

**Improving English Skills of Grade 9 Students in Educational Opportunity
Expansion Schools under the Office of Chiang Mai Primary Education
Service Area 2 by Using Computer Assisted Instruction**

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Abstract

This research is process-oriented, aiming at applying “Gagne’s 9 Events of Instruction” and computer assisted instruction to designing a suitable learning tool for rural students in Chiang Mai. The purposes of this research were to construct and evaluate the effectiveness of Computer Assisted Instruction (CAI) in order to prepare the participating students for the Ordinary National Education Test (O-NET), and to compare the students’ English skills before and after the implementation of the CAI. The population of this research was 965 grade 9 students from 53 Educational Opportunity Expansion Schools under the supervision of Office of Chiang Mai Primary Education Service, Area 2. The first phase of the project involved a study where the students’ proficiency and needs, the English teachers’ ideas for lesson design, the experts’ suggestions on developmental considerations for CAI as well as the O-NET test blueprint were examined. The second phase involved the CAI design, where Gagne’s 9 Events of Instruction were utilized. The final phase involved the implementation of the CAI. The findings revealed that the efficiency of the CAI was at 87.03/87.38 which was higher than the specified efficient standard criteria of 80/80. At a 0.001 significance level, the students' achievement scores increased after the use of the CAI. Based on the findings it was recommended that Computer Assisted Instruction be implemented for improving the English performance of students with low proficiency.

Keywords: computer assisted language learning, computer assisted instruction, O-NET, Gagne's nine events of instruction

Introduction

English has been taught in Thailand for over a hundred years. At present, it has become a compulsory subject in every level of Thai education. In order to find out if the quality and equality of education for Thai students in general reach expected standards, the government has set up a neutral national organization, The National Institute of Educational Testing Service or NIETS, to monitor and evaluate the outcomes.

The Ordinary National Educational Test (O-NET) is one of the many national standardized tests which aims to assess the knowledge and thinking ability of grade 6, 9 and 12 students and assess their academic proficiency according to the Basic Education Core Curriculum 2008 (B.E 2551), to provide information to the schools to improve their teaching and learning performances, and to evaluate the quality of education at the national level (National Institute of Educational Testing Service, 2015).

Thai students are required to pass the O-NET examination to graduate from primary (grade 6), lower secondary (grade 9) and upper-secondary (grade 12) school levels. The students' knowledge in five subjects: Thai language, mathematics, science, social studies, religion and culture, and foreign languages, is assessed in this examination (National Institute of Educational Testing Service, 2015). The O-NET scores are worth 30% toward each school level graduation. In 2015, the Minister of Education even signed a directive to announce an increase of this percentage to 50%. Fortunately, academic experts and stakeholders pointed out that it was too idealistic to use such a proportion, so the required percentage of the O-NET scores is still 30% (Dapong signed an agreement, 2017). As a matter of fact, students have performed extremely poorly on the O-NET tests, especially in mathematics and English with scores that have ranked near the bottom year after year.

The O-NET scores are important to each school level's graduation and even more important to grade 9 students in rural areas of Chiang Mai. This is because these students are generally from poor families, and if they have low O-NET scores they will not be able to attend a good upper-secondary school. Consequently, after completing the first two level of compulsory education, some students opt to enter the labor market, while others move to urban centers to engage in other formal or informal activities as a strategy to help support their families. Some go to vocational schools for another 3 years of low-cost education before entering the workplace and then become merely semi-skilled labourers. These students therefore really need academic support.

The English O-NET scores in English of students in the Educational Opportunity Expansion Schools, situated in the rural areas, particularly those under the supervision of Chiang Mai Primary Education Service Area 2, are worse than the average national scores every year, as illustrated in Table 1.

Table 1

The average English O-NET scores of grade 9 students from the Chiang Mai Primary Education Service Area 2 compared with all Thai students' scores in academic years 2014-2017 (total scores 100)

Grade 9 students	Academic Year			
	2014	2015	2016	2017
Under Chiang Mai Primary Education Service Area 2	28.56	25.60	27.39	27.50
All students in Thailand	30.35	27.46	30.62	31.80

Source: The National Institute of Educational Testing Service (2017)

As shown in Table 1, the average English scores of students from the Chiang Mai Primary Education Service Area 2 in the past 4 years were very low and had never reached the national mean. This problem should therefore be addressed seriously.

