การสอนพยัญชนะควบกล้ำภาษาอังกฤษ ผ่านสื่อมัลติมีเดีย
เพื่อส่งเสริมความสามารถในการอ่านออกเสียง ของนักเรียนชั้นประถมศึกษาปีที่ 5
TEACHING ENGLISH CONSONANT CLUSTERS THROUGH MULTIMEDIA TO
ENHANCEPRONUNCIATION ABILITY OF PRATHOMSUKA 5 STUDENTS

กัญญาลักษณ์ มีทรัพย์*

ผู้ช่วยศาสตราจารย์ ดร. สายสุนีย์ เติมสินสุข**

บทคัดย่อ

การวิจัยเชิงทดลองในครั้งนี้ มีวัตถุประสงค์สามข้อ คือ 1) เพื่อสร้างสื่อมัลติมีเดียสำหรับการพัฒนา ความสามารถในการอ่านออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษของนักเรียนชั้นประถมศึกษาปีที่ 5 2) เพื่อศึกษา ความสามารถในการอ่านออกเสียงของนักเรียนหลังการสอนผ่านสื่อมัลติมีเดีย และ 3) เพื่อสำรวจความคิดเห็นของ นักเรียนมีต่อการสอนพยัญชนะควบกล้ำผ่านสื่อมัลติมีเดียหลังการเรียนด้วยสื่อมัลติมีเดียที่สร้างขึ้นกลุ่มตัวอย่างที่ใช้ ในการศึกษาครั้งนี้ ได้แก่นักเรียนชั้นประถมศึกษาปีที่ 5 โรงเรียนสุขานารี จังหวัดนครราชสีมา จำนวน 30 คน ได้มา จากการสุ่มแบบแบ่งกลุ่ม ระยะเวลาในการทดลองจำนวน 10 สัปดาห์ ในภาคเรียนที่ 2 ปีการศึกษา 2558 เครื่องมือ ที่ใช้ในการทดลองประกอบด้วย แบบทดสอบวัดความสามารถในการอ่านออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษ ก่อนและหลังเรียน และแบบสำรวจความคิดเห็นหลังการเรียนด้วยสื่อมัลติมีเดียที่สร้างขึ้น สถิติที่ใช้ในการวิเคราะห์ ข้อมูลได้แก่ คะแนนเฉลี่ย ร้อยละ ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที (t–test) ผลการศึกษาพบว่า 1) ค่าประสิทธิภาพของสื่อมัลติมีเดียการออกเสียงพยัญชนะควบกล้ำสูงกว่าค่าของเกณฑ์ประสิทธิภาพที่กำหนด 2) ความสามารถในการอ่านออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษผ่านสื่อมัลติมีเดียหลังเรียนสูงกว่าก่อนเรียน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และ 3) นักเรียนมีความคิดเห็นเชิงบวกต่อการเรียนการออกเสียงพยัญชนะ ควบกล้ำผ่านสื่อมัลติมีเดียที่สร้างขึ้น ผลการศึกษาดังกล่าว ชี้ให้เห็นว่า ความสามารถในการอ่านออกเสียง คำควบกล้ำภาษาอังกฤษของนักเรียนชั้นประถมศึกษาปีที่ 5 ดีขึ้นหลังการเรียนอ่านออกเสียงผ่านสื่อมัลติมีเดีย

ABSTRACT

The objectives of this experimental research were to (1) construct multimedia which was a tool to improve grade 5 students' English consonant clusters pronunciation ability, (2) to examine the pronunciation ability of grade 5 students after teaching English consonant clusters through multimedia, and (3) to explore grade 5 students' opinion towards learning English consonant clusters through the constructed multimedia. The sample group consisted of 30 students of Sukhanaree School, Nakhon Ratchasima province who were obtained by cluster random sampling. The instruments used in data collection were pretest and posttest of English consonant clusters pronunciation ability, and a questionnaire. The data of this study were statistically analyzed using mean scores, standard deviation, and t–test. After ten weeks of the experiment in the second semester of academic year 2015, it was shown that (1) the values of efficiency of the constructed multimedia on

English consonant clusters pronunciation were higher than the values of the set criterion, (2) the post-test mean score of English consonant clusters pronunciation ability was significantly higher than the pre-test mean score at the 0.05 level, and (3) after the experiment, the students had positive opinions towards learning English consonant clusters pronunciation through multimedia. The study indicated that the students' English consonant clusters pronunciation ability has been improved after learning through the constructed multimedia.

