

การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนกริยาวลี สำหรับนักศึกษาเอกภาษาอังกฤษ ชั้นปี 1 มหาวิทยาลัยขอนแก่น

The Development of Grammar CALL Courseware on Phrasal Verbs for First Year English Major Students, Khon Kaen University

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บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อสร้างบทเรียนคอมพิวเตอร์ช่วยสอนกริยาวลี ศึกษาประสิทธิภาพของบทเรียนที่สร้างขึ้น ศึกษาทัศนคติของนักศึกษาต่อคอมพิวเตอร์ช่วยสอน และเปรียบเทียบผลสัมฤทธิ์ในการเรียนของนักศึกษา โดยใช้บทเรียนทางคอมพิวเตอร์ แบบทดสอบ แบบสอบถามความคิดเห็นที่สร้างขึ้น และแบบสังเกตพฤติกรรม จากผลวิจัยพบว่าบทเรียนคอมพิวเตอร์ช่วยสอนกริยาวลีที่สร้างขึ้นมีประสิทธิภาพและสามารถพัฒนาความสามารถทางภาษาของผู้เรียน นอกจากนี้ยังพบว่า นักศึกษามีทัศนคติที่ดีต่อการเรียนภาษาอังกฤษกับคอมพิวเตอร์ช่วยสอน ซึ่งจากการเปรียบเทียบคะแนนสอบก่อนและหลังเรียน โดยใช้ค่าที (t-test) พบว่าค่าคะแนนที่ได้มีความแตกต่างกันอย่างมีนัยสำคัญที่ระดับ 0.01

ABSTRACT

This study was conducted to create an efficient computerized grammar lesson on phrasal verbs for first-year English major students at Khon Kaen University; to study their attitudes towards Computer Assisted Language Learning (CALL); and to study their progress and achievement. The research instruments were CALL courseware, an achievement test, a questionnaire, and an observation form. The results reveal that the developed courseware was efficient in enhancing language learning; the sample demonstrated positive attitudes towards Computer Assisted Language Learning (CALL); and the performance of the sample after the computerized instruction was improved. There were also statistical differences between the pre-test and post-test scores at the 0.01 level.

คำสำคัญ : คอมพิวเตอร์ช่วยสอน กริยาวลี ภาษาอังกฤษ

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Introduction

When it comes to modern communication, there is no doubt that English has become the most frequently spoken language in the world. It is not only useful because it is used in a field of trading, but it is also important as a tool to search for advanced knowledge, both from the Internet and written documents. The Ministry of University Affairs and Khon Kaen University have long realized the importance of the English language and placed the ability in communication in a foreign language as one main qualification of desirable students and graduates.

Despite the fact that English is very important, studies after studies have shown the Thai students' problems with understanding grammar points, vocabulary, idioms, and making obvious grammar mistakes. These can affect the students' ability in expressing themselves clearly in English. One of the problems constituting a grammatical problem for Thai students is phrasal verbs. Non-native speakers of English usually have problems with phrasal verbs because one such phrasal verb may have several meanings which are completely new to the students and unable to be guessed (McCarty and O'Dell, 1996). There is considerable learning burden on students when they study phrasal verbs because it seems there is no rule for them to remember. There seems to be only one way to remember the meanings of phrasal verbs that is to "recite" and "memorize" them, which take a lot of time. Students have to make a considerable effort to recite and remember their meanings which students often quickly forget not so long after.

According to the Ministry of University Affairs, the teaching method should be used in classroom is student-centered. Students should be given an opportunity to take part in and be responsible to their learning. This is in line with the new trend of language learning that students differ in their learning styles, and should have more role in deciding their own study objectives and learning activities, and particularly for life learning obtaining learning-how-to-learn skills.

One of the most effective of such method is computerized language instruction or Computer Assisted Language Learning (CALL). Computers can effectively fit almost all styles of learning (McKay, 1996). Moreover, CALL is very advantageous in language instruction because it provides students of a second language with unique way to enhance their language proficiency, while the same time motivate them to study (Chambers, 1993).

Therefore, it would be very useful to language learners and help unload their burden of reciting and memorizing the meanings of phrasal verb if the computerized program aimed to teach phrasal verbs is developed.

Research Methodology

1. Sample

The sample group of this study comprised 30 students who enrolled in 411108 English Structure I in the first semester of the academic year 2000. They were chosen by a purposive random selection from those who had never studied in other English speaking countries. The reasons for this group to be chosen were as follows: they would have more chance to expose to the language and improve their English proficiency than more experienced learners. They could also apply skills they had obtained to further studies and conversations outside class. At the very least the gap between the subjects and their peers who had studied abroad might decrease.

