

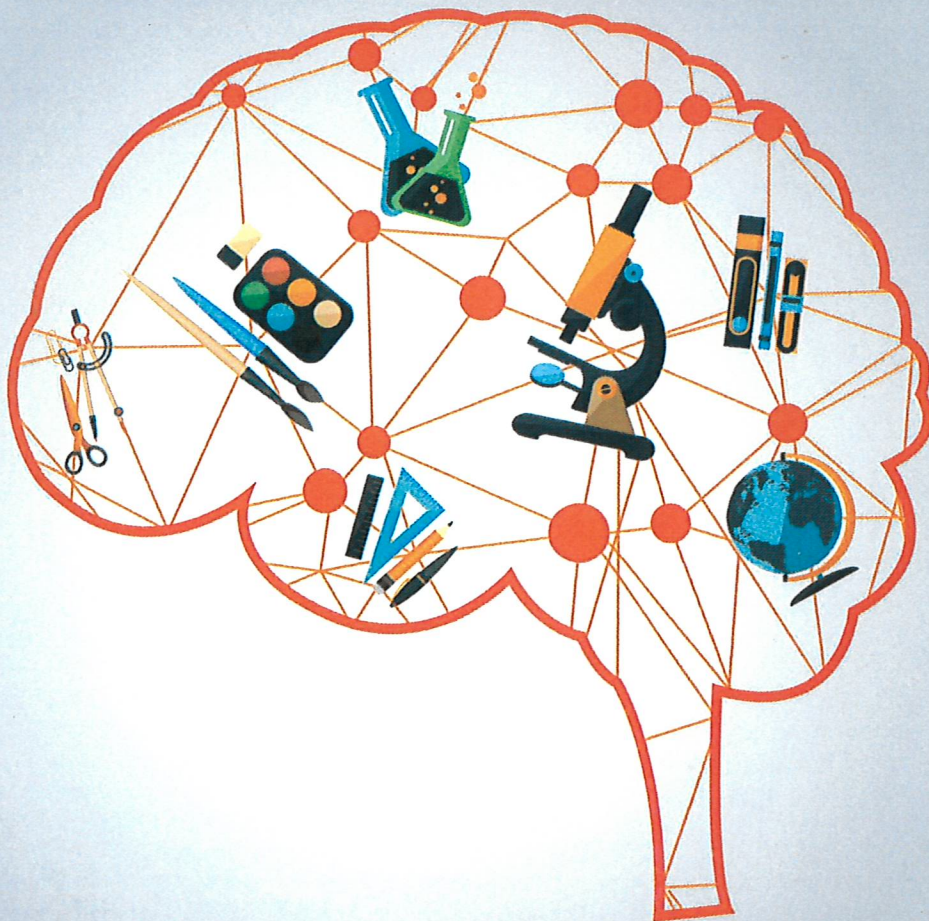
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Faculty of Education Bansomdejchaopraya Rajabhat University

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วารสารครุศาสตร์สาร เป็นวารสารวิชาการราย 6 เดือน (ปีละ 2 ฉบับ ฉบับที่ 1 มกราคม – มิถุนายน ฉบับที่ 2 กรกฎาคม – ธันวาคม) มีวัตถุประสงค์เพื่อการบริการวิชาการ และเป็นศูนย์กลางรวบรวมและเผยแพร่องค์ความรู้ ความคิด ทักษะและประสบการณ์ที่เกี่ยวข้องกับการศึกษา อาทิ การบริหารการศึกษา ภาษาและการสื่อสารเพื่อการศึกษา สังคมศาสตร์เพื่อการศึกษา วิทยาศาสตร์เพื่อการศึกษา คณิตศาสตร์เพื่อการศึกษา ศิลปวัฒนธรรมเพื่อการศึกษา เทคโนโลยีคอมพิวเตอร์เพื่อการศึกษา การวัดผลและประเมินผล ตลอดจนเป็นการนำเสนอองค์ความรู้และข้อค้นพบจากการศึกษาและวิจัยทางด้านการศึกษา บทความหรือข้อคิดเห็นต่าง ๆ ที่ปรากฏอยู่ในวารสารเล่มนี้ได้ผ่านการกลั่นกรองคุณภาพจากผู้ทรงคุณวุฒิในสาขาที่เกี่ยวข้อง และได้รับความเห็นชอบจากกองบรรณาธิการ เนื้อหาที่ปรากฏอยู่ในวารสารเล่มนี้ถือว่าเป็นความคิดเห็นส่วนตัวของผู้เขียน บรรณาธิการ และกองบรรณาธิการไม่จำเป็นต้องเห็นพ้องและไม่ถือเป็นความรับผิดชอบ

