

ประสิทธิผลของเว็บสปีชกราฟิก ในการเรียนออกเสียงภาษาอังกฤษ ของนักศึกษาสาขาวิชาภาษาอังกฤษธุรกิจ

THE EFFECTIVENESS OF WEB SPEECH GRAPHICS ON ENGLISH PRONUNCIATION LEARNING OF BUSINESS ENGLISH STUDENTS

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิผลของเว็บสปีชกราฟิกในการเรียนออกเสียงภาษาอังกฤษของนักศึกษาสาขาวิชาภาษาอังกฤษธุรกิจ คณะศิลปศาสตร์และวิทยาศาสตร์ มหาวิทยาลัยเอเชียอาคเนย์ ประชากรที่ใช้ในการวิจัย ได้แก่ นักศึกษาสาขาวิชาภาษาอังกฤษธุรกิจชั้นปีที่ 2 คณะศิลปศาสตร์และวิทยาศาสตร์ มหาวิทยาลัยเอเชียอาคเนย์ ที่ลงทะเบียนเรียนวิชาสหศาสตร์ภาษาอังกฤษ (English Phonetics) ภาคการศึกษาที่ 1 ปีการศึกษา 2557 จำนวน 95 คน ระยะเวลาดำเนินการทดลอง 8 สัปดาห์ เครื่องมือที่ใช้ในการวิจัยคือ แผนการสอนวิชาสหศาสตร์ภาษาอังกฤษ ซึ่งระบุการใช้เว็บสปีชกราฟิกในการสอนออกเสียงภาษาอังกฤษแบบทดสอบความสามารถในการออกเสียงภาษาอังกฤษก่อนเรียน แบบทดสอบความสามารถในการออกเสียงภาษาอังกฤษประจำบทเรียนแบบทดสอบความสามารถในการออกเสียงภาษาอังกฤษหลังเรียนตามลำดับสถิติที่ใช้ในการวิจัยได้แก่ค่าเฉลี่ยของคะแนน (Mean) และค่าความเบี่ยงเบนมาตรฐาน (Standard Deviation) ของคะแนนประเมินแบบทดสอบที่ได้เทียบกับคะแนนประเมินเต็มเพื่อทดสอบความแตกต่างผลการออกเสียงภาษาอังกฤษก่อนเรียนและหลังเรียนและเกณฑ์ประเมินประสิทธิภาพ แบบ E1/E2 เพื่อประเมินประสิทธิผลของการใช้เว็บสปีชกราฟิกในการสอนออกเสียงภาษาอังกฤษระยะเวลาการทดลอง 8 สัปดาห์

ขั้นตอนการทดลองเริ่มด้วยการให้นักศึกษาทดสอบออกเสียงภาษาอังกฤษก่อนเรียนในสัปดาห์ที่ 1 ทำแบบทดสอบออกเสียงภาษาอังกฤษประจำบทเรียนในสัปดาห์ที่ 3, 5 และ 7 และทำแบบทดสอบออกเสียงภาษาอังกฤษหลังเรียนในสัปดาห์ที่ 8 ผลการวิจัย พบว่า การทดสอบความแตกต่างระหว่างคะแนนทดสอบการออกเสียงภาษาอังกฤษหลังเรียนและก่อนเรียนของนักศึกษาเพิ่มขึ้นเฉลี่ยคิดเป็นร้อยละ 44.52 การประเมินประสิทธิผลของการใช้เว็บสปีชกราฟิกในการสอนออกเสียงภาษาอังกฤษ ตามเกณฑ์ประเมินประสิทธิภาพ E1/E2 ของนักศึกษา เท่ากับ 50.01/70.61 ซึ่งสูงกว่าเกณฑ์ที่กำหนดไว้ คือ 45/65 จากผลการศึกษา สรุปได้ว่าการใช้เว็บสปีชกราฟิกเป็นสื่อการเรียนการสอนออกเสียงภาษาอังกฤษ มีผลต่อพัฒนาความสามารถด้านการออกเสียงภาษาอังกฤษของนักศึกษาสาขาวิชาภาษาอังกฤษธุรกิจคณะศิลปศาสตร์และวิทยาศาสตร์ มหาวิทยาลัยเอเชียอาคเนย์

