The Effects of Using Computer Assisted Language Learning in Enhancing Vocabulary Knowledge of English I Student at a Private University in Nakhon Pathom

ผลการใช้คอมพิวเตอร์ช่วยสอนภาษาในการเสริมสร้างความรู้ด้านคำศัพท์ของนักศึกษาระดับชั้นปีที่ 1 ในมหาวิทยาลัยเอกชนแห่งหนึ่งในจังหวัดนครปฐม

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Abstract

The purpose of this research study was to examine the relationship between computer assisted language learning program with vocabulary knowledge. The researcher employed a quasi-experimental research design within a group of 20 first-year students enrolled in English I class. A paired T-test statistical analysis was used to examine the results of pre and post-tests while a 5-point Likert scale attitudinal survey was used for the opinions of the participants. The computer language learning program intervention took an hour for the pre-test on the first day and 10 hours for two-month practice. A one-hour for the post-test was conducted on the last day of the study. The results of testing instruments indicated a significant difference of 0.01 in favor of the post-test in which students had considerably improved their vocabulary knowledge; while the participants' opinions of the whole program was significantly positive. The findings of this study were parallel to those of previous research indicating that computer language learning program enhanced vocabulary knowledge. Most significantly, based on the findings of the present research, it was suggested that theuse of computer assisted language learning program could enhance the vocabulary knowledge of the students.

Keywords: Computer Assisted Language Learning, Vocabulary Knowledge

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บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างการใช้โปรแกรมคอมพิวเตอร์ช่วยในการเรียนการสอนกับทักษะการเรียนรู้คำศัพท์ ผู้วิจัยได้ออกแบบการวิจัยแบบให้เป็นแบบการวิจัยกึ่งทดลองแก่นักศึกษาปริญญาตรีชั้นปีที่ 1 ที่ลงทะเบียนเรียนวิชาภาษาอังกฤษ 3 จำนวน 20 คน ในการวิเคราะห์ผลทางสถิติของการทดสอบก่อนและหลังเรียน (Pre and Post-test) นั้นจะใช้ T-Test ในการวิเคราะห์ และแบบสำรวจความคิดเห็นของลิเกิต (Likert) ถูกนำมาใช้ในการสำรวจความคิดเห็นของผู้เข้าร่วม ในการใช้โปรแกรมคอมพิวเตอร์เข้ามาช่วยสอนนั้นจะทำการทดสอบก่อนเรียนจะใช้เวลา 1 ชั่วโมงในวันแรกและ 10 ชั่วโมง ภายใน 2 เดือน แต่การทดสอบหลังเรียนจัดทำ 1 ชั่วโมงในวันที่มีการเรียนวันสุดท้ายเท่านั้น ผลการทดลองโดยใช้เครื่องมือพบว่า ผลการทดสอบหลังเรียนนั้นมีค่าความแตกต่างทางสถิติอย่างมีนัยสำคัญอยู่ที่ 0.01 ซึ่งแสดงให้เห็นว่า นักศึกษามีการพัฒนาที่ดีขึ้นมากในด้านทักษะการเรียนรู้คำศัพท์ ในส่วนของการทดสอบทัศนคตินั้นจะเห็นได้ว่า ผู้เข้าร่วมการวิจัยมีทัศนคติที่ดีต่อการวิจัยตลอดโครงการ ดังนั้น ผลการวิจัยแสดงให้เห็นว่าการวิจัยครั้งนี้สอดคล้องกับการวิจัยครั้งก่อนหน้าที่ชี้ให้เห็นว่าการเรียนจากโปรแกรมคอมพิวเตอร์นั้นมีผลต่อการเรียนรู้และเพิ่มเติมคำศัพท์ภาษาอังกฤษของผู้เรียนจากการวิจัยครั้งนี้จึงเสนอแนะได้ว่า การใช้คอมพิวเตอร์เข้ามาช่วยในการเรียนการสอนนั้นมีส่วนช่วยให้ผู้เรียนสามารถเพิ่มพูนคำศัพท์จากการเรียนได้มากยิ่งขึ้น

คำสำคัญ : คอมพิวเตอร์ช่วยสอน, ความรู้ด้านคำศัพท์

SIGNIFICANCE OF THE STUDY

According to Suppasetseree & Linh (2016), technology is an inevitable tool for teaching and learning language in many educational institutions and schools.It has been used to both assist and develop language learning by teachers and learners. Similarly, Motteram (2013) stated that technology is very much part of language learning throughout the world at all different levels. Most teachers use different forms of technology in order to support teaching process, involve students in the process of learning, provide authentic materials for concrete examples in class and connect the classrooms in the real world.

