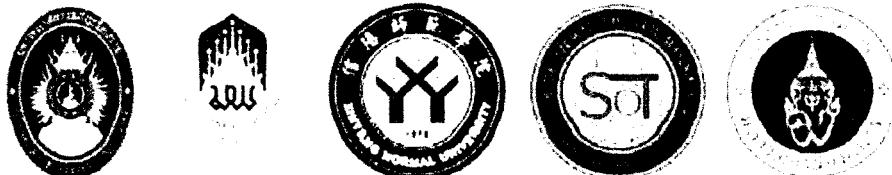




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The Development Of English Correction Software For Teaching Correct Pronunciation To Pupils In A Primary School At Nhong Mae Na School, Nhong Mae Na, Khao Kho, Phetchabun

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Abstract

The English Correction Software for teaching correct pronunciation is using android systems with Detect Me English application to analyze the pronunciation, that is suitable for primary school pupils. The objective of this research is to study the development of correct English pronunciation amongst primary school pupils. The method of this research comprises three phases. The first phase involved data collection to find out what is needed in the correct development of English skills amongst primary school pupils by researching what words should be within the vocabulary in the primary school curriculum. The second phase involved interviewing specialists to determine 10 key words which should be chosen to be written into the program. Then the third phase involved testing primary school pupils with the program itself and then studied the results on the development of the pupils. This was done by asking the pupils to repeatedly use the program within their own studies and then their progress being kept in track. The study group of twenty pupils were from the Nhong Mae Na school. The tools used for this study were; 1) a questionnaire for whether there was a desire for such a machine to develop the English language of primary school pupils. 2) The written interviews for primary school teachers who teach English. 3) The English voice detection software for primary school pupils. 4) The evaluation questionnaire to gain feedback on the user friendliness on the software, 20 pupils read each word 3 times so that we could summarize all those words to percentage. Our results from the feedback and studies have shown that the pupils have shown improvement on their English word pronunciations, and the evaluation for the score as an average was excellent with 80.33% after using the software. We could conclude from this study that for the pupils who showed interest, and used the program showed a much greater improvement on their English pronunciation of these 10 words compared to pupils without this tool.

Keywords: English Correction Software, English Pronunciations, Hill tribes primary school pupils

1. Introduction

The establishment of the ASEAN Economic Community (AEC) in 2015 was a major milestone in the regional economic integration agenda for ASEAN. The official language for the ASEAN Economic Community is English. Although AEC was launched in 2015, Thailand had been preparing a few years prior before the official launch. Many schools tried to run "English for ASEAN camps", English for ASEAN seminars or even courses that related to English for ASEAN. However, the ability of Thai people to use English for communication is still not proficient as the majority of Thai people cannot communicate in English well. The Office of the Education Council has also agreed that English proficiency of Thai people is very low. Thailand is the 8th out of 10 countries within ASEAN and only 10% of Thai people can speak English proficiently. The affect of this has been many lost business opportunities for Thailand within the ASEAN Economic Community. Fluency in speaking is one of the four main skills when it comes to English. It is also one of the most difficult skills for pupils to develop. There are many factors that cause pupils to get confused and lose motivation to become adept in English speaking. Incorrect teaching can affect the whole learning system. For example if teachers do not know how to pronounce English sounds properly this inevitably results in a lack of proper education in the fluency of pupil's English. If this pattern continues, then most likely the trend for English fluency is not likely to improve at all, rather would results in regression in the populations ability to fluency.

Nhong Mae Na School, Nhong Mae Na, Khao Kho, Phetchabun was our pilot testing group for this research because pupils here have a lack of opportunity to learn English properly. They are also hill tribe pupils so they speak Thai as their second language and English as their third. Pupils from the school cannot speak English and their English abilities are very low which bring them to issues of miscommunication. Furthermore the researcher and team have found that the teachers in this school also struggle with the ability of pupils to understand Thai. Many pupils cannot pronounce English phonetics because they transcript their first language to their third language and also because of limitations in the time within English classes, teachers cannot effectively work to improve on pupils' English pronunciation individually.