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The Effect of Computer Assisted Language Learning on Thai Students' Grammar Learning Achievement: A Study of Grade 10 Students of a High School in Thailand

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Abstract

This study aimed to: 1) investigate the effect of the CALL material on English grammar learning achievement for Grade 10 students; 2) investigate the students' knowledge retention of grammar on Conditional sentences by the CALL material compared with GTM; and 3) gather information about the Grade 10 students' attitude towards the CALL material for learning in the aspect of contents, design in CALL and implementation. The sample group for the study comprised 58 Grade 10 students from Sarasas Pittaya School in Bangkok, Thailand, who were selected to participate in the study conducted in the second semester of academic year 2013 (from November 2013 to March 2014). The research instruments included 1) an achievement test to assess differences before and after learning, and 2) a questionnaire for the experimental-group students, to examine their attitudes towards learning through CALL. The CALL material was implemented in this study for the experimental group. The statistics programme run by the SPSS programme, version 17, analysed percentage, mean (\bar{X}), S.D.,

and a paired-samples T-Test was adopted to evaluate the differences between the students' results learning with different teaching methods. Percentage, mean (\bar{X}), and S.D. were also used to describe and interpret the results from the questionnaire. Our results showed that 1) students who learn with CALL get higher scores than those who learn with GTM statistically (sig. = .003; $p < .01$); 2) there is a statistically significant difference in knowledge retention of the students who learn with CALL material and those who learn with GTM after one month at .000 ($p < .001$); and 3) in the aspect of implementation, the students were highly satisfied with the statement that learning through CALL helps them better memorise all information about the lesson than learning in the normal classroom ($\bar{X} = 4.97$, S.D. = 0.19). For the design of the CALL material, the students were highly satisfied with the proposition that the presentation of activities was comprehensible, and text size was appropriate ($\bar{X} = 4.86$ and 4.83 respectively). Finally, for content of the CALL material, the students were highly satisfied with the statement that they can apply knowledge gained and apply it to real life ($\bar{X} = 5.00$, S.D. = 0.00).

Keywords : CALL, Computer Assisted Language Learning, GTM, Grammar Translation Method, Teaching Models

Introduction

1. Background

Grammar Translation Method (GTM) or the Classical Method is one of the oldest-fashion methods in teaching and learning, particularly in the school levels and in the non English-mother-tongued countries. Yanina Davila (2015) explicates the three main purposes of GTM, which are firstly to help students read and appreciate foreign literature. Secondly, to speak and write L1 better. Lastly, to exercise students mind, since it was considered that foreign language learning would help students grow intellectually. However, Computer Assisted Language Learning (CALL) is very important which it is like a modern educational innovation. It is designed to facilitate the language learning process (Bitter, 1989) and tends to

focus on the “Computer Assisted” and the “Language Learning” portions (James et al, n.d.). Moreover, CALL can serve as its accessibility, interactivity and portability (Hampel and Lamy, 2007).

2. Objectives of the study

2.1 To investigate the effect of the CALL material on English grammar learning achievement for Grade 10 students;

2.2 To investigate the students' knowledge retention of grammar on Conditional Sentences by the CALL material compared with GTM;

2.3 To gather information about the Grade 10 students' attitudes towards the use of CALL material in learning grammar in the aspects of its contents, design in CALL and implementation.

3. Research questions

3.1 Are there any differences in the grammar learning achievement of students who learn with CALL material and those who learn with GTM?

3.2 Is there a statistically significant difference in students' knowledge retention of grammar on Conditional Sentences after one month of students who learn with CALL material and those who learn with GTM?

3.3 What are students' attitudes towards the use of CALL material in learning grammar in the aspects of its contents, design in CALL, and implementation?

4. Significance of the study

As its benefits, the CALL material can be used anytime and anywhere. Also, students can repeat the programme again and again and at a particular lesson they don't understand. More importantly, this study seems to be the first study on the effect of computer assisted language learning on Thai students' grammar learning achievement. Therefore, other researchers can use or adapt it in the appropriate circumstances. The result can be used to develop activities related to teaching grammar to help them learn grammar better. For example, using CALL material as a teaching aid to help weak students to study grammar with their own paths.