Due to the emergence of technology in many schools, colleges and universities, the application of computers in the teaching and learning process has been conceived and it is generally known as Computer Assisted Language Learning (CALL). Computer Assisted Language Learning is an approach to language teaching and learning in which the computer is used as an aid to the presentation, reinforcement and assessment of material to be learned, usually including substantial interactive element. Levy (1997) defined computer assisted language learning as the search for and study of applications of the computer in language teaching and learning. Likewise, Beatty (2003) said that,

"Computer Assisted Language Learning (CALL) has come to encompass issues of materials design, technologies, pedagogical theories and modes of instruction. Materials for CALL can include those which are purpose-made for language learning and those which adapt existing computer-based materials, video and other materials."

Also, Egbert (2005) stated that computer assisted language learning is "learners learning language with, through, and around computer technologies" (p. 4). In general, it can be drawn that computer assisted language learning is any form of teaching and learning with the use of computer technology.

On the other hand, Liangpanit (2015) said that vocabulary is generally accepted as one of the important components in effectively learning a foreign language and students' success in communication is dependent on how well they acquire and retain vocabulary. In the same manner, Sedita (2005) stated that, vocabulary knowledge is important because it encompasses all the words one must know to access background knowledge, express ideas and communicate effectively, and learn about new concepts. Likewise, Boonkongsaen and Intaraprasert (2014) said that, vocabulary plays a key role in the language learning process as it is one of the important language elements that can support all of the four skills namely: speaking, listening, reading and writing. Based on the abovementioned views, it can be drawn that vocabulary is incontestably essential in learning English language.

The necessity of adequate vocabulary knowledge in order to facilitate learning English as second language needs to be prioritized in the classroom. One of the strategies of enhancing vocabulary knowledge is the use of computer assisted language learning which many researchers had proven to be effective in this digital era.

There are several types of computer assisted language programs such as: specific software, generic software, web-based learning programs and computer-mediated communication. Adobe captivate is a specific software program the researcher used in order to help learners develop vocabulary knowledge. The students/participants underwent vocabulary drills and exercises in the computer laboratory for two months and took pre-test and post-test before and after the vocabulary activities.

In the private university where the present research took place, most of the students have difficulty in learning English language which rooted from their inadequacy of vocabulary knowledge (Castro, 2015). In line with this, the researcher experimented a program to assist students in increasing their vocabulary knowledge through the use of technology. Also, the vocabulary words used were chosen from the textbook Stretch 2 by Oxford University Press which the students used in the class.

Thus, the present research used computer assisted language learning as a tool to help facilitate the vocabulary learning of English I students, summer semester academic year 2016 at a private university in Nakhon Pathom.

RESEARCH QUESTIONS AND OBJECTIVES

The present research posed two research questions as follows:

1. Does the use of computer assisted language learning program enhance the vocabulary knowledge of English I students at a private university in Nakhon Pathom?

2. What are the opinions of English I students towards computer assisted language learning program in enhancing their English vocabulary knowledge?

In order to answer the abovementioned research questions, the following objectives must be achieved:

1. To develop a computer assisted language learning program to use in enhancing the vocabulary knowledge of English I students at a private university in Nakhon Pathom,

2. To compare the results of pre-test and post-test based on computer assisted language learning program, and

3. To analyze the English I students' opinion towards computer assisted language learning program at a private university in Nakhon Pathom.

THEORETICAL FRAMEWORK

The present research was similar to Suppasetseree (2016) in terms of using a program to facilitate the importance of teacher preparation and students' opinions who learn by using the program. The students have positive attitudes towards the program which could be manifested in the results of the study.