Figure 1 the Nhong Mae Na school, Nhong Mae Na, Khao Kho, Phetchabun

Learning to pronounce English correctly can be a very challenging feat for pupils learning the English language. According to D. H. Brown (2000), one of the factors that cause difficulties is the difference between the phonology of their native language (L1) and that of the second language/foreign language (L2), which in this case is English. Brown proposes six factors that may hinder or facilitate a learner's pronunciation of L2 which are: L1, age, exposure to L2, innate phonetic ability, identity and language ego for L1, motivation, and finally, concern for good pronunciation ability.

In Thai phonology (Tumtavitikul 2006); the phonemes /p,t,k,p^h,t^h,k^h,f,s/ are easily pronounced at syllable initial, however at the syllable final, there is a neutralization rule where these obstruent phonemes become an unreleased voiceless unaspirated stop of the same place of articulation, i.e., an underlying /s/ or /t^h/ would be pronounced as [t] at the syllable final position. Thai does have /s,f,p^h,t^h,k^h/ as well as /p,t,k/ as underlying phonemes at the syllable-final stored in the mental lexicon. These underlying phonemes reflect themselves in morphology. For example, /kròt^h/ → [kròt] 'angry', the final is aspirated stop phoneme because when we do concatenation, + /a/, we pronounce [kròt^ha] 'anger'. It is the final consonant of the first morpheme that shows up its true self when [t^h] occurs at syllable initial.

In English phonology (Ladefoged 2006), there is the phonological final obstruent devoicing of the type that neutralizes phonemic contrasts. Also voiced obstruents are devoiced to some extent in the final position in English, especially when phrase-final or when followed by a voiceless consonant. English has an allophonic rule for vowel duration where a vowel is lengthened before a voiced obstruent final, giving clue as to the consonant at syllable-final whether it is voiced or voiceless.

Syllable structure constraints in Thai limit syllables to form possible templates: C(C)V, C(C)VC, C(C)VV, C(C)VVC. In a cluster initial, the second consonant must be either l, r, or w. And if the second consonant is w, the first consonant must be either k or k^h. At the syllable final position, the consonant neutralization rules apply and limit the consonant final to [p, t, k, m, n, ɳ, w, j, ?] with only one position for the final consonant sound. Cluster coda in the underlying structure will all be deleted leaving only the consonant adjacent to the vowel in pronunciation. For example, /yáks/ → [yák] 'giant' and the consonant in the cluster surfaces when morphology applies, e.g., /yáks/ + /ii/ → [yáksii] 'giant ff.' (Tumtavitikul 1998)

The English phonemes are broken up into the sound sequences of the consonants found in each word. We can see those phonemes in the syllable structures C(C) (C) V (V) C(C)(C). In consonant onset cluster there is a limited range of consonants that can occur in each of the positions. The rules like these are called phonotactics constraints, which give more insight into the syllable structure. (Giegerich 1992)

The pupils, not aware of the phonological rules in English, may incorrectly pronounce the stop consonants and may not release the final obstruent consonants at the syllable final position, the pupils, may also carry over their L1 and have difficulties differentiating /g,k/ at syllable final in English.

In this research, the pronunciations of 10 key words were investigated through the "Detect Me English" application on primary school pupils from Nhong Mae Na school. Twenty

pupils were used for this study and all the pupils read each word 3 times so that we could summarize the scores of all those words into percentages. The hypothesis underlying the study is that language transfer from L1 to L2, may be the factor causing difficulties in pronunciation of the important English stop consonants, hence difficulty in correct and fluent English pronunciation overall. The results of the study found pupils who showed interest, and used the program showed a much greater improvement on their English pronunciation of the 10 words in the application compared to pupils who studied without this tool.

2. Objectives

To evaluate the efficacy of English correction software for teaching correct pronunciation to pupils in primary school at Nhong Mae Na school, Nhong Mae Na, Khao Kho, Phetchabun.

3. Methodologies

The subjects of this research were 20 primary school pupils from the Nhong Mae Na school, Nhong Mae Na, Khao Kho, Phetchabun.