2. Research Instruments

The research instruments utilized in this study were as follows:

2.1 CALL courseware developed by the researcher, which consisted of ten chapters; each chapter containing ten phrasal verbs. The authoring system used to create this courseware was ToolBook II Version 6.0. The effectiveness and effectiveness index figures of this courseware were 91.16 and 0.76 respectively.

2.2 An achievement test employed as a pre-test and a post-test to study the progress of students'

achievement before and after learning with the computerized lesson. It contained 40 multiple choice items, each with four options. Its discrimination power (r) was between 0.2 - 1 and the difficulty index (p) was between 0.2 - 0.8.

2.3 A questionnaire to study students' attitudes towards CALL. Constructed using Likert scale, 5 - 1, it consisted of 29 items including four questions: 3 close-ended and 1 open-ended questions. Its reliability was 0.75.

2.4 An observation form to evaluate the subjects' behaviour while using the courseware. This form comprised three items: students' boredom; the degree to which students consulted their peers or teacher; and the degree to which students talked with one another while learning. Their behaviour was checked every ten minutes of each period.

3. Intervention

The data collection included the following four steps:

Firstly, after the contents were studied and the objectives were determined, the initial achievement test with 50 items was constructed. It was submitted to experts to check its validity. It was then improved and tested to analyze its difficulty index (p), discrimination power (r), and reliability. After it was improved and deemed reliable in data collection, the final version of the achievement test with 40 items was typed to be used as a pre-test and a post-test.

Secondly, a questionnaire was developed, the validity of which was checked by MA English major students and experts. After that it was improved and its reliability tested. After typing and collation it was deemed ready to be used to study the subjects' attitudes towards CALL.

Thirdly, a diagram and storyboard of the courseware were designed. Conversations, exercises, examples, and tests were written, and then checked by experts and native speakers. Media resources, including sound, graphics, animation, pictures, songs, and music were collected. Subsequently, the initial courseware was developed, checked by an expert, and

improved. To test its effectiveness and effectiveness index, it was tried out with three methods: one to one testing (1:1); small group testing (1:10); and field group testing (1:100). The effectiveness and effectiveness index figures of the final version of the courseware were 91.16 and 0.76, which indicated that the developed courseware was efficient and ready to be used to collect the data.

Finally, before the intervention was given to the subjects, they took a pre-test and each member was given a student's manual. They read the manual, which then served as a reference throughout the data collection.

The subjects studied the courseware as scheduled, 1 hour a day, 5 days a week, and spent 25 - 30 minutes on each chapter. Each of them spent about 6 - 8 hours on the lessons in total. Before learning each chapter, they were pretested, and then given their pre-test scores in order to a) let them know their level before learning, and b) stimulate them to want to study more. In each chapter, they learned phrasal verbs from a conversation. They could choose if they wanted to hear only the sound of the conversation, or sound with transcript. From the transcript, they could click on each sentence of the conversation to listen to the sound of each sentence again. Besides conversations, pictures, and examples of the usage of the phrasal verbs, meanings in both English and Thai were given to help them better understand the phrasal verbs they were learning.

After initial learning, the subjects did the set exercises that came right after the contents. While doing exercises, they were given immediate feedback through their learning. On completing the exercises, they were given a post-test, which was the same test they did in the pre-test, in order to evaluate their progress. Their behavior was observed throughout their learning. After they finished learning all 10 chapters the questionnaire was administered.

Results of the Study

1. The Construction of the Research Instruments

1.1 CALL Courseware

The courseware objectives were to help first-year English major students to understand, remember, and be capable of using phrasal verbs. This courseware consisted of 333 frames comprising three sections: introduction, review, and content. The content comprises 10 chapters; each chapter contains four sub-sections: pre-tests, information, exercises, and post-tests.

1.2 Achievement Test

The achievement test with four multiple choices was constructed by the researcher. It comprised 40 items and was used as both pre-test and post-test. The discrimination power (r) of this test was between .2 and 1 and the difficulty index was between .2 and .8. The test items covered all the objectives of the courseware, examining in details the objectives of understanding, remembering, and using the studied phrasal verbs.

1.3 Questionnaire

The questionnaire was constructed with 32 items, and consisted of four sections: the personal information of the participants; their attitudes towards CALL; their attitudes towards the developed courseware and phrasal verbs in general; and an open-ended part to encourage suggestions and comments.