This study focused on improving the English language skills of these grade 9 students with two expectations. Firstly, English is one of the two subjects that pull the students' scores down, so building their English skills is likely to help boost their O-NET scores. Secondly, knowledge of English will be advantageous for their further study, daily life and future career. If they decide to end their studies after this school level graduation, English will open the world of opportunities for them in this changing world.

Studies have shown that Computer Assisted Instruction (CAI) is an effective approach to teach and learn a foreign language. It is a teaching material which is constructed using theories about human learning (Alessi & Trollip, 1991: 418). It is a mechanical tutor which never grows tired or judgmental and allows students to work at an individual pace (Warschauer & Healey, 1998: 57). Using CAI, students at any English proficiency level benefited, students enhanced their language skills, and they also have ample opportunities to interact with authentic English language materials and native speakers of English (Feng, 2012).

There have been studies supporting the use of CAI in ESL and EFL teaching and learning. Al-Mansour & Al-Shorman (2012), Yuan & Huizhong (2014) and Al-Nafisah (2015) found that CAI could be used to increase English learning achievement. Additionally, Chartrand (2004) found that CAI is highly recommended for low-motivated and low-proficient students. Maleki & Ahangari (2010) revealed that CAI could enhance students' English reading and writing skills significantly. Ma (2007) and Naba'h (2012) pointed out that using CAI improved students' English vocabulary knowledge and built positive attitudes towards English learning. Furthermore, Park & Son (2009) studied English teachers' views on CAI usage and noted that all respondents agreed that CAI was beneficial to English teaching and learning because it increased students' interest and attention through attractive animation, sound and colourful images.

In Thailand, there has also been much research done on using CAI in English language instruction. The results have indicated a statistically significant effect of CAI on Thai students' English proficiency, especially on vocabulary retention and English learning attitude (Kanongdet, 2014); Amonsintawee, 2010; Kongkachuai, 2010; Fuangfu, 2009; Anuyahong, 2008; and Taerut,

2008). Even though a lot of studies have been conducted to increase students' English learning achievement, there have only been a few studies of CAI as a tool to help Thai students pass the national standardized test. Consequently, this investigation intended to construct suitable CAI materials for improving the rural students' English O-NET scores by applying the "Gagne's 9 Events of Instruction" (Gagne, Briggs & Wager, 1992) in preparing and delivering instructional contents.

Literature Review

"Gagne's 9 Events of Instruction" (Gagne, Briggs & Wager, 1992) are often used by e-learning developers when creating e-learning strategies. The nine events can help build the framework for an effective learning process. They are beneficial when preparing and delivering instructional contents. They can also be modified to fit the content and the students' knowledge. After completing each step, learners are more likely to be engaged and to retain the skills that they are being taught. "Gagne's 9 Events of Instruction" include:

1. Gaining attention (reception)
2. Informing learners of the objective (expectancy)
3. Stimulating recall of prior learning (retrieval)
4. Presenting the stimulus (selective perception)
5. Providing learning guidance (semantic encoding)
6. Eliciting performance (responding)
7. Providing feedback (reinforcement)
8. Assessing performance (retrieval)
9. Enhancing retention and transfer (generalization)

Gagne, Briggs & Wager (1992) refer to this list as methods in the learning sequence and indicate that these methods are very effective with low ability students or with students who have little prior knowledge in the particular subject being learned.

It can, therefore, be assumed that applying "Gagne's 9 Events of Instruction" to the CAI could provide a perfect tool for boosting rural grade 9 students' English language skills for the O-

NET exam, which is vital for their graduation and further study. The success of these disadvantaged children not only affects them, but also means a lot to their families, community and society at large.

Research Objectives

1. To construct and evaluate the effectiveness of Computer Assisted Instruction (CAI) in order to prepare grade 9 students of rural Chiang Mai's schools for the Ordinary National Education Test (O-NET).
2. To compare the students' English skills before and after implementation of the CAI.

Research Methodology

1. Population

The population of this research consisted of 965 grade 9 students from 53 Educational Opportunity Expansion Schools under the supervision of Office of Chiang Mai Primary Education Service Area 2.

2. Sample and Sampling Procedure

The study was conducted by using Single-group Pretest-Posttest design.