The tools used for this study were;

- 1) An unstructured Interview for whether there was a desire for such a machine to develop the English of primary school pupils at the Nhong Mae Na school, Nhong Mae Na, Khao Kho, Phetchabun.
- 2) The English voice detection software "Detect Me English" application (Android system) for primary school pupils.
- 3) Manual for "Detect Me English" application (Android system) which include how to use the application and activate the program.
- 4) The evaluation task to gain feedback on the user friendliness of the software by reading the each word 3 times.

3.1 The design of the English correction software for teaching correct pronunciation was designed to be used with the android system on a android smartphone, the application "Detect Me English" operates with external hardware to show results whether pupils could pronounce 10 key words right or wrong as in figure 2

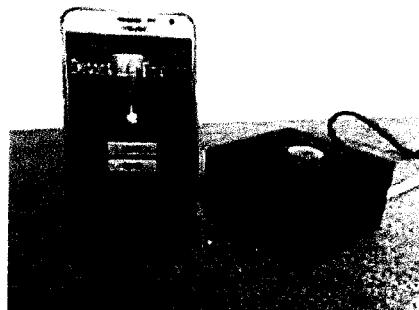


Figure 2 The English correction software for teaching correct pronunciation set.

There is a menu button to connect to the test for those 10 key words which have been selected to be suited for primary school pupils in «Detect Me English» application

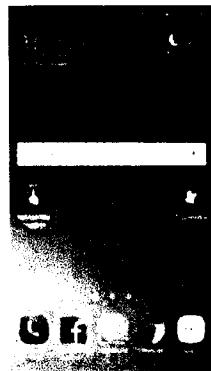


Figure 3 Chose «Detect Me English» to get through to the home page of the application



Figure 4 Home page of the application

Detect Me English consists of START and CLOSE menus. The START menu will link you to the 10 key words.

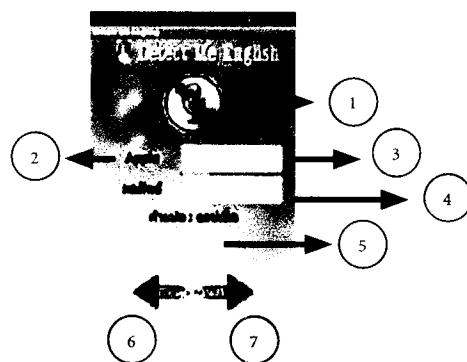


Figure 5 Main on-screen hub for «Detect Me English»

(see figure 5.) 1. Microphone button; this button is used as the user speaks into the device to attempt to correctly pronounce the words. 2. The Subject Word: This is where the word the user needs to pronounce is displayed on screen in English. 3. The Result box: this is where the subject word will display upon the user making the correct pronunciation of the word in English. If there is incorrect pronunciation then the display will not show anything. 4. Incorrect pronunciation result box: Upon the user making an incorrect pronunciation, the application will process the users attempt and display phonetically what the user has pronounced, thus allowing the user to distinguish what kind of phonetics they are incorrectly pronouncing. 5. The demo button: the user before they test themselves with the application can listen to the correct pronunciation being played upon selection of the demo button. 6. Back Button: The user can skip to the previous word. 7. Next Button. The user can skip to the next word.