คำสำคัญ: ประสิทธิภาพ การเรียนออกเสียงภาษาอังกฤษ เว็บสปีช กราฟิก

ABSTRACT

The objective of this research was to study the effectiveness of Web Speech Graphics by using it as an instruction media to reinforce the traditional tools used in studying English pronunciation. This application was introduced to Business English students

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who took the English Phonetics course in the first semester of 2014. The populations used in the study were 95 second-year students in the Business English Department under the Faculty of Arts and Sciences at Southeast Asia University. Duration of the experiment included 8 weeks. Research instruments were consisted of course instruction plan designed for the English Phonetics course using Web Speech Graphics, pre-test, formative tests, and post-test for English pronunciation ability, respectively. Data were analyzed using Mean and standard deviation (S.D.) to evaluate the differences of English pronunciation pre-test and post-test and using the Efficiency Criterion (E1/E2) to evaluate the effectiveness of Web Speech Graphics on English pronunciation learning of students. For 8 weeks, the experiment processes began by giving English pronunciation ability pre-test in the first week of the semester. Succeeding assessments, like formative tests for English pronunciation ability were done in weeks 3, 5 and 7; while the English pronunciation post-test was conducted in week 8.

The results of the research found that the difference between the pre-test and post-test scores of students' English pronunciation showed that the latter had an achievement higher than the pre-test scores by 44.52 %. As for the results of the evaluation of Web Speech Graphics' effectiveness on English pronunciation learning of students, it was found to be very significant for improving their English pronunciation by exhibiting 50.01/70.6, which was higher than the previously given 45/65 benchmark. From the findings, it could be concluded that the integration of the Web speech Graphics for the students' English pronunciation learning has

contributed significant factors to the competence and improvement of students' English inflection of sounds.

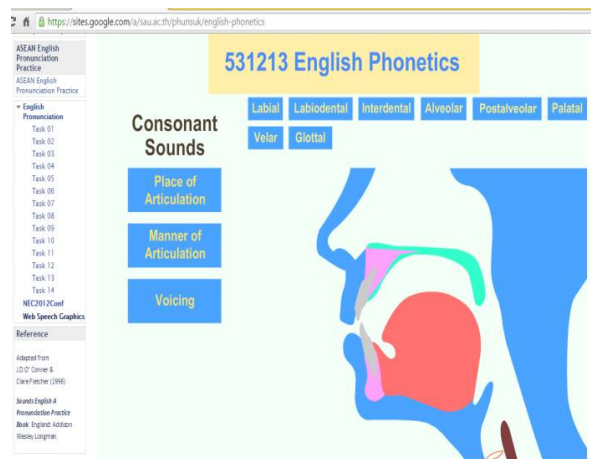
Keywords : Effectiveness, English Pronunciation Learning, WebSpeech Graphics

INTRODUCTION

One of required courses for the second-year Business English students in the Business English Department at Southeast Asia University is the English Phonetics course. The English Phonetics course focuses on the ways of English pronunciation based on the linguistic principle by studying the speech mechanism and articulation process for communication in daily life and business dealings. The course covers both theoretical knowledge and practical skills in English pronunciation (Faculty of Arts and Sciences, Southeast Asia University, 2011). In practical section of teaching, the researcher as the instructor, encouraged students to practice listening and pronunciation of English by using the medium of instruction called "Online Audio Streaming" which is the result of the researcher's prior study (Kannarik, 2012). Online Audio Streaming helps develop more effective learning of students in listening and pronunciation of English without time location constraints through the Internet. However, the results of pronunciation tests, formative tests and post-test revealed that students' English pronunciation of certain sounds was incorrect. Almost all of the students had difficulties pronouncing certain English sounds that don't exist in Thai language such as the initial, medial and final sounds of the words *thank*, *healthy*, and *clothe*, or *zoo*, *cozy*, and *jazz*; and the final sounds of *fish*, *much*, *beige*, and *change*. The instructor noticed that while they vocalized these English words, the

students tend to use their speech organs incorrectly. Therefore, the researcher tried to find ways of solving the problem and how to be more efficient in teaching.