Keywords : Multimedia, English Consonant Clusters, English consonant clusters teaching.

Introduction

Many learners of English as a foreign language have major difficulties with English pronunciation and many English language teachers in EFL classes need provide materials to help them improve their pronunciation (Monthon Kanokpermpoon. 2007 p. 57; Gilakjani. 2011 p. 1; Rahbar. 2013 p. 147). Zhang and Yin (2009 p. 141) analyzed the pronunciation problems of English learners in China. According to Zhang, factors responsible for these problems are the interference of the first language, learners' age, learners' attitude and psychological factors, and their insufficient knowledge of phonology and phonetic systems of the English language. Zhang (2009 :148) claimed that speakers of English in China often experienced difficulty with final consonant cluster. In relation to this, Gilakjani (2012 : 119) revealed that limited pronunciation skills can decrease learners' self-confidence, restrict social interactions, and negatively affect estimations of a speaker's credibility and abilities.

According to cognitive psychology, students learn more effectively from words and pictures than from words alone (Mayer. 2005 p. 31). Multimedia that is applied in the language class can offer multiple ways to convey the information, including the visual and auditory access (Gilakjani. 2012 p. 61). To date there has been some agreement on teaching English phonetic awareness and pronunciation with multimedia English learning (MEL) system. The system and phonetic awareness can help students practice pronunciation of English words and sentences. It can also analyze phonetic structures, identify and capture pronunciation errors to provide students with targeted advice in pronunciation, intonation, rhythm and volume (Lai, Tsai and Yu. 2009 p. 266). Furthermore, other researches findings have shown that using multimedia can enhance EFL learning, phonemic awareness, pronunciation skill, listening, vocabulary, grammar, and can also motivate EFL students' interest in English language (Baker. 2006 p. 368 ; Emerita. 2006 p. 533 ; Kamontip Prasattam. 2006).

Many Thai students encounter difficulties with English consonants pronunciation. Warisara Yangklang (2006 p. 2) revealed in her study that most students in Matthayom Suksa four could not pronounce /l-/ consonant sound in the initial and final positions. In fact, research studies (Suthee Sumdangdej. 2007 ; Attapol Khamkhien. 2010 p. 757 ; Rusma Kalra. 2010 p. 22 ; Charuni Noicharoen. 2012 p. 33) has mentioned that Thai students' English pronunciation competence is limited, and shared the problems of mispronouncing the consonant clusters in English either in the initial syllable or final syllable position. In this case, RusmaKalra (2010 : 22) noticed that the word "fry" is pronounced as [fai] and the word "true" is often pronounced as [tu:]. This is similar to the finding Surapong Kongsat (2011 p. 3) who studied and interviewed teachers. He stated that learning and teaching English was still not successful in many aspects because teachers had no media or

innovation, students were not aware enough to learn English, instructional media were not interesting, and environments were not supportive. These situations were similar to those found in the observation of students in grade 5 at Sukhanaree School. It was observed that most of them could pronounce the consonant clusters correctly in Thai, but they could not pronounce consonant clusters in English and their speech was not be able to be understood by the listeners. In the workshop, this problem was often the issue that needed to be improved. In order to solve the problems, we created a study that focused on improving English consonant clusters pronunciation for grade 5 students by using multimedia in communicative language teaching and found out students' opinions towards teaching English consonant clusters through multimedia

Objectives of the Study

The aims of this study were as follows:

1. To construct multimedia that could be used to improve students' English consonant clusters pronunciation ability.

2. To examine the pronunciation ability of grade 5 students after teaching English consonant clusters through multimedia.

3. To explore grade 5 students' opinion towards learning English consonant clusters through multimedia.

Conceptual Framework

This study was one-group pretest posttest design. It examined grade 5 students' pronunciation ability and explored the students' opinion towards teaching English consonant clusters through multimedia.