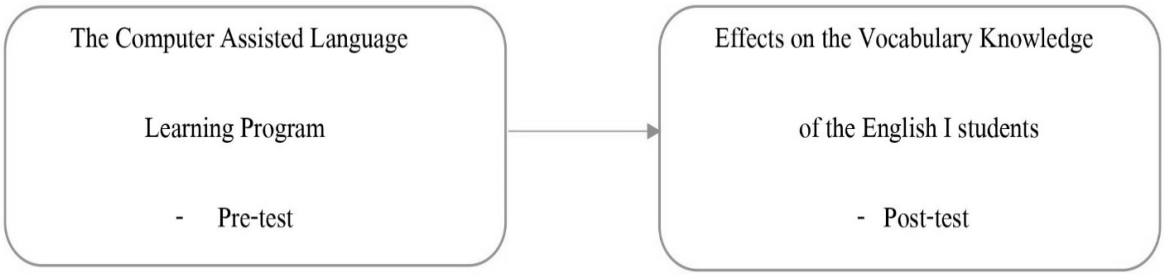

Figure 1: Analytical Framework of Research Study

The above – illustration of graphical representation visibly shows the framework of the research study with the probable concrete effects according to the study. The researcher developed a computer assisted language learning program with the help of a computer expert from the computer department. It was implemented following a methodical procedure. The students/participants did the online activities in the computer laboratory for 10 hours. These activities were various vocabulary drills and exercises focused on the 30 words from the textbook.

The framework of the present research implied that students learning English as a second language can develop their vocabulary knowledge through the use of computer assisted language learning program. Also, the present research could prove that the use of computer assisted language learning program were effective in improving the vocabulary knowledge of English I students at a private university in Nakhon Pathom.

METHODOLOGY

A quasi-experimental approach was implemented in this study with pre-test, post-test and a questionnaire as instruments used to gather data. The pre- and post- tests were compared to evaluate the effectivity of computer assisted language learning program and the questionnaire was employed in order to gather the opinion of the participants. The researcher chose to follow this research methodology in order to find out whether the two variables which were computer assisted language learning program and vocabulary knowledge have significant difference, thus, proving beyond doubt that computer assisted language learning program could develop the vocabulary knowledge of the English I students.

The two variables investigated in this research were computer assisted language learning program as the independent variable and vocabulary knowledge as the dependent variable.

The present study was conducted in a heterogeneous English I class at a non-profit private university in Nakhon Pathom. English I is a general English course and it focuses on listening and speaking skills. There were four males and 16 female students in English I class coming from different colleges. Purposive sampling was used with a population which composed of the International and Thai program students in different major fields. These twenty students were handled closely for the whole duration of the research.

The researcher meticulously chose the vocabulary words to be taught to the students with the help of English instructors teaching the same course. These words were taken from 10 units of the textbook, Stretch 2, Oxford University Press (2014). The textbook has a word list at the back of the book which comprises the target vocabulary words for each unit. The online treatment used 50 target vocabulary words taken from 10 units of the textbook. Out of 50 vocabulary words, there were 30 words included in the pre-test and post-test. Since, there are five English instructors who are all masters in the field of English language, the researcher asked for their opinion about the necessity of the chosen vocabulary words. These words are nouns, verbs and adjectives and which were used in matching type and fill-in the blanks type of exercises online.

There were three different instruments used which served as tools in gathering data for reliable results. They were the following:

1. Pre-test - The participants took pre-test an hour before the treatment. It was a 30-item multiple choice type of test. The vocabulary words in the test were taken from the textbook, Stretch 2 Oxford University Press (2014) which the students were using in this course. The words were chosen equally from the target vocabulary words of each units.

2. Post-test - It was the same test the students took on the first day of the implementation. The result of this test was compared to that of the pre-test.

3. Questionnaire - The students/participants answered the questionnaire after the post-test. This survey questionnaire was composed of three parts namely: part one - The general information of the participants, part two - A Likert Scale Survey, and part three - the Opinions of the Participants about Computer assisted Language Learning Program.

In terms of technological concern, an expert in the field of multimedia was chosen to develop a computer assisted language learning program. The content of the program was prepared by the researcher and it was made possible online by an expert in technology. In the same manner, pre-test and post-test made by the researcher were checked and evaluated by the three instructors who were members of the university standard committee.

The present research underwent several steps in order to warrant the reliability and validity of the study. The instruments used in this program including the pre-test and post-test, questionnaires, drills and exercises were checked and evaluated by three members of the standard committee of the university.

The head of the computer department also helped in checking the technicalities of the program.