The first section contained three close-ended questions, including the participants' knowledge of computer skills, and previous experience in using CALL. The second part was five-point Likert rating scale, comprising 29 questions, concerning their attitudes towards CALL and the developed courseware. The last part was an open-ended question to allow the subjects to express their opinion. The reliability of this questionnaire was 0.75.

2. Effectiveness and Effectiveness Index of the Courseware

After the courseware was developed it was tested by three methods: one to one testing (1); small group testing (1:10); and field group testing (1:100).

The results of this implementation were then analyzed according to effectiveness and effectiveness index.

1. One to one Testing (1:1)

The developed courseware was tried out with three students. The first represented the group of students with the highest potential, the second was an average student, and the last was a 'slow' student. In this way the courseware was checked to see if it met the needs of the entire target population. The results subsequently obtained were utilized to improve the effectiveness and effectiveness index.

Each of these three students was chosen by random purposive selection from the potential, average, and low groups of students who enrolled in 411 108 English Structure I in the first semester of the academic year 2000. To assign students to each group, their midterm scores from the aforementioned subject were calculated and then the students were divided into three groups: potential, average, and low. The effectiveness and the effectiveness index figures of this initial courseware were found to be 101.9 and 0.79 respectively, which were higher than the standard criteria of 90 and 0.5.

2. Small Group Testing (1:10)

The results and comments of the sample group in one to one testing (1:1) were used to improve the courseware. The revised courseware was then tried out with a further nine students. Three students from each group, potential, average, and low, were selected by random purposive selection. The effectiveness and the effectiveness index figures of the revised courseware were 87.43 and 0.71 respectively.

3. Field Group Testing (1:100)

The developed courseware was revised again based on the results and the comments of the sample group of the small group testing in order to further refine the effectiveness and effectiveness index. The revised courseware was then tried out with 24 students. Eight students were chosen from each assigned group (potential, average, and slow,) and the subsequent effectiveness and the effectiveness index figures were 91.16 and 0.76, which were higher than the standard criteria of 90 and 0.5 respectively based on the standard criteria stated in Chiewphimai (1983).

The results of the effectiveness and the effectiveness index of the developed courseware are summarized according to the three methods shown in Table 1.

Table 1 The effectiveness and the effectiveness index of the courseware

Methods of Testing	Number of Students	Effectiveness (90)	Effectiveness index (0.5)
1. One to one	3	101.9	0.79
2. Small group	9	87.43	0.71
3. Field group	24	91.16	0.76

The results of the effectiveness and the effectiveness index of the courseware lead to the conclusion that the developed courseware was effective in helping students acquire knowledge, in other words it was an efficient aid to students' understanding, retention, and use of phrasal verbs.

3. The Analysis of the Achievement Test Results

Before learning phrasal verbs with computers, the subjects took a pre-test. After they finished their learning, a post-test, which was identical to the pre-test, was given to them.

The results reveal that the mean score (X) of the pre-test was 15.93 and the standard deviation was 3.60. After learning with computers the subjects' post-test performance was better. The mean score of the post-test was higher, 27.27, and the standard deviation was 4.05.

The results of the pre-test and the post-test scores were utilized to study the progress of the subjects' achievement as shown in Table 2.

Table 2 The progress of the subjects' achievement test

Achievement Test	(X)	S.D.	t-test	P
Pre-test	15.93	3.60	12.47	***0.00
Post-test	27.27	4.05		

*** $p < 0.01$

Table 2 shows that the mean score (X) of the pre-test was 15.93 and the standard deviation was 3.60. After the computerized instruction the mean score of their post-test was higher: the mean score was 27.27 and the standard deviation was 4.05.

These 'before and after' findings reveal that there were significant differences at the 0.01 level in the subjects' performance in learning phrasal verbs with computers. It can be concluded, therefore, that Computer Assisted Language Learning (CALL) can help learners learn phrasal verbs comprehensively and effectively. In other words CALL is an effective means of increasing students' English proficiency.

4. The Analysis of the Questionnaire Results

After the subjects finished learning with computers, they were given a questionnaire. The data obtained were then used to analyze attitudes towards CALL by percentage, mean scores (X), and standard deviation (S.D.). The descriptive analysis was presented in four major phases as follows.