The variables of this study were as follows:

1. Independent variable was teaching English consonant clusters through multimedia.

2. Dependent variables were grade 5 students' pronunciation ability and students' opinion towards the teaching English consonant clusters through multimedia.

Figure 1 Conceptual framework of the study
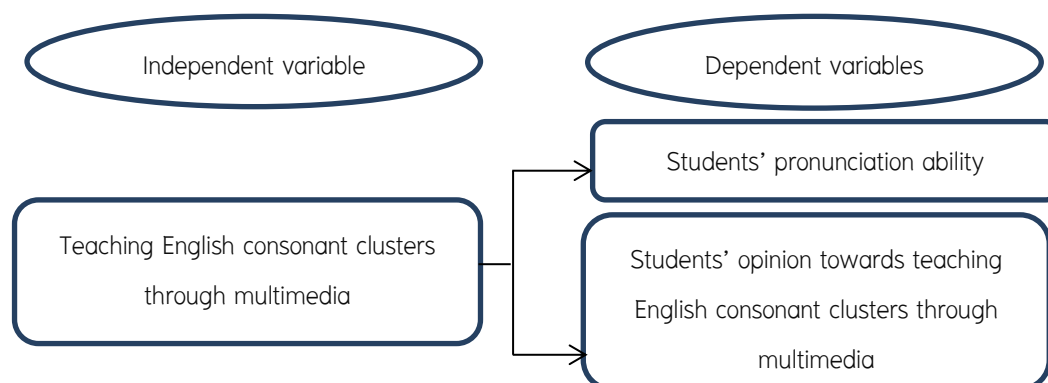
Research Methodology

One group pretest–posttest design was used. The sample group was given a pretest in order to examine their prior knowledge in English consonant clusters pronunciation ability before learning through multimedia (Dimitrov and Rumrill. 2003 p. 159). The English consonant clusters pronunciation lessons consisted of ten lessons, and were used in the experiment ten times (an hour per time), over a period of ten weeks. After finishing all ten lessons, the sample group took the post–test to examine the effects of the English consonant clusters pronunciation through multimedia lessons on their pronunciation ability. They also had to answer a questionnaire to explore their opinion towards the teaching consonant clusters pronunciation through multimedia lessons. This experimental design is shown in figure 2.

Figure 2. Experimental Design

O_1	X	O_2

O_1 Represents measurement of students' English consonant clusters pronunciation ability before the treatment.

X Represents the experiment of teaching English consonant clusters pronunciation lessons.

O_2 Represents measurement of students' English consonant clusters pronunciation ability and opinion towards the teaching English consonant clusters pronunciation lessons after the treatment.

Population

The population for this study consisted of 382 grade 5 students from 10 classes at Sukhanaree School, Muang district, under Nakhon Ratchasima Primary Educational Service Area Office 1. They studied English subject during the academic year 2015. All subjects participating in this study were assumed to study English and live in Muang district, Nakhon Ratchasima province.

Sample

The sample group consisted of 30 grade 5/10 students, in the second semester of 2015 academic year at Sukhanaree School, Muang district, under Nakhon Ratchasima Primary Educational Service Area Office 1. They were obtained by cluster random sampling.

Research Instruments

Instruments used in research procedure were multimedia and lesson plans. The sample group was given a pretest in order to examine their prior knowledge related to English consonant clusters pronunciation ability before learning through multimedia. The multimedia were tried out using one to one testing (1 p. 1), small group testing (1 p. 10), field testing (1:100) the technique as reported by Chaiyong Brahmawong (2013 pp. 11–12).

The ten lesson plans were constructed of 5 steps of communicative language teaching. The steps of teaching were demonstrated by P–P–P cycle (presentation – practice – production) suggested by Richards (2006 : 8). Warm up and wrap up were adapted into steps of communicative language teaching in order to

motivate students at the beginning and to summarize the lesson at the end respectively. Therefore, there are 5 steps as follows :

Warm up; the warm up consisted of a short activity, as well as review of the sound of English consonant to check and prepare their knowledge.

Presentation; the target group of consonant clusters was presented through multimedia. The students watched videos about articulation of consonant clusters pronunciation and pronounce along the videos. Teacher explained the articulation and checked students' pronunciation.

Practice; students practiced pronunciation drills and did practical activity through multimedia both in whole class practice and in group practice through multimedia both in whole class practice and in group practice.