According to Lane (2000), when teaching English pronunciation, the diagrams are used to indicate the position of speech organs: tongue, teeth and the lips how to position these organs correctly; and students should place these organs properly. The researcher came up with the idea of integrating the diagrams of speech organs in the form of computer graphics for teaching English pronunciation. This is because computer graphics is a medium of communication between administrator and recipient. It can motivate attention and impress the recipient, and create a good learning (Calson, 2003). In addition, computer graphics communicates ideas and messages by using color as an element of the images to be more compelling (McConnell, 2006).



Macleod (2011) mentioned that “technology has the potential to revolutionize the nature and conduct of education. It is known that technology has been playing a vital role in all aspects of our daily life, especially education”. Wichadee (2011) emphasized that “learning through computer online helps promote autonomous learning skills for learners who can study based on their ability and

interest.” Web-based education has the potential to improve the intellectual and personal growth of people by offering greater flexibility in times and locations for learning along with a greater variety of delivery methods (Kuakiatwong, 2011). The nature of college computing is rapidly changing. Connectivity is the new essential for students. Much of education now relies on students for being able to communicate and collaborate effectively.

The researcher also used online computer graphics as a medium of instruction for teaching English pronunciation through a system of distance teaching or e-Learning, and it was called “WebSpeech Graphics”. The reason has generally known that e-Learning in the academic curriculum allows educators to effectively combine the elements of self-study and distant education through software with the advantages of traditional classroom study and teaching (Zamorshchikova, Egorova, & Popova, 2011). The Internet can be used to motivate students in their efforts to acquire English proficiency skills (Fox, 1998). Using Online Speech Graphics would be appropriate for use as visual aids in teaching English pronunciation because students can practice English pronunciation without restrictions on time and place.

Figure 1 : Web Speech Graphics demonstrates eight categories of English consonant sounds based on place of articulation. As mentioned above, the author attempted to find the answer to the question: “To what extent does the use of Web Speech Graphics affected the Business English students’ English pronunciation abilities in the Business English Department under the Faculty of Arts and Sciences at Southeast Asia University?”

CONCEPTUAL FRAMEWORK

Conceptual framework in integrating Web Speech Graphics to English Pronunciation Learning of Business English students can be seen below.

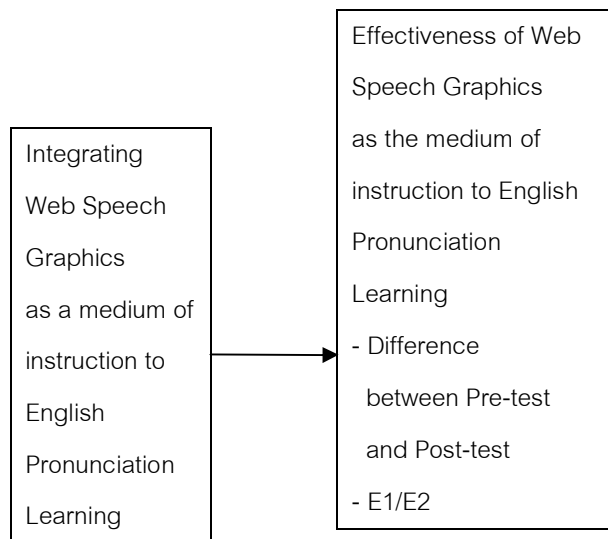


Figure 2 : Conceptual framework of Web Speech Graphics to English Pronunciation Learning of Business English students

OBJECTIVE OF THE STUDY

The study was aimed at finding the effectiveness of the use of Web Speech Graphics for English pronunciation learning of Business English students.

RESEARCH METHODOLOGY

Populations

The populations involved in the study composed of 95 second-year Business English students under the Faculty of Arts and Sciences. In order to find the basic English pronunciation of the students who were taking the English Phonetics course in the first semester of 2014, they were categorized based on each student's level of English pronunciation competency. This process was conducted by dividing them into three groups according to three levels of English pronunciation aptitude adapted from four of English proficiency

level of Levis (2006). Individual results were categorized out of 24 total scores based on 24 English consonant sounds:

- Group A: students with scores of 19 to 24 (Good)
- Group B: students with scores of 12 to 18 (Average)
- Group C: students with scores from 0 to 11 (Below average)

Table 1: Number of students categorized based on individual's level of English pronunciation competency.

