Thai language and used the speech recognition to solve pronunciation problem of students from UFLS.

2   Literature Review

2.1   The linguistic concept in teaching pronunciation of Thai language

There are pronunciation teaching approaches of Thai and other foreign languages using the linguistic concept. Below are the pronunciation approaches proposed by several linguists.

Phlawong [5] proposed Analytic-linguistic approach. This approach employs linguistic tools and information, namely, articulatory descriptions, chart of the vocal apparatus, contrastive information, and other approaches that help in listening, imitation, and sound production practice, Meanwhile, to pronounce Thai language effectively, learners must be taught to identify the phonemes before pronouncing complete words. In this way, learners will be able to pronounce Thai words effectively.

Repetition is considered the most crucial strategy in pronunciation practicing a foreign language. Furthermore, the knowledge of linguistics has also played an important role in how to pronounce a word effectively. This knowledge includes the manner of articulation and phonetic alphabet which help learners understand how to pronounce Thai words correctly and effectively and become more confident when speaking Thai language [6].

The teaching approaches mentioned above and the linguistic concepts especially the phonetic symbols and alphabets were used by the researcher in order to support and solve the problems in pronunciation of students majoring in Thai language at UFLS.

2.2   The pronunciation teaching concept using Minimal Pairs

Minimal Pairs is a linguistic approach used to analyze in order to find the crucial phonemes which could be distinguished in terms of words meaning. The similarities and differences of the phonemes were then used in the teaching of Minimal Pairs. The pairs were contrastively analyzed within the same environment. When comparing, one difference in terms of vowel, consonant, and final consonant influences the meaning.

The pronunciation practice of Thai language is effective when using Minimal Pairs. Naksakul [7] stated that the minimal pairs is the pairing of at least 2 words that has the difference in one or the other word elements, that are initial and final sound or vowel and tone mark. Minimal Pairs approach could explain the system of Thai consonants, vowels, and tone marks in that each phoneme has the different in the articulation manner. This is due to the use of the 2 groups of articulatory organs – articulator; tong, and point of articulation; bilabial, dental, alveolar, hard palatal, velar, glottal etc.

The Minimal Pairs of Thai language is set based on The International Phonetics Association (IPA). Below is an example of Minimal Pairs in Thai language.

Table 1. Example of Minimal Pairs in Thai language

Thai	Meaning	Phonetic alphabet	Thai	Meaning	Phonetic alphabet
ใกล้	Near	klây	ไกล	Far	klay
ฟัน	Tooth	fɑn	ฟัง	Listen	fɑŋ
ทัน	Abreast	thɑn	ทาน	Eat	thɑɑn

The researcher utilized the concept of Minimal Pairs to make electronic minimal pair cards. This way, students will notice the difference of the paired words, and will pronounce them differently. Moreover, students will understand that the paired words have different meaning.

2.3   Speech Recognition

Speech recognition is the ability of the computer automatically identifies human speeches and convert them into readable text. Speech recognition converts the sound signal into words and sentences which is identical with the speaker and works basically by memorizing the signal forms relating to the variety of sound units, including vocabulary and grammar. The recognition starts when the sound signal enters the microphone, then the system compares the probability of the signal by recognizing the correct order of vocabulary with the correct grammatical rules. The effectiveness of

speech recognition depends on the mount of vocabulary, the complexity of grammar and the features of communication channel such as mobile phone.

Due to the fast and effectiveness of speech recognition, the researcher used this system to evaluate the pronunciation ability of Vietnamese students majoring in Thai language from UFLS.

2.4   Pronunciation problems of Thai language by students from UFLS

The researcher explored the problems of Thai language pronunciation. The participants were 100 Vietnamese students majoring in Thai language from UFLS. They were asked to read a paragraph consisted of Thai short sentences. The readings were recorded then analyzed following the criteria presented in table 2.