Production; students pronounced consonant clusters for asking and giving information, in order to develop fluency of the new pattern. The purpose of this section was to see if students can produce the target language without the help of others.

Wrap up; a teacher and students summarized the consonant clusters pronunciation.

They were presented in the form of 5-point numeral Likert-type scales. The experts were asked to give a rating from one to five, according to the extent to which they were satisfied with each statement. The whole results of experts' evaluation of the lesson plans; steps of teaching, multimedia, activities and assessment were at the excellent level. Objectives and contents were very good.

The instruments used in data collection were English consonant clusters pronunciation ability test, and questionnaire.

The IOC index ranged from –1 to 1. Items on the test with index lower than 0.5 were unacceptable (Baker. 2003 p. 140) The 40 acceptable test items used in this study had the IOC values ranged from .75 – 1.00. The researcher chose 30 words in sentences and words for testing. There were 23 words in initial consonant clusters group and 7 words in final consonant clusters group.

All the test items were analyzed for reliability, difficulty index, and discrimination index of the inter-rater reliability of threating scale was calculated using Pearson product moment correlation coefficient using SPSS version 21. The correlation score was .946 which was very high positive correlation (Hinkle, Wiersma, and Jurs. 2003 p. 109). It can be inferred that the researcher oneself can assess to students' pronunciation ability by yourself.

The researcher constructed the questionnaire with both English and Thai versions. It contained 10 closed questions relating to opinions towards teaching English consonant clusters through multimedia. It was presented to three experts to check the language and evaluate the appropriateness of the questions.

Data collection

The research was designed to examine students' English consonant clusters pronunciation ability and to explore student's opinion after learning through the teaching of English consonant clusters through multimedia.

The procedures were as follows:

1. It was ensured that the multimedia was not faulty before using it to teach English consonant clusters.

2. The English consonant clusters pronunciation ability test was administered before and after learning English consonant clusters in communicative language teaching through multimedia.

3. The opinion questionnaire was given to the students after the post-test about learning English consonant clusters pronunciation through multimedia.

Data analysis

The data of the study was analyzed as follows:

1. To construct multimedia for improving students' English consonant clusters pronunciation ability. The statistics of finding the effectiveness of multimedia were as follows :

1.1 Finding the effectiveness of multimedia using E_1/E_2 formula (Chaiyong Brahmawong. 2013 : 10) :

$$E_1 = \frac{\frac{\sum X}{N}}{A} \times 100 \qquad E_2 = \frac{\frac{\sum F}{N}}{B} \times 100$$

E_1 = The efficiency of process

E_2 = The efficiency of product

N = The number of the students

$\sum X$ = The sum of the exercises the students get

A = The total scores of the exercises

B = The total scores of the post-test

$\sum F$ = The total scores the students get from doing the post-test In this study the criterion that was set for the effectiveness of multimedia was E_1/E_2 : 75/75.

The first 75 means the efficiency of process (E_1).

The last 75 means the efficiency of product (E_2).

1.2 Finding the effectiveness index of the learning progress (Goodman, Fretcher and Schneider. 1980 : 30-34) :

$$\frac{\text{(Total post-test score)} - \text{(Total pre-test score)}}{\text{(Number of students} \times \text{Maximum test score)} - \text{(Total pre-test score)}}$$

2 To examine the students English consonant cluster pronunciation ability before and after learning English consonant cluster pronunciation in communicative language teaching through multimedia, English consonant ability test were analyzed as follows:

2.1 Pearson product-moment correlation coefficients using SPSS version 21 to analyze for reliability, difficulty index, and discrimination index of the inter-rater reliability.

2.2 English consonant ability pretest and posttest were administered and analyzed, which were analysis in the form of score and calculate into percentage, average score from ability test in testing, and the data were statistically analyzed by mean ($\overline{x}$), standard deviation (S.D.), and t-test for dependent samples using SPSS version 21 in order to figure out the improvement of students in learning English consonant clusters pronunciation.

3. The opinion questionnaire was rating scale response, which was analyzed in the form of score by mean ($\overline{x}$), and standard deviation (S.D.) of the obtained scores from students' opinion questionnaire.