Group	Number of Students	Percentage (%)
Group A	0	0.00
Group B	11	11.85
Group C	84	88.42
Total	95	100.00

Table 1 showed three groups of populations used in this study.

Group A: represents students who were unable to obtain scores of 19 to 24.

Group B: 11 students with scores of 12 to 18

Group C: 84 students who obtained scores from 0 to 11.

Research instruments

The two types of tools used in this study were research procedure and data collection. The research procedure integrated a course instruction plan which was designed for the English Phonetics course using Web Speech Graphics. On the other hand, the tools used for data collection included Web Speech Graphics, pre-test, formative tests, and post-test for English pronunciation.

The research instruments used for data collection were synthesized and derived from the following procedures which were conducted by the researcher.

2.1 Studied theories and principles from textbooks, documents, journals and related researches in order to specify the coverage of the study and construct research instruments based on the objectives.

2.2 Assigned and specified the contents of pre-test, formative tests, and post-test for English pronunciation.

2.3 Corrected and assessed pre-test, formative tests, and post-test for English pronunciation for the purpose of data collection.

The above mentioned phases of development of research instruments and their significance were verified by three experts in terms of their content validity; and were rectified and developed accordingly to gather accurate the data.

Data Collection

The experiment stages during the process and data collection are as follows:

3.1 Administered pre-pronunciation test to segregate the students based on their levels of English pronunciation ability in week 1.

3.2 Taught English pronunciation in practical section based on a course instruction plan designed for the English Phonetics course using Web Speech Graphics.

3.3 Checked and recorded students' attendance.

3.4 Conducted English pronunciation formative tests in weeks 3, 5, and 7.

3.5 Conducted English post-pronunciation test in week 8.

3.6 Assessed and recorded the results of students' English pronunciation from weeks 2 to 8.

Data Analysis

Mean and standard deviation were used to assess the differences between pre-test and post-test scores of students' English pronunciation. To evaluate the efficiency of students' English pronunciation ability through the Web Speech Graphics Data, the efficiency criterion (E1/E2) was used to assess the behavior of these two types of learners: continuous behavior called "Process" and outcome behavior of learners which also known as "Products".

E1 : refers to the percentage of the average scores of English pronunciation ability using Web Speech Graphics in week:3, 5 and 7, with the total score of 72.

E1 is calculated by using the formula below:

$$E1 = \frac{\left[\frac{\sum X}{n} \right]}{A} \times 100$$

$\sum X$ = sum of formative test scores of students' English pronunciation for each week.

n = the number of students.

A = the total scores of formative test.

E2 : refers to the percentage of the average scores of post-test (Efficiency of Learning Products) equivalent to the total score of 24.

E2 is calculated by the formula below:

$$E2 = \frac{\left[\frac{\sum F}{n} \right]}{B} \times 100$$

$\sum F$ = sum of post-test scores of students' English pronunciation

n = the number of students

B = the total scores of post- test

RESEARCH RESULTS

The research results were presented into two parts as follows.

1. The results of the differences between pre-test and post-test scores of students' English pronunciation calculated to describe the development of English pronunciation ability of each group were shown in Tables 2, 3 and 4 on succeeding column and pages.

Table 2 : Differences between pre-test and post-test scores. (Group B)

Group B	Pre-test Scores	Post-test Scores	Differences between Pre-test and Post-test Scores
Mean	13.00	21.55	8.55
S.D.	1.53	3.29	2.78
Percentage	54.17	89.77	35.61

Table 2 demonstrates that the Mean and Standard Deviation of pre-test scores of English pronunciation of Group B were 13.00 and 1.53, while the mean and standard deviation of post-test scores were 21.55 and 3.29, respectively. Succeeding results also found out that the Mean and Standard Deviation of the results of the same purpose of inquiry between pre-test and post-test scores of the above mentioned group were 8.55 and 2.78 respectively. For the results of differences between pre-test and post-test achievement of points of the participants related to English pronunciation evaluations, the post-test scores of Group B were higher than that of the pre-test scores by 35.61 % based from the total accomplished results of the former.