Literature Review

1. Definition of Computer Assisted Language Learning and Grammar Translation Method

Computer Assisted Language Learning (CALL) fulfills the needs of learning a language by using computers as a main way to perceive information (David and Higgins, 1985). It is a tool that teacher can use in teaching to enhance language skills and to overcome a few problems that may occur with slow students, or to help students revise the lesson they just studied on their own time anywhere through software (Banpho, 1996; Manning, 2008). CALL can be categorised into three phases according to Warschauer (1996): behavioristic CALL, communicative CALL, and integrative CALL. To elaborate, behavioristic CALL entails repetitive language drills or drill and practice. Communicative CALL focuses more on using forms for communication and avoiding telling students they are wrong, but flexible to a variety of students' response. Another is integrative CALL which refers to multimedia computers and the Internet. The integrative CALL allows a variety of media to be accessed on a single machine. In contrast, Grammar Translation Method is the old method and old-fashioned method in teaching and learning. It is also known as the classical or traditional method as it was used to teach the classical languages, Latin and Greek (Yanina Davila, 2015).

In this research, the use of behavioristic CALL was applied to produce the CALL material to help enhance students to memorise and understand the lessons on Conditional Sentences with the concept of drill and practice, compared to teaching with GTM in the same concept of drill and practice as well.

2. The principles of CALL and GTM

Chapelle (2002) stated that CALL concepts need appropriate CALL qualities. Firstly, "language learning potential" refers to the extent to which a CALL can be expected to be beneficial for language learning. Secondly, "learner fit" refers to the appropriateness of the CALL materials and students' ability. Thirdly, "meaning focus" is the students using the target language to interact with the CALL activities. Fourth, "authenticity" means the CALL material should be a more

realistic situation of everyday life and engagement outside the class room. Fifth, "positive impact" refers to its effects beyond its language learning potential. Lastly, "practicality" refers to how easily students and teachers can implement the CALL task within the particular constraints of a class or language programme. In contrast to CALL, GTM's main principles (Wikipedia (2009)) is based on, first, translation that interprets the words and phrases of the foreign language in the best possible manner. The phraseology and the idiom of the target language can best be assimilated in the process of interpretation, and the structures of the foreign languages are best learnt when compared and contrast with those of mother tongue.

3. The strengths of CALL

From the review of literatures of CALL, it can be concluded that there are five strengths of CALL which are 1) CALL interactivity considering the most important advantage of CALL material (Yazdani as cited in Normah Yusof, 1999); 2) student-centredness meaning that Students can control over the speed of presentation of material (Liou as cited in Normah Yusof, 1999); 3) Individualised instruction and time commitment which give no pressure on the slow plodding student to hurry, while the fast student may move quickly through a lesson without the boredom and frustration of waiting for slow classmates to respond (Yazdani as cited in Normah Yusof, 1999); 4) Non-human programme meaning that it will never tire, unlike the human teacher, and can be used repeatedly (Powell, 1998); and 5) Edutainment value referring to many modern programmes which make effective use of graphics and colour and recorded sound: they are therefore eye-catching.

4. Conditional Sentences

Traugott, et al (1986) stated that Conditionals are used to express the cause-and-effect or temporal sequences of two events—an antecedent clause and a consequent clause—"if p, then q" and perform various functions such as reasoning, making inferences and imaging correlations, etc. The form of conditionals consists of two clauses—a main clause and a subordinate clause (Norris: 2003). Celce-Murcia and Larsen-Freeman (1999) as cited in Norris (2003)

mention that most ESL textbooks and grammar introduce three forms of conditionals and traditionally name them as “type 1, 2, and 3” conditionals noted by Celce-Murcia and Larsen-Freeman (1999: 545) as cited in Norris (2003: 41) are: 1) Future Conditional, 2) Present Conditional and 3) Past Conditional. Conditional Sentences in this research was used as the lesson for both groups of students who learn with CALL material and GTM.

Methodology

1. Statement of hypotheses

1.1 Students who learn with CALL material will get higher scores than those who learn with GTM statistically.

1.2 There is statistically significant difference in knowledge retention of the students who learn with CALL material and those who learn with GTM after one month.

1.3 The students have positive attitudes towards CALL material in the aspect of its contents, design in CALL, and implementation.