Result of the Study

The analysis of the evaluation of the experts' opinion on elements of English consonant clusters multimedia revealed that the elements on multimedia were proper and very proper and the average score was 4.78. The multimedia consisted of initial and final consonant clusters texts, the pictures which were relevant to the texts, articulation of initial and final consonant clusters pronunciation videos, and initial and final consonant clusters sounds. Table 1 below shows the results of the effectiveness of multimedia on teaching English consonant clusters pronunciation

Table 1 Results of the effectiveness of multimedia on teaching English consonant clusters pronunciation.

N	The effectiveness of doing the exercise (E_1)				The effectiveness after studying (E_2)				E_1/E_2
	Total Score	$\overline{x}$	SD	E_1	Total Score	$\overline{x}$	SD	E_2	
30	300	228.77	27.70	76.26	30	23.13	3.06	77.11	76.26/77.11

As shown in table 1, the result of the effectiveness of multimedia on teaching English consonant clusters pronunciation was 76.26/77.11, which is higher than the set criteria at 75/75. The effectiveness index of multimedia on teaching English consonant clusters pronunciation was 0.59. This shows that the use multimedia in teaching English consonant clusters pronunciation was effective on English clusters pronunciations' students, and percentage mean score was 59.68.

On comparing the mean scores from pre-test and post-test of English consonant clusters pronunciation ability of grade 5 students, scores of English consonant clusters pronunciation pre-and post-tests were presented to examine students' pronunciation ability after teaching English consonant clusters through multimedia. There were 16 students who got excellent level, 11 students who got very good level and 3

students who got medium level. The improvement is represented by the mean ($\overline{x}$) and the result of the t–test are shown in Table 2

Table 2 Results of the pre/post English consonant clusters pronunciation ability tests

Test	n	$\overline{x}$	S.D.	t	sig
Pre–test	30	19.53	4.84	9.78*	.000
Post–test	30	23.63	2.96		

$t_{(.05,29)}$ = 1.6991 *$_p$<.05

     Table 2 shows the average post–test English consonant clusters pronunciation ability of the students who had learned through English consonant clusters pronunciation multimedia. The post–test was significantly higher than the pre–test mean score of English consonant clusters pronunciation ability at the .05 level. This indicated that the students' English consonant clusters pronunciation ability had improved after learning through multimedia.

     The students' opinion was represented by a percentage (%), an arithmetic mean ($\overline{x}$), and standard deviation (S.D.).Results were presented in Table 3.

Table 3. Results of the students' opinion towards teaching English consonant clusters through multimedia

	Mean	S.D.	Conclusion
students' opinion towards teaching English consonant clusters through multimedia	3.82	0.38	agree

     Table 3 shows that the participants had opinions on the multimedia for improving English consonant clusters pronunciation at the agree level. The results from the ten questions showed students' agreement had a statistical rating of $\overline{x}$ = 3.82 and S.D. = 0.38. It could be deduced from the total mean score that students had positive opinion towards learning English consonant clusters pronunciation through multimedia, and could help them to learn and pronounce English consonant clusters better.

Conclusion

     The findings of the study indicated that the students' English consonant clusters pronunciation ability has been enhanced after learning through multimedia.

     The efficiency of the constructed multimedia on English consonant clusters pronunciation was 76.26/77.11 with the effectiveness index of 0.59.

     The post–test mean score of students' English consonant clusters pronunciation ability was significantly higher than the pre–test mean score at the .05 level. 3. The students had high positive opinion towards learning English consonant clusters pronunciation through the use of multimedia for improving students' English consonant clusters pronunciation ability.

The results support the research hypothesis of the study, and it can be concluded that the use of multimedia in communicative language teaching improved students' English consonant clusters pronunciation ability. They had high positive responses towards the learning English consonant clusters pronunciation ability through multimedia.