Table 3 : The results of differences between pre-test and post-test scores. (Group C)

Group C	Pre-test Scores	Post-test Scores	Differences between Pre-test and Post-test Scores
Mean	5.38	16.35	7.36
S.D.	2.54	5.17	3.39
Percentage	22.40	68.11	45.68

Table 3 indicates that the Mean and Standard Deviation of pre-test scores of English pronunciation of Group C were 5.38 and 2.54, while the mean and standard deviation of post-test scores were 16.35 and 5.17, respectively. Subsequent results also found out that the mean and standard deviation of differences between pre-test and post-test scores of the achievement of points of the participants related to English pronunciation evaluations, the post-test scores of Group C were higher than that of the pre-test scores by 45.68% of total scores.

Table 4 : Mean and standard deviation of the differences between pre-test and post-test scores of students' English pronunciation using Web Speech Graphics. (Group B & Group C)

Group	The Differences between Pre-test and Post-test Scores of Students' English Pronunciation ($d_i = X_{post} - X_{pre}$)				
	Min. Score	Max. Score	Mean \bar{d}	S.D. S_d	Percentage of \bar{d} Compared with Total Score
A	-	-	-	-	-
B	3	11	8.55	2.77	35.61
C	0	19	10.96	4.39	45.68
Total	0	19	10.68	4.30	44.52

Table 4 showed the mean and standard deviation of the differences between pre-test and post-test

scores of students' English pronunciation using Web Speech Graphics of **Group B** and **Group C**. As the table made clear, it indicated that the differences between pre-test and post-test scores of **Group B** and **Group C** were ranged in 0 to 19. On the other hand, the Mean and standard deviation of differences between pre-test and post-test scores of all students were 10.68 and 4.30 respectively. Based on these results, the researcher concluded that the Business English students' English pronunciation abilities using Web Speech Graphics have shown improvement by 44.52% based from the total score.

2. The effectiveness of Web Speech Graphics on English pronunciation learning of students measured by using efficiency criterion E1/ E2 was shown in table 5.

Table 5 : The effectiveness of Web Speech Graphics on English pronunciation.

Levels of English Pronunciation Ability	Evaluation of English Pronunciation Ability using Web Graphics			
	Average Scores of Formative Tests (72.00)	Average Scores of Post-test (24.00)	E1/E2 (Criteria)	E1/E2 (Results)
Group A (n = 0)	--	--	--	--
Group B (n = 11)	52.36	21.55	70/80	72.70/89.70
Group C (n = 84)	33.94	16.35	40/60	47.14/68.11
Total	36.07	16.95	45/65	50.01/70.61

Table 5 indicated that the average scores of the students' English pronunciation ability during the post-test were higher than the average scores using the

same Web Speech Graphics on formative tests. This means that the effectiveness of using the application developed the students' English pronunciation aptitude by exhibiting 50.01/70.61 which was higher than the previously given 45/65 benchmark.

When the evaluation of English pronunciation skills of the 2 groups of students was considered, (except Group A which represents students who were unable to obtain 19 to 24 scores), it was found that the efficiency of development of English pronunciation using Web Speech Graphics measured by E1/E2 were the following:

- **Group B:** 72.70/89.70 higher than 70/80 provided criteria
- **Group C:** 47.14/68.11 higher than 40/60 provided criteria.

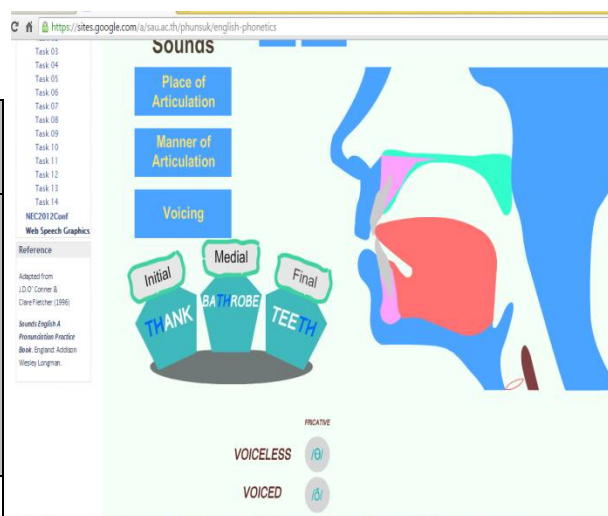


Figure 3 : Web Speech Graphics shows interdental sound formed with the tongue tip between the upper and lower teeth