4.1 Personal Information

This part contained three close-ended questions with two choices. The results reveal that in the entire subjects, 28 (93.3%) had computer skills, but only three (10%) had learned English with computers. The programs that the subjects had used before were vocabulary and the preparation for the entrance examination.

4.2 The Subjects' Attitudes towards CALL

In this part the subjects were asked to rate the level of their attitudes on scale of 1-5: very high, high, moderate, low, and very low and the mean score was then interpreted based on the range of responses (Ruangsawan, 1990).

The results show that the participants have positive attitudes towards computerized instruction and that they perceived computers as very necessary for their future careers and for the improvement of their knowledge of English. The data reveal that the participants requested more CALL courseware on other English topics at a high level, and moderate level on other subjects. The topmost English topics required to be computerized by the participants was reading (32.1%), while other popular ones included grammar, listening, and pronunciation (11.3% each), and speaking (9.5%).

Besides, the findings indicated that topmost three subjects that were most required by subjects were as follows: Firstly Japanese (17.1%), secondly Thai and Science (13.8% each), and thirdly History, Ethics, and all subjects (10.3% each).

4.3 The Subjects' Attitudes towards the Phrasal Verbs Courseware

In this part the participants were asked to rate the level of their attitudes on a scale of 1 to 5. The scale and the range used for the interpretation of mean score were the same methods utilized in the previous section.

The results reveal that the participants felt the developed courseware was convenient to use and effective in helping them understand phrasal verbs easily and quickly at a very high level. Furthermore, the results show that participants would be interested in learning with computers more when they are provided at the accessible places. Participants indicated that the number of computers is currently inadequate.

In addition to the above, the subjects also gave useful comments on CALL and developed courseware in the last part of the questionnaire, open-ended part. These include the following.

(1) If the subjects or topics are too difficult, there should be a lot of explanation provided in the courseware for students to learn and understand by themselves.

(2) The effectiveness of the learning process would increase if lecturers' or teachers' e-mail accounts were provided, so that learners could

send messages or questions when they encountered problems.

(3) It would be great if a help program, which could give immediate responses to learners' questions, was provided.

(4) This courseware was an efficient aid to enhancing and reinforcing language learning. Learners liked and enjoyed learning English with it.

(5) This courseware should be integrated as one part in 411 108 English Structure I.

(6) CALL should be integrated in all subjects.

(7) This courseware was an excellent and useful program. It made learners enjoy studying more.

(8) Since computers now play a more important role in human lives, in learning with computers one did not only improve one's English proficiency but also computer skills.

(9) This courseware helped learners remember phrasal verbs and their meanings quickly.

(10) This program was fun, easy to use, and understandable. Other topics should be added into this courseware.

(11) Learners gained both knowledge and enjoyment while learning this courseware.

(12) CALL was good but it could not replace teachers. Learners should learn with CALL only once a week. They should be provided opportunities to use, talk, or discuss the learned phrasal verbs with their friends or teacher through a Call button and an earphone (the computers that the subjects used are connected with each other with a special system which allows users to talk with others or teacher by pushing a Call button and using a microphone and an earphone.)

(13) A great amount of CALL courseware similar to the courseware used should be constructed. And there should be more computers for students to use.

In conclusion, a descriptive analysis of the data reveal that a mean score () of all items was 4.20 and the standard deviation was 0.77, which can be interpreted that the subjects obtained positive attitudes towards CALL (see Table 3).

Table 3 The subjects' attitudes towards CALL

Number of Students	Mean (X)	Standard deviation (S.D.)
30	4.20	0.77

5. The Observation Results

While the subjects were learning with computers, their behaviour was observed. It was found that while learning they always paid attention to the lesson; there was almost no talking and chatting. Only in the first 20 minutes of the first hour did some of them ask one another or the teacher about what to do next, what button to click, how to get the sound, etc. After they had understood the nature of the courseware they were able to work independently. They sometimes compared their test scores with their friends. Some students tried to repeat after the conversations or examples. Most of them wrote down the phrasal verbs they were learning, their meanings, together with interesting and useful expressions. They were very excited and enjoyed learning. They were highly motivated when getting immediate feedback.

To sum up, the program encouraged learners to work independently. It increased learners' motivation to learn. In addition, the atmosphere while they were learning was informal and relaxing.

Discussions and Conclusions

1. Discussions

The following discussions are based on the findings of the study.