2. Subjects

The subjects of this study were Grade 10 students of Sarasas Pittaya School in the second semester of academic year 2013, comprised of various proficiency level students (good, average, and poor), and randomly selected by cluster random sampling design together with convenient selection from two of six classrooms consisting of 29 students from Grade 10/2 (programme in mathematics and English), and 29 students from Grade 10/3 (programme in English and Chinese). The Grade 10/2 students were taught by CALL approach; in other words, they are the experimental group, whereas the Grade 10/3 students were taught by GTM—a control group.

3. Instruments

There are two main instruments used in this study: 1) an achievement test and 2) a questionnaire. The achievement test was used in three purposes as a pre-test to collect data before studying measuring their levels of English grammar proficiency, as an immediate post-test to collect data after

studying with the CALL material and GTM, and as a delayed post-test to measure the students' knowledge retention of learning with CALL material--with 80 multiple-choice test items about conditional sentences. The test items were verified for its validity and reliability using "Index of Consistency (IOC)" by five experts in this field. For a questionnaire, it was also used in this study in order to report subjects' opinion about the learning with CALL programme. Also, this questionnaire was used only for the experimental group.

4. Pilot study

The pilot of this research was very important because it verified how effective the CALL material was and whether it was suitable to use with the real research of study. The pilot study of using CALL material with the sample group happened one month before real research and consisted of 22 volunteer students of Grade 10/1. The pilot study took 4 weeks and they studied English 2 periods per week, which was the same amount of teaching time used in the real research. The findings of using CALL approach in teaching grammar with the sample group showed that the students' scores improved sharply and were statistically significant when compared between pre-test and post-test. Before studying, the students' mean score was 12.55. After they took the lessons, their mean score was up to 35.77 as follows:

Table 1 The comparison of the pre- and post- tests of the participants from the pilot (N=22)

Test Scores	Total Scores	\bar{X}	S.D.	t	Sig.
Pre-test	40	12.55	1.50	-39.74	.000
Post-test	40	35.77	2.58		

*Significant difference = $p < .001$

5. Research design



Figure 1 Research design

This design was a real experiment; there were two groups - one was a control group which used a Grammar Translation Method, another one was the experimental group who used the new treatment, which is a CALL material. Groups had to take a pre-test in order to range the proficiency of the subjects. They were provided lessons and taught with the same teacher. The final day of the semester, students took a post-test in order to compare the effectiveness of the two methods. After the final examination, students took a one-month break to investigate the knowledge retention on English grammar of their memories after learning.

6. Data collection and data analysis

The data came from the achievement tests (consisting of pre-test, immediate post-test, and delayed post-test), and the questionnaires. The achievement tests were collected before studying, at the end of the second semester (or after they took the final examination), and again after the one-month test. The questionnaire data were collected after the delayed test. The findings from the study were described by frequency, percentage, and mean.

Results and Discussion

1. Data analysis of students' scores on pre-test and immediate post-test

With regard to the research question one, are there any differences in the grammar learning achievement of students who learn with CALL material and those who learn with GTM? Findings are shown in the table below:

Table 2 The comparison of the post-test scores of the CALL and GTM groups (N=58)

Test Scores	Total Scores	\bar{X}	S.D.	\bar{D}	t	Sig.*
Post-test Grade 10 2	80	53.66	9.82	10.21	3.197	.003
Post-test Grade 10 3	80	43.45	17.20			

*Significant difference = $p < .01$

The results showed that the significant difference of both groups was .003 which is less than .01, so the results are in agreement with the first hypothesis. In other words, it is accepted that students who study with CALL material will get higher scores than those who study with GTM statistically.

2. Data analysis of students' scores on immediate post-test and delayed post-test

As mentioned in research question two, is there a statistically significant difference in knowledge retention of students who learn with CALL material and those who learn with GTM? Findings showed that the mean score from the delayed Post-test of the GTM group was 39.41. The mean difference between the two groups of students is 14.83. The significant difference is .000 which is less than .001, so the results are in agreement with the second hypothesis. In other words, there is a statistically significant difference in knowledge retention on English grammar, after one month, of students who learn with CALL material and those who learn with GTM as shown in Table 3 as follows:

Table 3 The comparison of the delayed post-test of CALL and GTM groups (N=58)

Test Scores	Total Scores	\bar{X}	S.D.	\bar{D}	t	Sig.*
Delayed Post-test Grade 10 2	80	54.24	10.77	14.83	4.603	.000
Delayed Post-test Grade 10 3	80	39.41	16.56			

*Significant difference = $p < .001$

4.3 Data analysis from the questionnaire results

Here come the findings of research question three, what are students' attitudes towards the CALL material in the aspect of its contents, design in CALL, and implementation?