The sampling method began with stratified sampling. The 53 schools from Chiang Mai Primary Education Service Area 2 were clustered into 5 groups, based on the five districts, where the schools were located: Mae Rim District, Mae Taeng District, Sa Moeng District, Phrao District and San Sai District. Then simple random sampling method was adopted. The name of each school and the number of students was written on a piece of paper and then put into one of five cups, according to the district where it was located. Each school in each district had a chance to be drawn. Next, the sample size was calculated using Krejcie and Morgan's formula (Krejcie & Morgan, 1970). The suitable sample size was 275 students.

After that the school names were drawn and then 277 students from 12 schools were randomly chosen. However, only 252 students took both the pretest and posttest and were included in the process of finding the effectiveness of the CAI. In this case, Hair, Anderson, Black, & Babin

(2016) suggested that a non-completion rate of 10% was common in educational studies, so a data set with 10% missing values can be analyzed by the predetermined statistical procedures. As a result, the sample size of this study was 252 students.

3. Instruments

The instruments utilized in this investigation were categorized into two types: experimental and data collection instruments.

The experimental instrument was an online Computer Assisted Instruction (CAI) program for improving the English skills of grade 9 students. A website was designed based on the study of the students' competency and needs, the Basic Education Core Curriculum 2008, the O-NET test blueprint, and the O-NET test items which were used in the last 3 years. The CAI program included 3 units as follows:

Unit 1. Listening and Speaking: This unit was built on English conversations from the daily life of grade 9 students, focusing on vocabulary, expressions, culture and manners. There were 10 situations.

Unit 2. Writing: This unit promoted students' writing skills through using correct grammar and vocabulary. The students took the role of writers and completed passages with words or phrases that best fit the context.

Unit 3. Reading: This unit focused on English reading comprehension and critical reading. The passages were about the history of important places in the world, jokes, graphs, and drug labels. There were 10 passages for the students to read, with questions to answer, vocabulary to learn and pronunciation practice.

The efficiency criteria used were E_1/E_2 .

E_1 = Percentage of mean scores of the students' correct answers after doing formative tests (the effectiveness of process).

E_2 = Percentage of mean scores of the students' correct answers after doing the summative test (the effectiveness of the outcome).

The designated efficiency criteria of this CAI were 80/80 because English is considered a difficult subject that requires not only cognitive and academic competencies but also cultural enrichment. The suitable criteria should therefore not be higher than 80/80.

The data collection instruments consisted of:

1) The English proficiency test, which was the O-NET examination used in academic year 2015 and published online on March 17, 2017 by the National Institute of Educational Testing Service (NIETS). This test was meant to collect the data about the English competency of the sample students.

2) A group interview, which was conducted with 67 grade 9 students, in groups of 5-10, to gather information about their needs and interests in the use of CAI in learning English.

3) A structured interview, which was used to gather information for lesson design. Twelve grade 9 English teachers and three English teaching experts, teachers' supervisors, were interviewed in order to collect information about English language contents, including good learning objectives, introduction, contents, organization, learning activities, instructional media, exercises, and assessment.

4) A structured interview, which was used to interview three CAI experts about CAI types which were suitable for the target students, CAI basic components, structures, hyperlinks, score reports, fonts, illustrations and graphics, background and reinforcement.

5) English pretest and posttest

The 75 multiple-choice test items of 4 alternatives were constructed and then submitted to the 3 experts to evaluate using Index of Item Objective Congruence (IOC) and the IOC result was 0.94, which indicated that every item was suitable for the project's use. The experts also provided some suggestions for improving the test items. After the test was amended and improved, it was pilot tested with 30 grade 9 students who did not belong to the sample group. The scores collected from these students were then analysed to identify the item difficulty and discrimination, using the 50% median split procedure. The difficulty of all the items was within the acceptable range, from 0.20 to 0.80, and the discrimination was classified as "fair". Then the Cronbach's Alpha

Coefficient was adopted to find out a coefficient of reliability. It was found that the tests had moderate reliability ranging between 0.60 and 0.70. After the item analysis, 50 of the most suitable items were selected to use with the sample students.

6) A CAI evaluation form adopted from that of the Ministry of Education. The evaluation criteria of the form included introductions, content design, language use, instructional design, multimedia design, and interactions.

4. Data Collection Method

The first phase of the project involved a study, where the students' English proficiencies, interests and needs, as well as the English teachers, teaching experts, and CAI experts' opinions, and the O-NET test blueprint were examined. The test focused on language for communication and language about culture. The total number of selected test items was 50 and the allocated time was 90 minutes.