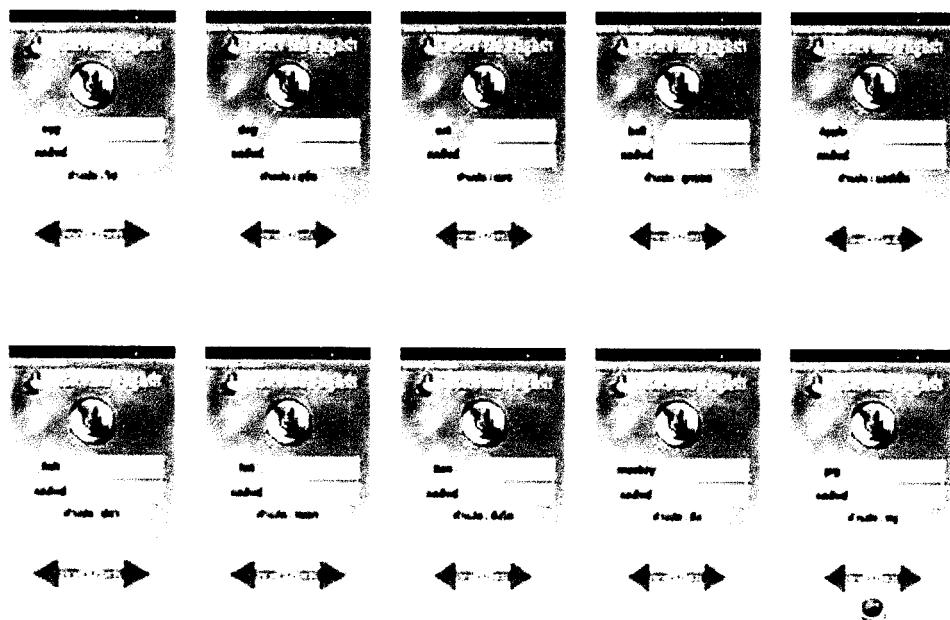


Figure 6 Display of all ten separate screens that the user will work through.

The 10 key words that the user will work through within this program are; apple, ball, cat, dog, egg, fish, hat, lion, monkey and pig (see figure 6.). Each of these ten words were chosen based upon the suitability to address the L1 to L2 phonetical barrier as well as suitable for primary school ages. This was approved by the linguistics experts. Each word within the program is also easily changeable to any other word that is desired to be written within the program as well as new words being also added to the library of words within the catalogue. The strength of this program is the straight forwardness to add or change words as desired.

3.2 Flow diagram of the software protocol in processing the user input.

The software works by firstly receiving the input sound from the user through the microphone device which this information which is received by the application then sent to the processor to analyse the voice patterns. The processor then sends a signal to the LED display to notify the user whether they have successfully pronounced the word or not. The LED display will emit a green light if the user has pronounced the word correctly.



Figure 7 Flow diagram of application processes

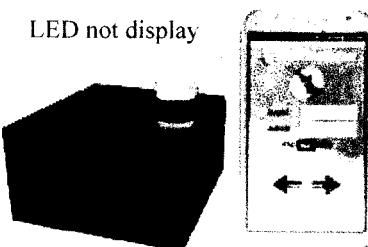


Figure 8 LED display when user has made the correct pronunciation

When the user pronounces the word correctly the LED display has been configured to show a green light for 5 seconds. This clearly notifies the user when they have correctly pronounced the subject word. The green light was also designed to motivate and reward the user for their correct pronunciation. The screen will also display a "yes" message to also positively reinforce the users efforts.

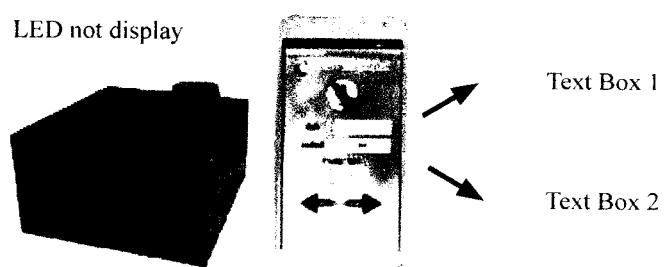


Figure 9 LED display when user has made an incorrect pronunciation

The LED display has also been configured to not display any light to also clearly distinguish when the user has not pronounced the word correctly.

4. Results

Each of 20 students had three attempts to for each of the 10 words to make the correct pronunciation and the percentage of students who made the correct pronunciation within the three attempts are as follows in figure 10. We found that the results showed improvement on the scores on the percentage of students who made the correct pronunciation after three attempts. The average percentage of students who made the correct pronunciation was 80.33%.