Discussion

The results of analyzing the evaluation of the experts' opinion on Elements of English consonant clusters multimedia by experts revealed that most of experts strongly agreed and the average score was 4.78. The results of the effectiveness of multimedia on teaching English consonant clusters pronunciation ability was 76.26/77.11, which was higher than the set of criteria of 75/75, and the effectiveness index of 0.59. It is obvious that the multimedia on teaching English consonant clusters pronunciation was effective for English clusters pronunciations, and percentage mean score was 59.68. This finding agreed with the finding of Rawiwan Srisawangvarakul (2010) who developed the multimedia board; the results showed that the efficiency of the multimedia board was higher than the criteria. Similarly, Rutdaporn Chankued and Phaibun Paonin (2011) developed the multimedia lessons on speaking English for communications about interesting places in Pakchong District for Prathom Suksa 5 students. Their results showed that the efficiency of a multimedia lesson was 81.25/82.75, the effectiveness index was 0.73.

It can be seen that the comparison of the student's English consonant clusters pronunciation ability before and after learning through multimedia indicated that score of students' English consonant clusters pronunciation ability on posttest was significantly higher than the pre-test mean score at the .05 level. This could be related to Kumari (2013) who investigated the effects of MCALT (Multimedia and Computer Assisted Language Teaching) instructions for communicative language teaching. The MCALT program had a significant impact on developing communication skills; the empirical evidence that MCALT technology was more effective than the traditional way of language learning. It helped students to engage in meaningful and authentic communicative activities. Students responded positively to and they trusted that it would help them to learn a second language effectively. In relation to this findings, Lai, Tsai and Yu (2009) enhanced English phonetic awareness and pronunciation of English words and sentences by using a multimedia English learning (MEL) system based on Hidden Markov Models (HMMs) and mastery theory strategy from an elementary school in Yunlin County, Taiwan. Their result showed that the experimental group with low phonemic awareness was significantly better than the control group in the English Achievement Test.

It is also in accordance with the finding of Nuchjaree Chuenniran (2010) who studied with multimedia based on Constructivist theory in basic English course entitled "House and Home". The after-learning was higher than the before-learning at the .05 level of significance. In the same way, the study of the study of Warisara Yangklang (2006) found that learning English final /-l/ pronunciation after using the Computer-Assisted Instruction (CAI) program improved students' English pronunciation and the students had positive reactions after they used the CAI program.

Using multimedia in classroom could increase students' interest, understanding and memory. Students have a chance to learn and apply knowledge in their work (Gilakjani. 2012 p. 59). Fang (2010) mentioned that multimedia could be a big part in EFL classroom. Multimedia technology allows for variety of media, such as text, graphs, pictures, sound, and video, through which students can have multiple accesses to the target language. Students can easily gain a language naturally and efficiently through an authentic language teaching and learning on multimedia environment.

The students had high positive opinion towards learning English consonant clusters pronunciation through the use of multimedia. It was revealed that students agreed that multimedia lessons helped them in learning English consonant clusters pronunciation; it helped them to understand the clusters pronunciation and increased their pronunciation skill. In this study, the researcher observed students in learning activities and found that students were interested in English consonant clusters multimedia contents, videos of pronunciation, pronunciation games on multimedia, exercises, pronunciation information gaps and activities based on communicative language teaching. The result of the study was in conformity that of Nuchjaree Chuenniran and Rawiwan Srisawangvarakul (2010; they used multimedia to improve learning English and received positive opinions on using multimedia in class. Thus, it could be deduced that learning English consonant clusters pronunciation through the use of multimedia could provide students with meaningful knowledge, interest, and enjoyment in learning.

Suggestion

Based on the results, it is suggested that multimedia should be used to supplement or complement teaching pronunciation. The multimedia should have videos to show how to articulate the sound clearly and correctly. Before teaching, the teacher should check computer, screen projector and speaker to avoid malfunctions. Teachers should always evaluate students' understanding and prior experiences related to the content in order to make sure that they are ready to learn the new English consonant clusters words. During learning process, students should be made to practice as a class, in groups, and in pairs to increase their confidence for individual pronunciation. It should be a tool for learning and practicing outside the classroom a well. Finally, future research could focus on specific students' pronunciation inabilities to help students with unique problems in pronunciation.

References

Attapol Khamkhien. (2010). *"Thai learners' English pronunciation competence: Lesson learned from word stress assignment,"*. *Journal of Language Teaching and Research.* 1(6) : 757–764 :November.