The 2016 O-NET paper was given to the sample students with an aim to collect data about their English background knowledge. After that, the structured interviews and CAI design were carried out.

The data obtained were extracted and later integrated into "Gagne's 9 Events of Instruction" in order to create suitable lessons and exercises for the students.

The following nine steps were adapted from Gagne, Briggs and Wager (1992):

9 Events of Instruction	Activities
1. Gaining the learner's attention	→ Using attractive animations, sound and colourful images etc. in the introduction
2. Informing the learner of the objectives	→ Telling students specific learning objectives
3. Stimulating recall of prior learning	→ Using questions and exercises to activate students' prior knowledge
4. Presenting the learning stimulus	→ Presenting new information through multimedia
5. Providing learning guidance.	→ Guiding students to integrate new and prior knowledge in learning
6. Eliciting performance	→ Eliciting students' responses through text chat or instant messaging
7. Providing feedback	→ Providing positive and negative feedback to students individually
8. Assessing performance	→ Using online objective tests
9. Enhancing retention and transfer	→ Reviewing the knowledge learned and transferring knowledge to the next lessons

Figure 1: Implication of Gagne's 9 Events of Instruction in CAI construction

The second phase involved CAI construction with an incorporation of the data from the first phase. The software used in this construction consisted of:

1. Adobe Photoshop CS6 for photographs and illustrations
2. Adobe Illustrator CS6 for vector graphics and illustrations
3. Adobe Flash Professional CS6 for 2D animations and multimedia
4. Audio recording software programs for sound recordings
5. Adobe Dreamweaver CS6 for website design

6. PhpMyAdmin 10 for database management

7. Script PHP for script writing

After the construction process, the website was available on www.onetprep.com.

After having been designed, the CAI was evaluated by three computer education experts using Likert scales (Likert, 1932), 4.50 – 5.00 = excellent/ 3.50 – 4.49 = good/ 2.50 – 3.49 = average/ 1.50 – 2.49 = fair/1.00 – 1.49 = poor. The result was 4.36 which meant “good”. After the evaluation, the CAI was revised following the experts’ suggestions.

After trouble-shooting, the CAI was tried out with three students who did not belong to the sample group and whose English proficiency was at good, fair and poor levels. After this individual tryout, the CAI was tested in a small-group setting with 9 grade 9 students.

After solving the problems found in the individual and small-group trials, the CAI was ready to be implemented by the sample group (field tryout). The CAI URL and its user manual were delivered to the 12 sample schools.

When the data collection was completely finished, a one-day training course was held in order to introduce the CAI to the participating English teachers of 53 schools from Chiang Mai Primary Education Service Area 2.

5. Data Analysis

The effectiveness of the CAI (E_1/E_2) was analyzed for mean and percentage.

The English proficiency test, pretest and posttest scores were analyzed for mean, percentage, standard deviation and dependent sample t-test.

The item difficulty and discrimination were analyzed using the 50% median split procedure.

The content analysis was applied to analyze the qualitative data from the interviews.

The reliability of the pretest and posttest was analyzed using Cronbach's Alpha Coefficient.

Research Results

The results of this research were to serve the objectives by utilizing the three phases, namely: the data collection phase, the CAI construction phase and the evaluation phase regarding the effectiveness of the CAI.

The CAI construction phase

Table 2

Students' English proficiency after doing the proficiency test

Skills	Full scores	Lowest	Highest	Mean	Percentage	S.D.
Listening and speaking	15	3	13	8.04	53.73	2.16
Writing	15	3	12	6.78	43.86	2.35
Reading	20	5	16	10.21	53.47	2.79
Total				25.03	50.67	6.27

As shown in Table 2, the students' English scores from the English proficiency test, which was the O-NET examination used in the previous academic year, was in the range of 43.86 and 53.57. The highest percentage was on listening and speaking, followed by reading, and the lowest percentage was on writing skill. The overall percentage indicated that the students' English skills were at "very poor level".

The group interview revealed that the students' English proficiency was at a very low level. Fifty percent of them did not know basic vocabulary, such as, "ask", "answer", "finish", "should", "question", "true", "false" or "correct". The students also felt that English was important for their future study, but Thai was more useful to them. They wanted the CAI to be created with more fun situations. They wanted to practice doing the English O-NET tests as much as they could. After learning each lesson, they wanted to know their scores to tell how well they did. They thought that their weakest English skill was reading because they did not know enough lexical items.