Part 1: General background information

The data were drawn from the Grade 10/2 students or CALL group students. There were in total 29 students consisting of 14 male students and 15 female students (48.30% and 51.70% respectively).

Part 2: The attitudes and satisfactions towards learning with CALL material

The results point out that the students were highly satisfied with the implementation of the CALL material as shown in the table 4.

Table 4 Questionnaire results of items evaluated by students (N = 29)

Statements	Levels of Satisfaction	Mean	S.D.	Meaning	Rank
Content					
1. The difficulty level of the content is appropriate.	4.66	0.61	Highly satisfied	3	
2. The amount of content and the length of learning is appropriate.	3.86	0.69	Satisfied		
3. Clear instruction in every step	4.97	0.19	Highly satisfied		
4. Exercises are enough.	4.17	0.54	Satisfied		
5. You can apply knowledge gained into real life.	5.00	0.00	Highly satisfied		
	4.53	0.41	Highly satisfied		
Design					
6. Text size is appropriate.	4.83	0.47	Highly satisfied	2	
7. The illustrations are appropriate.	4.41	0.82	Satisfied		
8. The presentation of activities is comprehensible.	4.86	0.35	Highly satisfied		
9. Graphic used in the programme is clear and easy to read.	4.17	0.76	Satisfied		
	4.57	0.60	Highly satisfied		
Implementation					
10. CALL assists you to learn more conveniently.	4.90	0.41	Highly satisfied	1	
11. Learning through CALL makes you more fun to learn English grammar.	4.93	0.37	Highly satisfied		
12. Learning through CALL helps you better memorise all information about the lesson than learning in the normal classroom.	4.97	0.19	Highly satisfied		
	4.93	0.32	Highly satisfied		
Overall satisfaction	4.64	0.45	Highly satisfied		

Part 3: Suggestions

Most of the students would like the researcher to develop the material in order to use with their smart phone. A few reported that the information about the lesson was too short. They needed more explanations. Most students liked the

step of learning through CALL material and they had time repeating the lessons at home by themselves. However, a few argued that the length of learning was still too short because the researcher spent time explaining the rules and how to use the programme which they all knew how to manage. All in all, they preferred and had a positive attitude towards learning English through CALL material. They agreed that with the graphic and technology as well as having chance to do and learn it by themselves are the keys to their success.

4. Discussion of research findings

4.1 Hypothesis one: Students who learn with CALL material will get higher scores than those who learn with GTM statistically.

The students' immediate Post-test scores with CALL were higher than with GTM. It can be concluded that hypothesis one, which stated that students who studied with CALL material would get higher scores than those who studied with GTM, statistically was correct. The students' Post-test scores of the CALL and GTM groups were significantly different. Therefore, studying with CALL material was successful. The success of using CALL approach suggests that teachers should bring technology into teaching in order to help the students learn their English grammar more eagerly.

4.2 Hypothesis two: There is statistically significant difference in knowledge retention of grammar on Conditional Sentences of the students who learn with CALL material comparing with GTM after one month.

The delayed Post-test was used to investigate this hypothesis, and the results showed that the students' delayed Post-test scores after CALL were still higher than GTM although they took a one-month break. It can be considered that hypothesis two was correct. The students' delayed Post-test scores between CALL and GTM were significantly different. Thus, studying with CALL material was also successful statistically in the aspect of sustainable knowledge or long term memory. However, the delayed post-test score of this research was the same as immediate post-test. This might indicate that a few students are able to successfully remember the test items of the immediate Post-test. For further research, it is recommended that the delayed Post-test be different from

the immediate Post-test.

4.3 Hypothesis three: The students have positive attitude towards CALL material in the aspect of its contents, design in CALL, and implementation.

Overall, the results of the questionnaire agreed with the hypothesis three, where the mean score with which students rated the CALL material on the questionnaire was 4.64. Based on the Likert scales interpretation, this score showed that the students were highly satisfied with the CALL material. This is consistent with a study conducted by Kulik et. Al., 1983; Kulik, 1987 as cited in Yusof (1999: 109) which concluded that students hold positive attitudes towards using computers and towards the subject matter taught as a result of having access to computers. With regard to the students' ratings, the implementation of the CALL material met their satisfaction the most, followed by its design and content. The reason why they expressed the most satisfaction towards the implementation of CALL may be due to the animation and interaction inside the CALL material that met their interest and encouraged motivation.