Baker, S.M. "Use of multimedia to enhance EFL learning in the university classroom,". *IADIS International Conference e-Society.* 368–369 : 2006

Chaiyong Brahmawong. "Developmental testing of media and instructional package,". *Silpakorn Educational Research Journal.* 5(1) : 7–19 :January – June, 2013.

Dimitrov, Dimiter M. and Rumrill, Phillip D. *Pretest-posttest designs and measurement change.* College of Education, Kent State University : IOS press, 2003.

Emerita Banados. "A blended-learning pedagogical model for teaching and   learning EFL successfully through an online interactive multimedia environment,". *CALICO Journal.* 23(3) : 533–550 :2006

Fang, Liu F. *Using multimedia to motivate EFL students' interest in English language learning.* United States : University of Wisconsin-Platteville, 2010.

Gilakjani,   Abbas P. "A study of factors affecting EFL learners' English pronunciation learning and the strategies for instruction,". *International Journal of Humanities and Social Science.* 2(3) : 119 :February, 2012

Goodman, R.I K.A. Fretcher and E.W. Schneider. "The effectiveness index as comparative measure in media product evaluation,". *Education Technology.* 2(09) : 30–34 :1980

Hinkle, Dennis E., Wiersma Wiersma and Jurs, Stephen G. *Applied statistics for the behavioral sciences.* United States of America : Wadsworth, Cengage Learning, 2003.

Kamontip Prasattam. *A development and effective validation a multimedia computer-assisted instruction program in teaching English vocabularies on "Foods and Drinks".* Master's Thesis. Technical Education Technology : King Mongkut's Institute of Technology North Bangkok, 2006.

Kumari V.R Saritha. "CALT and multimedia for communicative language teaching,". *International Journal of Humanities and Social Science.* 2(11) : 30–34 :November, 2013

Lai, Y.-S., Tsai, H.-H., & Yu, P.-T. "A multimedia English learning system using HMMs to improve phonemic awareness for English learning,". *Educational Technology & Society.* 12(3) : 266–281 :2009

Mayer, Richard E. *The Cambridge handbook of multimedia learning.* New York : Cambridge University, 2005.

Monthon Kanokpermpoon. *Thai and English Consonantal Sounds: A problem or a potential for EFL learning?.* Master of Education, Teaching English as a Foreign Language : Thammasart University, 2007.

Nuchjaree Chuenniran. *The development of the multimedia based on constructivist theory in basic English course entitled "House and Home" for prathomsuksa 4 students.* Master of Education, Computer Education : Rajabhat Mahasarakham University, 2010.

Rahbar, S. "Bidialectalism and English word pronunciation: Evidence from Iranian EFL learners,". *Asian Journal of Social Sciences & Humanities.* 2(1) : 147–151 :February, 2013

Rawiwan Srisawangvarakul. (2010) *The development of the multimedia board of computer component content for prathomsuksa 6 students.* Master of Education Program, Educational Technology and Communications. The Faculty of Technical Education : Rajamangala University of Technology Thanyaburi.

Richards, Jack C. *Communicative Language Teaching Today.* The United States of America : Cambridge University Press, 2006.

Rusma Kalra. "Initial consonant clusters' pronunciation problem,". *The IELE Journal.* 2(1) : 22–28 : October, 2010

Rutdaporn Chankued and Phaibun Paonin   "The development of a multimedia lesson on speaking English for communications about interesting places in Pakchong district for prathomsuksa 5 students," *Research and Development Institute Rajmangala University of Technology.* 4(1) : 70–78 :January 1–June, 2011

Surapong Kongsat. *Reading skills of English students a fifth school Chakkarat science, Nakhon Ratchasima,* Research on Education : Mahachulalongkornrajavidayalaya University, 2011.

Suthee Sumdangdej. *Input and the acquisition ofsuprasegmental phonology in English by Thai school children.* [Online]. Doctoral theses, English Language and Linguistic, Durham University : .Available http://ethese.dur.ac.uk/2479/. (2012, September 30)

Warisara Yangklang. (2006). *Improving English final /–l/ pronunciation of Thai students through computer-assisted instruction program.* Master's Thesis, English Language Studies : Suranaree University of Technology.

Zhang Fachun and Yin Pengpeng. "A study of pronunciation problems of English learners in China,". *Asian Social Science.* 5(6) : 141–146 :2009, June.