



## การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ The Development of CALL English Lessons for Nursing Science Students

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### บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ (1) พัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ (2) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักศึกษาพยาบาลศาสตร์ก่อนและหลังเรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอน (3) ศึกษาความคิดเห็นของนักศึกษาที่มีต่อบทเรียนดังกล่าว กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้เป็นนักศึกษาพยาบาลศาสตร์ ชั้นปีที่ 3 มหาวิทยาลัยคริสเตียน จำนวน 30 คน โดยใช้วิธีการเลือกแบบอาสาสมัคร เครื่องมือที่ใช้ในงานวิจัยประกอบด้วย (1) บทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ จำนวน 4 บทเรียน (2) แบบทดสอบก่อนและหลังเรียน (3) แบบบันทึกหลังเรียน และ (4) แบบสัมภาษณ์กึ่งมีโครงสร้าง การวิเคราะห์ข้อมูล ใช้สถิติ t-test แบบจับคู่ คำร้อยละ ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน และการใช้วิธีการวิเคราะห์เนื้อหาสำหรับข้อมูลเชิงคุณภาพ

ผลการวิจัยพบว่า (1) บทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ มีค่าประสิทธิภาพเท่ากับ 82.98/82.78 สูงกว่าเกณฑ์มาตรฐานที่กำหนด 80/80 (2) ผลสัมฤทธิ์ทางการเรียนของนักศึกษาสูงขึ้นหลังเรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 (3) นักศึกษามีความคิดเห็นเชิงบวกต่อบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ทั้งในแง่ของเนื้อหาและวิธีการเรียนรู้

### Abstract

This study was conducted in order to (1) develop Computer-Assisted Language Learning (CALL) English Lessons for Nursing Science Students; (2) explore the language achievement of students who learned with CALL English lessons before and after the lessons; and (3) investigate students' opinions toward CALL English lessons. The subjects of the study were 30 third-year nursing students at Christian University of Thailand who were selected on a voluntary basis. The research instruments included 1) four CALL English Lessons for Nursing Science

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Students, 2) pre-test and post-test, 3) students' learning logs, and 4) semi-structured interview. The descriptive statistics and the paired-sample t-test were used to analyze the quantitative data. The content-analysis was employed to find recurrent patterns in the qualitative data analysis.

It was found that (1) the efficiency of CALL English Lessons for Nursing Science students was 82.98/ 82.78 which was above the 80/80 proposed standard criteria. (2) The language learning achievement of students after learning with CALL English Lessons increased and was significantly different at the level of 0.05. (3) The students had positive opinions toward learning with CALL English Lessons for Nursing Science students in both contents and learning methods.

Keywords: CALL Lessons/ Design and Development of CALL/ English for Nursing Science

## Introduction

The Royal Thai Government has positioned Thailand to become a regional medical hub in Asia (Pisuthipan, 2008) and nurses, who have good command of English language skills, may have a first priority in securing a well-paid job in the international hospital labor market. In response to the need to develop English language skills for nurses, many institutions have offered hospital language training courses to help nurses develop their English communication skills for their career with online and offline courses (see e.g., [www.eng4nurses.com](http://www.eng4nurses.com)). The Department of English at Christian University of Thailand (CTU) has offered English for nursing courses for students. The courses were composed of tutorial and computer lab classes. However, since the software for specific purposes, i.e., English for nursing, was not available in the market, commercial software

was used in a computer lab as a part of practice hours for English V for nursing students. The current software enabled students to develop language skills for general communication rather than for academic and professional purposes. In addition, the survey for English V course evaluation completed by nursing students revealed the course contents in the software and its coverage of the objectives of the course were not relevant to nursing students' application in their future career. In short, this led to a new courseware development.

Many experts note that suitable course materials are necessary in order to meet course objectives and learners heed effectively. This is because materials are the center of instruction and one of the most influential factors in controlling what goes on in the classroom. According to Kitao & Kitao (1997), a course instructor needs to strive to meet the course



goals and objectives. As well, the instructor has to provide, make and choose materials, supplement and elaborate them, according to the learners' content-area and needs. Therefore, when students are interested in and value what they are being taught, they will engage in activities with enthusiasm and motivation (Heacox, 2001). If the teachers cannot find appropriate materials, they may have to develop their own materials to satisfy the professional needs of learners. As it is hard to find an English language commercial software that coincides with the English V for Nursing at CTU, finally the researcher decided to design and develop CALL English Lessons for Nursing Science Students for the English V course.