1. The results obtained indicate that the developed courseware on phrasal verbs could enhance learners' language proficiency. They improved their performance in language learning over the computerized instruction. This finding was in agreement with

Chotiratanasak (1992) and Kurawan (1995) who conducted studies to develop CALL courseware to enhance students' knowledge of French grammar and found that the sample groups of the two studies significantly improved their performance in language learning. This was almost identical to Chaiburee (1994) who developed courseware and studied its effectiveness in increasing learners' knowledge of pronouns and found that the computerized grammar lesson was efficient in helping students acquire the knowledge. In addition it also agreed with Elkins (1986) who studied the effect of computerized assisted practice in English grammar and he found that CALL greatly helped students improve the learning strategies that they needed to enhance their proficiency. In other words, CALL could increase learners' language ability.

2. The data obtained from the questionnaire analysis indicated that the subjects had positive attitudes towards computerized instruction. In addition, the results from the observation of the subjects' behaviour while learning disclosed that they were highly motivated to learn. Their motivation was very high since they could control their own learning pathway and rate. They could hear sound and music, and see pictures and animation. They could learn at their own pace. Almost no stress was put on them while learning, for they did not encounter 'loss of face' when they could not answer questions, or when they got low scores.

3. The results of the questionnaire also revealed that learning phrasal verbs with computers helped learners understand and remember the meanings of the learned phrasal verbs quickly and easily. This might result from the fact that while learning the subjects could hear the pronunciations of the phrasal verbs; knew how they were used in authentic situations; saw meaningful pictures; and were given meanings in both English and Thai. Furthermore, they had opportunities to use them immediately after learning, which could reinforce their understanding and retention.

Not only was prompt usage of the learned phrasal verbs given, but the subjects were also given immediate feedback from which they were motivated to learn more. The learning methods used in

this courseware were in agreement with approaches and techniques in teaching grammar suggested by Cele-Muricia and Hilles (1988) and Paulston and Bruder (1976)) that to reinforce the language learning four steps involved, presentation, focus practice, communicative practice, and feedback and correction which should be given throughout the learning.

However, the findings seemed to indicate that the subjects did not gain much confidence in using phrasal verbs. Consequently, more exercises should be provided for learners to practice using the learned phrasal verbs more. After learning, learners should be provided with opportunities to use the phrasal verbs they had learned in class or in real life situations.

4. The results from the needs for CALL courseware on other subjects showed that Japanese was most required by the subjects. The reason might show the more important role of this language in Thai culture. It is a more popular and more widely spoken language than before. Furthermore, an increasing number of Japanese companies invest in Thailand, and knowledge of the Japanese language might help students to get good and highly paid jobs after their graduation.

Nevertheless, considering all the suggested subjects, it was a surprise that the participants wanted to learn the Thai language and Ethics more, both of which subjects were ranked as the second and third topmost subjects required by the subjects. This can indicate that teenagers think that they were having problems with them, and/or they were aware of their own language and Ethics more. However, it was not surprising that they prioritized Science and History as the next important orders since some language learners considered both of them difficult. In addition, it was found that the needs for learning all subjects with computerized lessons were very high. The needs were ordered as the third topmost required subject. This can indicate the increase learning autonomy in students—they want to learn and tend to work more independently. This quality in students is now greatly emphasized by the government. Therefore, this information regarding the needs for all subjects will be very useful

for educators, educational designers, curriculum makers, instructors, etc. when planing their curriculum.

In conclusion, Computer Assisted Language Learning (CALL) can effectively enhance learners' language learning. Learners spent a short time (about 6-8 hours) learning 100 phrasal verbs, and understood and remembered most of them. Instead of spending a great amount of time trying to remember and recite their meanings, and subsequently forgetting or remembering only some of them, the students' understanding and retention was greatly improved. This comes from the fact that, with computers, learners studied in an informal and relaxing atmosphere and could control their own progress. They were highly motivated to learn because of the integration of multimedia: sound, graphics, animation, pictures, songs, music, immediate feedback, etc.

2. Conclusions

Thorough study of the results leads to the following conclusions:

1. The effectiveness and effectiveness index figures of the developed courseware for first-year English major students at Khon Kaen University were 91.16 and 0.76 respectively. These figures were higher than the standard criteria. These results revealed that the developed courseware is efficient in enhancing language learning.

2. The performance of the subjects after studying with the computerized lesson was improved. There were also statistical differences between the pre-test and post-test scores at the 0.01 level, which indicates that CALL can increase learners' English proficiency.

3. The subjects demonstrated positive attitudes towards computerized instruction. In addition, they pointed out that CALL could help them understand and remember phrasal verbs and their meanings easily and quickly.

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