CONCLUSIONS

From the findings, the research results could be concluded as follows:

1. The comparative results between pre-test and post-test scores of students' English

pronunciation showed that the mean and standard deviation of the differences between English pronunciation' pre-test and post-test scores of **Group B** were 8.55 and 2.78 respectively. It could be concluded that English pronunciation ability of **Group B** was higher by 35.61 % of the total scores. For **Group C**, the mean and standard deviation of the differences between English pronunciation' pre-test and post-test scores of **Group C** were 10.96 and 4.39 respectively. It disclosed that the English pronunciation ability of **Group C** was higher by 45.68 % out of the total scores. To conclude, the mean and standard deviation of the differences between pre-test and post-test scores of English pronunciation of both groups were considerably higher by 44.52 %.

2. The effectiveness of Web Speech Graphics on English pronunciation were taken into account on learning of students by using the efficiency criterion of English pronunciation development (E1/E2). The efficiency measurement E1/E2 of **Group B** and **Group C** were 72.70/89.70 and 47.14/68.11 higher than the provided criteria of 70/80 and 40/60, respectively. The efficiency measurement E1/E2 of both groups exhibited 50.01/70.61 on top of 45/65 benchmark.

From the results, the researcher concluded that by integrating the Web Speech Graphics to the students' English pronunciation activities, the competence and the ability of students' English pronunciation have significantly improved. It was also noticeable that the Web Speech Graphics is an effective teaching media that help develop the capabilities of students in the English pronunciation learning.

DISCUSSION

According to the results of the research, it demonstrated that by integrating the Web Speech Graphics for the improvement of students' English pronunciation, the acquisition of appropriate sound inflection towards the words being learned was effective in improving students' English pronunciation and phonological awareness of phonemes.

This study harmonized with the research of Kaewsonti & Jitngernmadan (2014), who mentioned that the use of Google Web Speech API can recognize the students' English speeches and compare them with the right answers. This way, the students corrected their English pronunciation until they were satisfied, as Kannarik (2012), who studied the achievement in English pronunciation learning through Online Audio Streaming of students who were taking the English Phonetics course, found that using Online Audio Streaming was effective in students' English pronunciation learning. This study also went along with Wichadee's study (Wichadee, 2011) which said that learning through the Internet or computer online was suitable for English teaching and learning, and helped to promote autonomous learning skills for learners who can study based on their ability and interest, reaffirming Jaschik's (2009) notion that students who took all or part of their instruction online performed better, on average, than those taking the same course through face-to-face instruction. In addition, those who took "blended" courses -- those that combine elements of online learning and face-to-face instruction -- appeared to do best of all. Stringer's (2008) study suggests that student's learning processes are greatly enhanced when they participate in deciding how they may demonstrate their competence in a body of knowledge or the performance of skills.

Moreover, the results of this research were in accordance with the research of Kim, D. & Gilman, D. A. (2008) who found that, students learned better when they received “visual text and added graphics” or “visual text, added spoken text, and added graphics” instruction. Although the added multimedia components required learners to spend more time on the instruction, the extra time was not significant. The results lead one to conclude that an effective way to improve learning of English vocabulary is to offer graphics that illustrate what the vocabulary means. In summary, the results of this research showed that Web Speech Graphics for students' English pronunciation was effective in improving English pronunciation skills. It is logical to conclude that the application of technology in education has developed modern technical ways and should be continued for effective learning and teaching of the English language. Teachers of English language should encourage their students to apply technology to further enhance their English language skills. The researcher wishes to propose that Web Speech Graphics should be considered as part of English teaching and learning media in English classes.

RECOMMENDATIONS

The following recommendations have been taken into account from the results of the study for the benefit and improvement of students taking related course in the future:

1. Further study should be incorporated with English speaking skills to see whether the use of Web Speech Graphics could alleviate students' skills or not.

2. Researchers should explore learners' attitude and perceptions toward the use of Web Speech Graphics.

3. should study the advantages and disadvantages of Web Speech Graphics.

4. Educational institutions should encourage English language instructors to modernize their technical instruction capabilities by using new modern technology in teaching.

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