No	Words	result 1 – 3
1	apple	93.33%
2	ball	88.33%
3	cat	83.33%
4	dog	85%
5	egg	56.66%
6	fish	90%
7	hat	63.33%
8	lion	95%
9	monkey	93.33%
10	pig	55%
Total		80.33%

Figure 10. Percentage of students (n. 20) who made the correct pronunciation of each subject word within 3 attempts

5. Discussion and Conclusion

The study was done to determine the efficacy of the Detect Me English application on teaching primary school students to pronounce English words correctly. The results have shown that a high percentage of students were able to make a correct pronunciation after three attempts and using this software. The software's capability to demo the correct pronunciation seems to be the most helpful tool in students learning to make the correct pronunciation as this allows students to listen and practice the phonetics even without a native language speaker.

This tool seems to make significant improvement to their English pronunciation skills as the average percentage of students making the correct pronunciation of the ten words between the 20 students was 80.33%.

We however upon reflection on the study have also wanted to expand our study through our following proposal.

Our proposal for improving and building our study is by;

1. Improving by testing different specific, categorized groups of students. We hope to distinguish between gender differences as well as GPA score abilities to further study and factor in differences between students gender and personal skill levels to further conclude the effectiveness of the program.
2. To record and study the progression of the students between the 3 attempts as well as pre-testing the students before the use of the program to factor in and scrutinize the efficacy of the program.
3. To add in a control group to help further compare the efficacy of the program and it's affects as well as controlling the test environment more specifically with a structured time constraint to create a fair and non-biased test.
4. To even possibly expand on the age range of the test subjects to high school students to compare the effectiveness of the program amongst different age groups at different stages of education.

In conclusion, we have found that this program is showing promising results in helping students to learn proper pronunciation within English words with the hopes that this program can be further developed to even build on grammatical and sentence building skills within the students to further help improve their fluency.

6. Recommendation

Our recommendation for the use of this program are as follows;

1. Using the program for self-study in school and also as a tool within lesson planning for teachers to incorporate into their lessons.
2. Using the program for personal study to help improve on listening as well as pronunciation skills.

James, C. 1980. **Contrastive Analysis**. 2nd ed. London: Longman.

James, C. 1998. **Errors in Language Learning and Use: Exploring Error Analysis**. England: Longman.

Johnson, K. 1997. **Acoustic & Auditory Phonetics**. Oxford: Blackwell.

Ladefoged, P. 2006. **A Course in Phonetics**. 5th ed. Boston: Thomson Wadsworth.

Lado, R. 1974. **Linguistics across Cultures**. The University of Michigan Press.

Larsen-Freeman, D. and M. H. Long. 1991. **An Introduction of Second Language Acquisition Research**. New York: Longman.

Maccoby E.E. and C. N. Jacklin. 1974. **The Psychology Of Sex Differences**. Stanford: Stanford University Press.

McGlone J. 1980. "Sex Differenced in Human Brain Asymmetry: a Critical Survey". **Behav. Brain Sci.** 3:215-227.

Mcmahon, A. 2002. **An Introduction to English Phonology**. Edinburgh: Edinburgh University Press.

Nahasakul, K. 2008. **Thai phonological system**. 6th ed. Bangkok: Chulalongkorn University Press. (in Thai).

Odlin, T. 1989. **Language transfer: Cross-linguistic Influence in Language Learning**. Cambridge: Cambridge University Press.

Pavlenko, A. 2001. **Multilingualism, Second Language Learning, and Gender**. New York: Mouton de Gruyter.

Pica, T. 2005. "Second Language Acquisition Research and Applied Linguistics." **Handbook of Research in Second Language Teaching and Learning**. 34: 263-280.

Richards, J.C. 1974. **A Non-contrastive approach to Error Analysis**. Quebec: Laval University Press.

Richards, J.C. 1974. **Error Analysis Perspectives on Second Language Acquisition**. London: Longman.

Selinker, L. 1992. **Rediscovering Interlanguage**. London: Longman.

Singhaniyom, J. 1999. **The relationship between the perception of Thai stops and the degree of voice timing in the production of English stops by native speakers of English**. Bangkok: Master of Art Thesis in Linguistic, Chulalongkorn University. (in Thai).

Tench, P. 2001. "An applied Interlanguage Experiment into Phonological Misperceptions of Adult Learners." **IJES Journal 1 (1)**: 257-276.