The structured interview for English lesson design revealed that the learning objectives should be relevant to the O-NET test blueprint and the subject strands, learning standards, indicators,

and outcomes specified in the 2008 Basic Education Core Curriculum. The introduction of lessons should be interesting and encourage the students to be willing to learn through the use of colourful images, attractive sound, animations, and multimedia. The lessons should consist of conversation, reading, writing, vocabulary and grammar. The contents should be divided into several parts in order to allow students to repeatedly use new words and to increase their vocabulary retention. Orders of CAI presentation should start with a pretest, unit learning, and a posttest. Each unit should have its own pretest and posttest. Learning activities should encourage students' interactions, higher order of thinking, evaluation and the application of their background knowledge by using a variety of questions, exercises and activities. Media used in CAI construction should be attractive and related to the contents. The CAI should also provide students appropriate reinforcement. Unit exercises should be in different types and allow students to use every English skill in order to show their learning outcomes and to pass posttests. Learning assessment should consist of a pretest, unit pre/posttests, and a posttest, which have the same patterns and levels of difficulty as the O-NET. The main focus of the CAI for the target students is to provide them with opportunities to practice doing the tests as much as they can, in order to build English and test-taking skills.

After the CAI specialists were interviewed, they suggested that the CAI be an online tutorial software which provides students an opportunity to practice doing exercises without exposure to new information. The main elements of the CAI should be introduction, instructions, learning objectives, pretest, main menus, unit pretest and posttest, lessons, and posttest. The introduction of the CAI should attract students with cartoons or animations, sound and music. There should be navigation bars to link to other destination pages. The interaction should be operated by mouse clicks. Feedback should be given through sounds. There should be assessment of learning achievements, measurement of the effectiveness of the tests, and accurate assessment criteria. Score reports should display students' scores and grades according to a fixed set of predetermined criteria. Fonts should be the same as the ones used in the O-NET examination, to facilitate slow learners who have difficulty reading if the fonts are different. Images and graphics should be animated in order to assist the understanding of the lesson contents. To minimize loading time, image file sizes should

not be too large. Background screen colour should be in contrast with colours of the texts to facilitate reading. CAI supports should include conversation, enunciated speech, clean recordings, sounds, music, animated images, and navigation bars.

The effectiveness of the CAI

1. The effectiveness of the Computer Assisted Instruction (CAI) in order to prepare grade 9 students in rural schools of Chiang Mai for the Ordinary National Education Test (O-NET).

Table 3

The students' English scores during and after learning through the CAI

Statistics	Formative assessment (E ₁)				Posttest (50 points) (E ₂)
	Unit 1 (15 points)	Unit 2 (15 points)	Unit 3 (20 points)	Total (50 points)	
Mean	13.09	13.33	17.10	43.52	43.69
Percentage	26.17	26.66	34.20	87.03	87.38
S.D.	1.23	1.00	1.44	2.43	2.14

As shown in Table 3, after doing the unit posttests, the students' highest scores were from Unit 3, followed by Unit 2 and the lowest scores were from Unit 1, 34.20%, 26.66% and 26.17% respectively. The percentages indicated that the scores increased as the students completed each additional unit.

Table 4

The effectiveness of the Computer Assisted Instruction (CAI) after the intervention

Sample group	Effectiveness of the CAI		Criteria
	Process (E ₁)	Outcome (E ₂)	
252 students	87.03	87.38	80/80

As shown in Table 4, after the use of the CAI, the students' formative average score percentages (E₁) were 87.03 and their summative average score percentages (E₂) were 87.38. The scores were both higher than the standard criteria of 80/80. The findings revealed that the CAI was an effective tool for grade 9 students from the Educational Opportunity Expansion Schools under the supervision of Office of Chiang Mai Primary Education Service, Area 2.

2. The students' English learning achievements after doing the pretest and posttest.

Table 5

Students' pretest scores

	Listening&Speaking (15 points)	Writing (15 points)	Reading (20 points)	Total (50 points)
Mean	8.04	6.78	10.21	25.03
Percentage	53.57	45.21	51.07	50.06
S.D.	2.37	2.40	3.10	7.04

As shown in Table 5, after doing the pretest, the students obtained the highest scores on listening and speaking, followed by reading, and the lowest skill was writing, 53.57%, 51.07% and 45.21 % respectively. The total average score was 50.06%.