Conclusions and Recommendations

1. Summary of research finding on pre-test and immediate post-test between CALL and GTM

It was found that after learning, both CALL students and GTM students gained higher scores compared to the Pre-test. However, to answer whether the CALL approach is better than the GTM approach as mentioned in hypothesis one, the comparison between CALL Post-test and GTM Post-test was calculated. The findings showed that the significant difference of both groups was .003 which is less than .01, meaning that the significant difference corresponds with the first hypothesis that the p-value would be lower than .01. In other words, students who study with CALL material get higher scores than those who study with GTM statistically.

2. Summary of research finding on immediate post-test and delayed post-test between CALL and GTM

So as to sum up whether students who studied with CALL material had

longer memory than ones who studied with GTM, a pair T-test of immediate and delayed Post-test scores were used to find the answer, and its findings showed that the Post-test mean score of CALL group was 53.66. The significant difference was .465, meaning that there was no difference between immediate Post-test and delayed Post-test. In other words, the students of the CALL group had long term memory, whereas the Post-test mean score of the GTM group was 43.45. The significant difference was .000, meaning that there was significant difference between immediate Post-test and delayed Post-test. Then, to emphasise that after a one-month break, the CALL students' scores still showed higher than GTM students, a paired T-test of delayed Post-test scores was calculated. The results showed that the significant difference was .000 which is less than .001, so the results correspond with the second hypothesis. After one month, the results of using CALL material still had more statistically significant difference.

3. Summary of research finding on the questionnaire results

From the questionnaire's results, it can be concluded that the students held positive attitudes towards using computers and the subject matter taught as a result of having access to the computer. With regard to the students' ratings, the implementation of the CALL material met their satisfaction the most, followed by its design and content. In fact, CALL material proved that since it was a successful combination of visuals and interactivity which can make language more comprehensive than other teaching aids (Stempleski and Tomalin, 1990).

4. Recommendations for pedagogical practice with CALL

It is first recommended that CALL material be implemented in different ways. Nowadays, there are lots of programmes that teachers can use to produce as a teaching media. However, they should first study of the advantages and disadvantages of particular CALL material. For this study, the researcher brought Macromedia Flash to produce CALL material which was in fact a good programme as it provides a wide range of active animations and capabilities of interaction. Because the period of time spent to produce the CALL material was short, there were not many sets of exercises in the programme which affected the students in doing exercises. They were necessary to have various and different

types of exercise in order to provide them plenty of opportunity to practise the lessons. Second, in the digital age, students can easily access the internet, so the CALL material could be made available in an online version because for this study the students were given the CALL material by CD-Rom to study freely outside the classroom, and a CD-Rom is easy to damage. Therefore, it would be better for other researchers to further develop the material into the form of an education application for a smart phone or website. This would make it more interactive between CALL materials and the students. Finally, when teaching with a CALL material, teachers in the role of a facilitator should take time in the class monitoring students to check whether or not they can follow up or catch up the lessons. In other word, students should be given help only when needed.

5. Recommendations for further studies

First of all, it is recommended that research be conducted using wide range of the number of students, since it can generalise the benefits of using CALL. Secondly, this study aimed not only to compare the CALL approach with GTM approach but also to compare the sustainable knowledge or long term memory of the students. Lastly, the CALL material would be more effective if the study was conducted in the first semester because there would be time to continue conducting further research for the second semester when the problems were found.

6. Conclusions

In this study, the effect of CALL by comparison with GTM was investigated. The study group consisted of Grade 10 students from Sarasas Pittaya School in Bangkok, who were cluster-sampling selected to participate in the study. Success in learning conditional sentences was measured before and after the lesson, by comparing Pre-test and immediate Post-test. In addition, with one of the objectives to examine the students' knowledge retention of grammar on Conditional Sentences, the students were measured again by delayed Post-test after taking a break for 1 month. The results from both immediate Post-test and delayed Post-test revealed that CALL material has a statistically significant influence to promote students to study rather than learning by GTM. Besides the tests, questionnaires were one of the instruments used to investigate

the students' satisfaction towards learning CALL material. The findings of the study showed that the students were highly satisfied with learning by CALL material even though the study was accomplished. The success of learning the targeted English Grammar, CALL material, may suggest that teachers should consider using technology in the CALL as it is new and accessible, developing a programme for teaching, or even adding it into the school's curriculum in the way of integrating learning to equip the students with strategies that will assist them to learn by themselves when they are outside the classroom or at home.

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