Two weeks before the implementation of the program, there was a pilot-testing of the instruments with ten students in the other section of the same course. The researcher used TAP (Test Analysis Program) software to check the reliability and validity of the pre and post-tests in terms of its level of difficulty and item analysis. The modifications of the tests depended on the result of the pilot-testing.

For the questionnaire, the teacher/researcher discussed the items one by one to make sure that the students clearly understood them. In part III, participants were allowed to answer in Thai so that they could express themselves comprehensively. They were given enough time to answer the questionnaire in order to draw in-depth information from them. The answers in Thai were translated in English by three English teachers in the same course. In addition to this, the results of pre and post-tests were not revealed to the participants in order to avoid any psychological consequence.

The data were gathered from 20 participants in English I class for two months from August to September. The intervention ran for 10 sessions, one hour each, and two sessions for the pre and post-tests. The 30 vocabulary words were from the textbook, Stretch 2, units 1 to 10. The instrumentation such as: pre-test and post-test were compared in order to find the effectiveness of using computer assisted language learning program in developing vocabulary knowledge and the answer to research question one. The data gathered from the questionnaires served as the answer to research question two.

In order to have an accurate view of the data gathered, the following method were used:

1. Statistical program was used to generate a reliable result of the gathered data.

2. A Paired T-test statistical tool was also used to compare the pre-test and post-test generated from SPSS.

3. A 5-point Likert Scale attitudinal survey was used to show how the program have affected the participants.

4. The result of the five-point Likert scale described using the interpretation of mean scores according to the university interpretation which is adapted from Best (1970) for analysis. Below was the five-point Likert scale and the interpretation of mean scores.

RESULTS

Table 1. Showing $\overline{X}$, S.D., t-value and p-value for Data Analysis of the Pre-test and Post-test of the Participants in Using Computer Assisted Language Learning

Overall	$\overline{X}$	S.D.	t-value	p-value
Pre-test	13.15	2.72	-14.104**	.000
Post-test	22.55	2.21		.000

**p = .01

As demonstrated in the table above, the post-test was higher than the pre-test. It means that, the participants performed significantly well during the post-test. The results showed that the t-value of the pre-test and post-test was - 14.104**. The negative mark specified that the post-test was higher than the pre-test. The chosen significance level or alpha was 0.01. This showed that there was a statistically difference at 0.01 level because the p-value (.000) was lower than the significance level or alpha (0.01). Hence, the null hypothesis was rejected and disproved. It evidently validates that the participants enhanced vocabulary knowledge using computer assisted language learning program.

The questionnaire given to the participants had part two and it was used to figure out the opinions of the participants toward the computer assisted language learning program using the 5-point Likert Scale. The results are demonstrated below by means of showing the Mean ($\overline{x}$) and Standard Deviation (S.D.).

Table 2. Ranking of the Participants' Opinions toward Computer Assisted Language Learning Program

Rank	$\overline{x}$	S.D.	Interpretation
1. Using computer assisted language learning program helps me enhance vocabulary knowledge.	4.90	.32	Very Good
2. Using computer assisted language learning program is fun.	4.55	.51	Very Good
3. Using computer assisted language learning program is simple and user friendly.	4.45	.51	Good
3. Using computer assisted language learning program offers exercises and drills geared towards improving my vocabulary knowledge.	4.45	.51	Good
5. Using computer assisted language learning program is interesting.	4.40	.50	Good
5. Using computer assisted language learning program increases vocabulary knowledge necessary in daily life conversation.	4.40	.50	Good
7. Using computer assisted language learning program allows me to apply the vocabulary knowledge in daily life conversation.	4.35	.59	Good
Total Average	**4.5**	**.49**	**Good**

As shown in the table above, the participants had fair opinion toward using computer assisted language learning program in enhancing their vocabulary knowledge. The first in the rank (item no, 4), "Using computer assisted language learning program helps me enhance vocabulary knowledge" exhibited the highest level of satisfaction ($\overline{X}$ = 4.90). According to the participants' comments in the following data analysis, they stated that the computer assisted language learning program had helped them in enhancing their vocabulary knowledge. The second in rank was item no. 3, with $\overline{X}$ = 4.55, it was followed by items nos. 2 with $\overline{X}$ = 4.45 and 6 ($\overline{X}$ = 4.45), then items nos. 1 and 7 with $\overline{X}$ = 4.40 and $\overline{X}$ = 4.40 respectively. Finally, the item with the lowest mean which was the last in the rank was item no. 5 "Using computer assisted language learning program allows me to apply the vocabulary knowledge in daily life conversation" with $\overline{X}$ = 4.35 and which was a good rating.