Table 6

Students' posttest scores

	Listening&Speaking (15 points)	Writing (15 points)	Reading (20 points)	Total (50 points)
Mean	13.36	13.62	16.67	43.69
Percentage	89.07	90.82	83.33	87.30
S.D.	1.03	0.93	1.33	2.14

As shown in Table 6, after doing the posttest, the students obtained the highest scores on writing, followed by listening and speaking, and the lowest skill was reading, 90.82%, 89.07% and 83.33% respectively. The total average score was 87.30%.

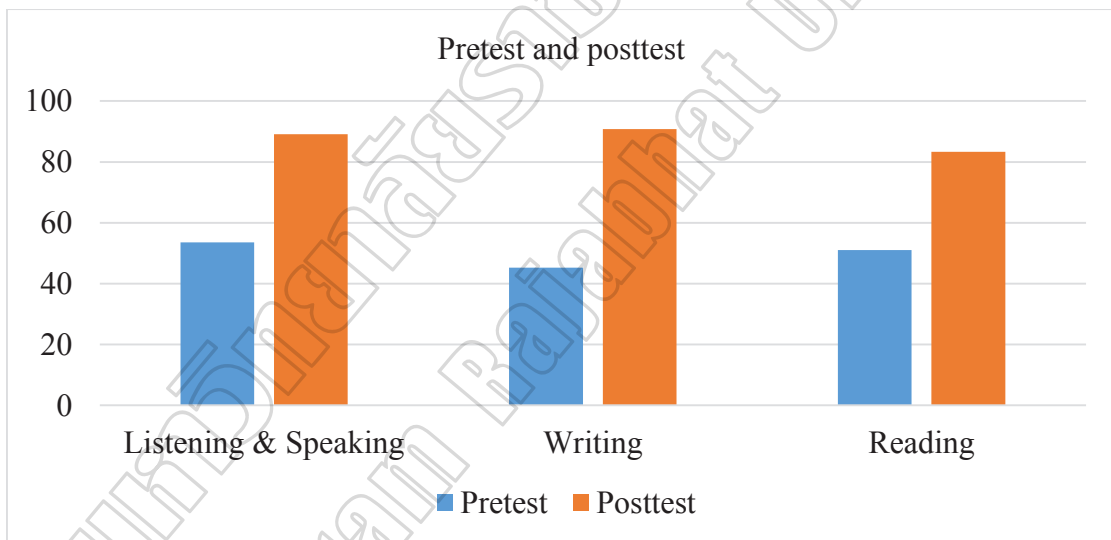


Figure 2: Comparison of the students' scores before and after use of the CAI

As shown in Figure 2, the students' posttest scores on the three skills were higher than those of their pretest scores. The biggest difference between the pretest and the posttest scores was on writing, followed by listening and speaking, and the smallest difference was on reading, 45.61%, 35.5% and 32.26%, respectively.

Table 7

The students' English learning achievements before and after the intervention

	Sample (252 students)				(\bar{X})	(SD)	t
	Pretest		Posttest				
	(\bar{X})	(SD)	(\bar{X})	(SD)			
English learning achievement	25.03	7.04	43.69	2.22	-18.66	7.14	-41.46**

** at the significance level of 0.001

As shown in Table 7, there were statistically significant differences, at the significance level of 0.001, between the students' average achievement average scores before and after the use of the CAI. This means that through the use of the CAI, the students' English achievements improved significantly.

Discussions

From analyzing the data, the results show that the efficiency of the CAI was higher than the standard criterion of 80/80. One possible reason for this outcome is that the CAI was constructed systematically. After each step of the development process, the CAI was edited and approved by computer education specialists and English language teaching experts, who provided comprehensive suggestions and recommendations for improving the CAI.

Before the intervention, the CAI was also tested and improved methodically both in the individual tryout, 60/60, and the small-group tryout, 70/70. After being tested and improved several times, the CAI well suited the sample group. The results of this research project confirm those of Kanongdet (2014), Amonsintawee (2010), Kongkachuai (2010), Fuangfu (2009), Anuyahong (2008) and Taerut (2008), revealing that CAI created for improving English learning achievement has a higher level of effectiveness than a fixed set of predetermined criteria.