Table 2: Problem of students' pronunciation

| No	Error types	Sounds in Thai language	Variations	Frequency (%)
Set 1	Initial consonants	p	b	52.3
Set 2		ph	p	55.8
Set 3		ɑm	ɑɑm	44.1
Set 4		ɑy	ɑɑy	50
Set 5	Vowels	ɑ	ɑɑ	76.5
Set 6			oo	52.3
Set 7		iɑ	i	52.3
Set 8		ɯɑ	ɯ	58.8
Set 9		/-t/	/-k/	47.1
Set 10		/-k/	/-t/	47.1
Set 11	Final consonants	/-n/	/- ŋ/	65.7
Set 12		/- ŋ/	/-n/	58.8
Set 13	Tone marks	Falling tone	Mid tone	70.1

From the table, when pronouncing, mistakes occurred in both initial and final consonants, and tone marks. The most problematic sound was the final sounds. Thus, the purpose of the researcher was to solve those problems.

3   Research Design

This research is quantitatively designed to investigate the pronunciation problems of students' majoring in Thai language.

3.1   Research Framework and Population

Research Framework
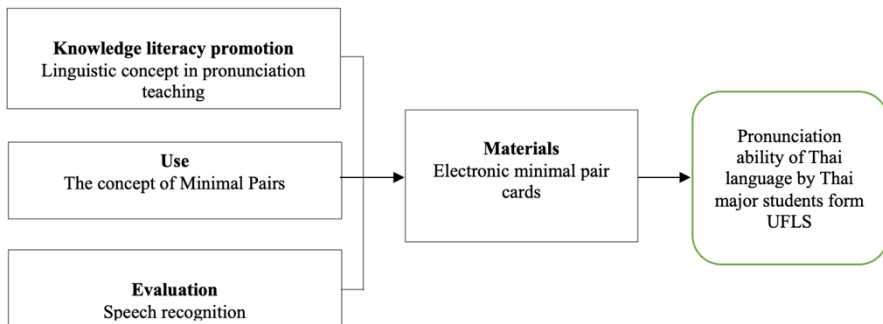
Population

The population in this study were 100 students majoring in Thai language from UFLS.

3.2   Research Materials

13 sets of minimal pair cards were employed. Each set was constructed in accordance with pronunciation problems presented in Table 2.

3.3   Data Collection

The researcher divided the date collection into 2 phases.

Phase 1: Knowledge Literacy Promotion

The researcher promoted the knowledge of Thai language pronunciation to students. Linguistics contents, namely, consonant place of articulation, vowels, and tone mark level were taught to students in order to prepare them for the second phase of the data collection.

Fig 1. Place of articulation in Thai vowels (source from ThaiPod.com)

Phase 2: Pronunciation practice

Students were asked to practice their pronunciation using 13 electronic minimal pair cards constructed by the researcher. Students were asked to repeatedly practice (drilling), then they were asked to record their pronunciation 3 times on the speech

recognition. To analyze the data, one speech out of the three that has the highest score was selected by the researcher.

4   Finding and Discussion

The data collected in phase 2 was analyze and presented in Chart 1.

Chart 1. The revision of pronunciation mistake in initial consonants

From Chart 1, it could be said that the pronunciation problem decreased. The mistake in electronic minimal pair card set 1 went down to 22.9%, while in set was only 30%.

Chart 2. The revision of pronunciation mistake in vowels
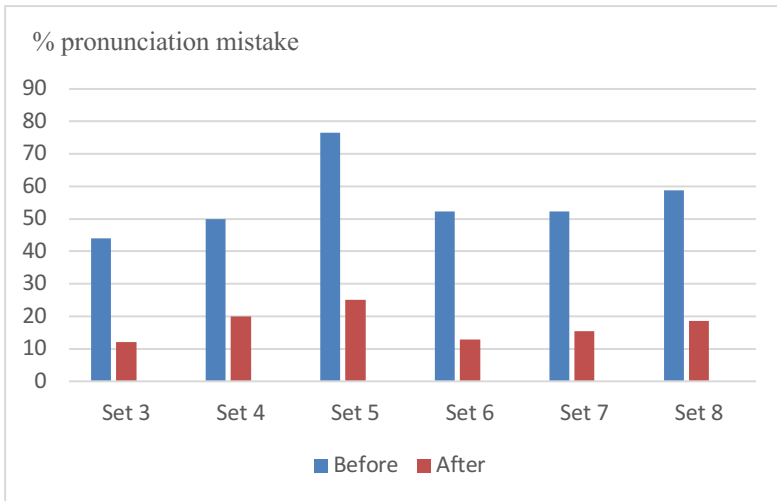
Chart 2 illustrates than students have considerably improved the pronunciation. The mistake in set 3 decreased to 12%, set 4 to 20%, set 5 to 25.1%, set 6 to 12.8%, set 7 to 15.5%, and set 8 to 18.5%.