The part three of the questionnaire was an open-ended question which would gauge the participants' opinions toward using computer assisted language learning program. There were immensely positive responses from the participants' point of view.

Table 3. Showing the Participants' Opinions Towards Using Computer Assisted Language Learning

Questions	Answers	No. of Students	Percentage
What can you say about the program?	Exciting	12	60%
	Motivating	4	20%
	Relaxing	2	10%
	Entertaining	1	5%
	Boring	1	5%
Total		**20**	**100%**
Did CALL improve your vocabulary knowledge?	Improved very much	11	55%
	Really improved	6	30%
	Improved	2	10%
	Improved a little	1	5%
Total		**20**	**100%**

As stated in table 3, twelve out of 20 participants said that the program was exciting, four of them stated that it was motivating, two from 20 of them mentioned that it made them feel relaxed and only one cited that it was entertaining. However, there was one participant said that the whole program was boring. This participant also was the lowest both in pre-test and post-test. For the follow-up question whether it improved their vocabulary knowledge, 11 of them answered that it improved their vocabulary knowledge very much.

Two from 20 of them said it really improved and six stated that after using the computer assisted language learning program, their vocabulary knowledge was improved. Nevertheless, one participant answered that the program improved her vocabulary knowledge just a little.

One of the participants added that, the vocabulary were simply presented in such a way that they can be easily understood. Although the words are difficult, the meanings and examples in the exercises were easy and simple. The participant continued by saying that, the presentation on the screen was also pleasing and the program was easy to use. However, she mentioned that due to connection problems, sometimes she couldn't make her work faster than she could do.

Another participant wrote that, he wanted to go to the computer laboratory more often than before because the program was new to him and that, he wanted to explore. His vocabulary knowledge was not that good, so he wanted to do the drills some more time for mastery. He continued that, he liked this program because he can do the exercises again and again depending on his time availability and pacing.

"There are different vocabulary exercises and we can click the meaning anytime within the program", remarked by one of the participants. He was majoring multimedia and he had knowledge in computer programming. He continued by saying that, the software used in the program was really good and the one who designed it was excellent.

Thus, the positive opinions of the participants made the researcher believe that computer assisted language learning program must be used in English I classes in the coming semesters.

CONCLUSION AND DISCUSSION

The necessity of enhancing vocabulary knowledge could be validated through Wilkins (1972) prominent remark "...while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p.111). In relation with this, Castro (2015) stated that teachers always look for a strategy or instruction in order to meet students' needs in developing vocabulary knowledge. Also, researchers never stop investigating which vocabulary teaching strategy is the best of all. Unfortunately, there is no single strategy proven to be better to another (Baumann, J.F., Kameenui, E.J. & Ash, G.E., 2003).

Results of the present research suggested that truly computer assisted language learning as any form of teaching and learning with the use of computer technology is inevitable even in developing vocabulary knowledge. The positive opinions of the participants and the result of the post-test in this research can attest the necessity of using computer assisted language learning program.

Furthermore, cooperative efforts between English for second/foreign language educators and computer instructors are commendable in order to facilitate better learning among students. The present research had asked computer instructor's expertise in creating a reliable program. Both researchers competence led to the success of using computer assisted language learning program among first-year students in this private university.

Likewise, the present study was similar to the study conducted by Khodaparast and Ghafournia in 2015 wherein 120 male and female university EFL students majoring in Translation

Studies and English Teaching were experimented through using computer assisted language learning. Results showed that there was a difference between the scores of the participants in the traditional approach and the scores on those who used computers. It was found that computer assisted language learning in general and the other approaches can positively influence EFL learners' vocabulary achievement.

A relevant study experimented by Shao (2012) among 80 participants in China had found that there was a clear evidence which showed the effectiveness of the application of multimedia to the development of vocabulary acquisition. As a result, learners have positive attitudes to the application of multimedia software.