In regards to the increase of students' average English achievement scores after the use of CAI, it is related to Alessi & Trollip's view (1991, 418) that CAI is a teaching material which is

constructed using theories about human learning. As well, “Gagne’s 9 Events of Instruction” (Gagne, Briggs & Wager, 1992) which were incorporated in this research could obviously present, reinforce and assess the content learned with relation to language learning theories. Gagne’s series of events follow a systematic instructional design process that shares the behaviorist approach to learning. Additionally, the focus of Gagne’s concepts is on interactive learning, so it makes CAI an attractive learning tool for students. In accordance with the results found by Baba, Sale and Zirra (2017), CAI designed using Gagne’s 9 Events of Instruction provides an appropriate theoretical framework of a good instructional design. Moreover, Ngussa (2014), Zhu and Kirk (2010), and Kutlu and Menzi (2013) also applied this theory in a multimedia learning environment and found that it was a good lesson design for promoting the transfer of knowledge or information from perception through the various stages of memory.

The results also show that the students had performed the best improvement on writing. A possible explanation for these results is that the characteristics of the writing test was to assess students’ knowledge of vocabulary, grammar and language use in writing. Practicing doing the 300 test items enabled the students to gain experience of using various language structures and vocabulary items. Therefore, they were able to identify the correct answers using learned grammatical contexts. The study is consistent with Taerut, Pornsrima and Sripairot (2008), Fuangfu (2009) and Rattamma, Vajarintarangoon and Kultanan (2018) who proved that computer assisted instruction can be an effective method to teach grammar and vocabulary retention to Thai students. In addition, the students were asked to complete the writings which were written in response to real-life situations, so they had chances to use English in a meaningful context and could apply their English knowledge in taking tests. To clarify, the students had repeatedly used essential lexical items in writing, such as linkers, connectors, relative pronouns, and other useful expressions; for example, letter openings; “Hi....!”, “Dear....,” “To whom it may concern,” as well as letter closings; “Sincerely,” “Yours sincerely,” and “Regards, Yours respectfully,”.

Furthermore, each lesson has various ways to help students learn the language, i.e. Thai translated vocabulary list, pop-up translation when the mouse points to the word(s) and recordings.

The CAI has animated objects on the screen and provides practical activities, which incorporate challenges and prompted curiosity. Students can control the pace of their learning and decide what and how to learn and eventually feel more competent in their learning. The results are consistent with Naba'h (2012) who discovered that the use of the computer screen accompanied by animation, video pictures, colors, music and sounds attract students' attention and empowers faculties of retention to them. In addition, the self-paced nature of the computerized activities and the superior visual representation of the material in the software motivated the students to perform significantly better in the posttest.

It could also be concluded that the use of CAI could improve students' abilities to learn English because the CAI enabled them to feel less stressed and more confident in this language learning situation because they do not need to worry about classroom evaluation. The findings are in agreement with Jalilifar (2010) who emphasized that in CAI, students actively participate in and, to some extent, control the building of their knowledge. When students are able to control their learning pace and content, they feel less stressed and, in turn, feel more confident in their English language acquisition.

Conclusion

A rapid rise and development of information technology offers effective tools to explore new teaching models. Using multimedia is an effective tool to create a meaningful context to learn English. This is specially advantageous in a Thai setting, where students are often feel discouraged, lack confidence in and fail to commit to academic excellence. Moreover, English teachers will significantly benefit from this technology, as they are dealing with daily heavy workloads besides teaching.

Computer Assisted instruction (CAI) can facilitate learning, students' motivation and learning interest, which can be a practical way to get them involved in English learning in today's world. However, availability of technology and required facilities in schools in the rural areas of Chiang Mai have still been a problematic issue. The challenge this study encountered was that

most schools still lack necessary technology and equipment for teaching and learning, and teachers are not yet fully equipped with the knowledge and skills to integrate technology into their instructional activities.

This study attempts to serve as a guide to teachers and educators in order to create a CAI for improving English abilities of rural students. It also aims to provide valuable information regarding the CAI construction process for students with both low motivation and proficiency. Additionally, this research serves as a guideline for further research in designing a CAI for rural students in any kind of education or related fields.

Recommendations

1. Every school in the rural areas should have access to technology and especially to the Internet in order to promote the use of the CAI in English classes, and to provide the opportunity for students' self-learning.

2. Further studies on Computer Assisted Instruction should be conducted for improving students' fundamental English skills in rural areas, including: basic English conversation, reading comprehension and introduction to writing. The researcher also recommends to consider and employ other innovative technologies including smart phone applications, online learning, as well as online authentic materials and other mobile learning tools to enhance and facilitate students' learning.

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