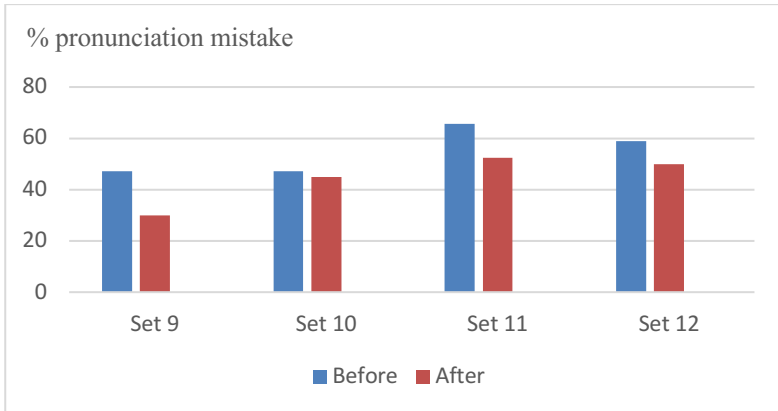**Chart 3. The revision of pronunciation problem in final consonants**

Chart 3 shows that students have a small improvement. The mistake decreased in set 9 to 30%, set 10 to 45%, set 11 to 52.3% and set 12 to 50%.

Chart 4. The revision of pronunciation problem in tone marks

Chart 4 illustrates that the students have considerably improved their pronunciation in tone marks. The percentage of the mistake went down to 32% compared to their mistake before the pronunciation drill which was 70%.

In conclusion, the use of linguistic knowledge in constructing minimal pairs helps decrease pronunciation mistake of students majoring in Thai language form UFLS. Moreover, speech recognition helps reduce time used in controlling and evaluating by the instructor.

The success in pronunciation mistake solving in Thai language is mostly from the use of minimal pairs approach. The principle is that when pairing, students will notice

the different on the sounds and understand that those differences change the meaning of a word. Consequently, they become aware and pronounce the word carefully.

However, the pronunciation mistake solving in the final sound has the least improvement among the three – initial consonants, vowels, and tone marks. Besides, since the southern local Vietnamese language has only two final sounds: $/-k/$ and $/ŋ/$, and the absent of the sounds: $/-n/$ and $/-t/$, students were confused which resulted in pronunciation mistake.

Improving foreign language pronunciation is essential due to the need to overcome limitations and challenges posed by the language learning context on learners' pronunciation development. Mora and Ingrid have researched and instructed foreign language pronunciation in the International Second Language Acquisition (ISLA) cognitive learning environment. Their study indicates the scarcity of exposure and use of the second language by learners. The research team emphasized key features of second language models that can support pronunciation training and instruction, synthesizing both common and innovative pronunciation training methods. Finally, the research team illustrated TBPT as a pronunciation instruction method by employing communicative map tasks to teach pronunciation targets. [8]

5   Conclusion and Recommendation

In this study, the researcher used the principle of linguistics to promote Thai language pronunciation of students majoring in Thai language from UFLS. After that the researcher constructed the minimal pairs word cards and used them for students in pronunciation practice. Finally, the pronunciation of students was evaluated using speech recognition, and as a result, students improved their pronunciation in initial and final consonant sounds, and final sounds.

Due to many years of experience in Thai language pronunciation teaching, the researcher has been correcting and solving students' pronunciation mistake by pronounce the problematic words for students, then students repeatedly pronounce the words. This imitation is only a part of pronunciation learning. As a result, the researcher proposed that in pronunciation teaching or mistake solving, the instructor should teach their students how a sound occurs – place of articulation. This will help students in improving their pronunciation.

In this study, the researcher was able to collect the data using less time, and this due to the evaluation of speech was completed online. Thus, the researcher recommended to use technology in the data collection phase since this helps reduce time consuming.

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