Moreover in Thailand, a comparable study was conducted by Dewan (2013) investigating the effectiveness of a computer assisted language learning package to enhance the vocabulary acquisition and retention of 60 second-year nursing students at Prince of Songkla University, Hat Yai Campus. After two months, results had shown that the students acquired significantly more vocabulary words based on the results of the post-test which was higher than the pre-test. The subjects' attitudes towards the computer assisted language learning package were also positive providing them with essential techniques for independent learning of new vocabulary.

In conclusion, the findings of the present research supported the previous studies that using computer assisted language learning program could develop the vocabulary knowledge of the participants. Added to this, the participants had constructive attitudes regarding the whole program.

RECOMMENDATIONS FOR ADMINISTRATION AND FURTHER STUDY

The present study focused on using computer assisted language learning program in enhancing vocabulary knowledge of first-year students in a private university in Nakhon Pathom. The target vocabulary words were chosen from the textbook "Stretch 2: Listening and Speaking" by Stempleski of Oxford University Press (2015). Based on the findings of the research, it is probable to adapt the program in English I course. It is also inarguable that students are motivated to learn more using technology so creating the same program using "Stretch 3: Listening and Speaking" for English II could also be done to help students enhance their vocabulary knowledge.

Also, to study further regarding computer assisted language learning and vocabulary knowledge in a qualitative approach of research could be employed. The interaction between the teacher and the students, and the students themselves could be studied. An in-depth interview regarding students' attitudes towards the teacher and the program could be an interesting subject to be given attention.

Finally, conducting the same research in a larger number of participants and in a different setting could give the study a wider scope. It could also be used to some other universities in Thailand and elsewhere.

Reference

Baumann, J.F., Kame'enui, E.J. & Ash, G.E. (2003). Research on Vocabulary Instruction: Voltaire Redux. In J. Flood, D. Lapp, J.R. Squire, & J.M Jensen (Eds.), *Handbook of Research on Reaching English Language Arts,* (2nd ed.), (752-785). Mahwah, NJ: Erlbaum.

Beatty, K. (2003). *Teaching and Researching Computer-Assisted Language Learning. London,* Pearson Education.

Boonkongsaen, N. & Intraprasert, C. (2014). Use of English Vocabulary Learning Strategies by Thai Tertiary-level Students in Relations to Fields of Study and Language-learning Experiences. *English Language Teaching,* 7(5), 59-70.

Castro, R. (2015). The Effects of Using Structural and Contextual Analyses Strategy in Developing the Vocabulary Skill of Undergraduate Students at a Private University in Nakhon Pathom. Graduate School, Christian University of Thailand.

Dewan, G. (2013). Computer Assisted Vocabulary Learning Package for Nursing Students and their Learning Attitude. Prince of Songkla University. Master of Arts Degree in Teaching English as an International Language. *Retrieved August* 14, 2016, from http://kb.psu.ac.th/.

Egbert, J.L. (2005). Conducting research on CALL In J.L. Egbert & G.M. (Eds.).*CALL research perspectives.* Mahwah, NJ: Lawrence Erlbaum.

Khodaparast, F. & Ghafournia, N. (2015). The Effects of Asynchronous/Synchronous Approaches on English Vocabulary Achievement: A Study of Iranian EFL Learner, 8(4), 117-127 Retrieved August 8, 2016, from www.eric.ed.gov.

Levy, M. (1997). Context and Conceptualization. Oxford: Oxford University Press.

Liangpanit, C. (2015). Vocabulary Learning Strategies for Thai Learners: Research to Practice. Journal of Humanities and Social Sciences. Thaksin University, 15(2), 119-131.

Motteram, G. (2013). Voices. The benefits of new technology in language learning. Retrieved August 5, 2016, from www.britishcouncil.com.

Sedita, J. (2005). Effective Vocabulary Instruction. Insights on Learning Disabilities, 2(1), 33-45.

Shao, J. (2012). A Study of Multimedia Application-based Vocabulary Acquisition. Canadian Center of Science and Education, 5(10), 202-207.

Stempleski, S. (2014). Stretch 2. Oxford University Press.

Suppasetseree, S. & Linh, N.D. (2016). The Development of an Instructional Design Model on Facebook Based Collaborative Learning to Enhance EFL Students' Writing Skills. IAFOR Journal of Language Learning, 2(1), https://doi.org/10.22492/ijll.2.1.04

Wilkins, D. (1972). Linguistics in Language Teaching. London: Arnold.