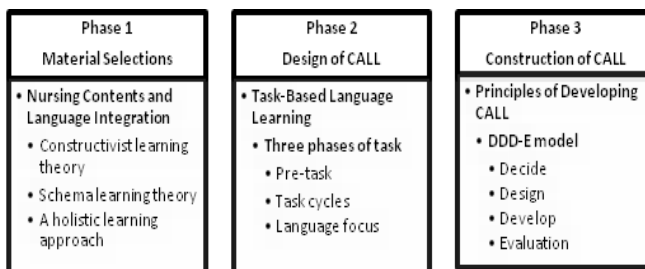
When considering the contents and activities for language learning, the integration of nursing content and task-based activities via CALL lessons became options since they yielded several positive results to students. Scholars (Willis, 1996; Littlewoods, 2004; Nunan, 2004) highlighted that students can gain more confidence in speaking after learning in a task-based course, as students are required to concentrate on tasks which focus on meaning and communication. Doing communicative tasks can enhance students' own personal experiences which are essential for contributing elements to classroom learning and also link their classroom language learning with their language use outside the classroom. With regard to content delivery, CALL can be regarded as an

important tool in EFL teaching due to its advantages in learning. CALL promotes student's self-paced learning (Sims & Gottermeier, 2000) and it can help students to become more active (Devaux, Otterbach & Cheng, 2006). CALL can also promote learning by providing an environment that helps him/her feel more relaxed than with a strictly content-focused learning approach since CALL can present sentences, graphics, moving pictures, and sound. This format of instruction can be more enjoyable for students and may stimulate their interests in language learning.

The rationale of this study is based on three areas: Content and Language Integrated Learning, Task-Based Instruction and CALL theories. In applying the concepts of the three areas, the framework of designing and developing CALL English Lessons can be illustrated in the three phases as described in Figure 1.1



**Figure 1.1 Three Phases of Designing and Developing CALL English Lessons**



In the first phase, the theoretical foundations of constructivist learning theory, schema learning theory, holistic approach and CLIL principles suided the selector of nursing materials for development of language skills. Task-based activities were presented in three steps: pre-task, task cycles, language focus. The principles of Second Language Acquisition (SLA) in developing of CALL and the model of the 3Ds and an E, DECIDE, DESIGN, DEVELOP, and EVALUATE by Ivers & Barron (2006) were a framework for instructional design. These three phases of framework provided a strong foundation in producing CALL English Lessons for Nursing Science Students in this study.

**Purposes**

- 1) To develop effective CALL English Lessons for Nursing Science Students;
- 2) To explore English learning achievement of students who learned with CALL English Lessons before and after the lessons; and
- 3) To investigate students’ opinions toward CALL English Lessons.

**Procedure**

1. Subjects

The subjects of the study were 30 third-year nursing students who were studying during the second semester of academic year 2010 at Christian University of Thailand (CTU) and were selected on a voluntary basis. Two qualifications were required to be a volunteer. First, he/she must be a third-year nursing science student who studied in the second semester of academic year 2010 at CTU. Second, he/she had already passed all four general English courses, namely, English I to English IV at CTU. The first thirty students who applied, and could meet at the specified class time, were accepted into this program of study.

2. Methodology

This study used a pre-experimental research study using one group with a pre-test and post-test design (Cohen, Manion & Morrison, 2007; Creswell, 2003). The study was composed of three major phases:



### Phase I CALL Lesson Development.

This phase was composed of materials selection, CALL design, and CALL Construction. The procedural steps in the development of CALL English Lessons for Nursing Science Students were: (1) reviewing related literature on content and language integration for material selection, Task-based Learning for designing tasks and investigating literature pertaining to Computer-Assisted Language Learning (CALL) model for the design and development of the study. (2) studying the course description of English V for nursing students. Focus was on the language features and the necessary content stated used the course syllabus. (3) defining the scope of the CALL English Lessons for Nursing Science Students. These lessons were centered on the vocabulary and collocations specific to communication within the nursing profession. Different types of conversation exercises were employed throughout the lessons. The CALL English Lessons for Nursing Science Students would be regarded as tutorial CALL activities. (4) studying necessary computer programs, e.g., Adobe Captivate 5 for PC computers, Photoshop CS2, and Dreamweaver V.8 program, which were used for developing CALL English Lessons. (5) designing a flowchart of the lessons and a storyboard. (6) CALL English Lessons for Nursing Science Students were examined by three experts including a content expert in Nursing Science, an English language teaching expert, and an educational technology expert.

The experts were to examine if the integration of the content and language was appropriate for nursing students when bringing the three domains together.

### Phase II CALL Lesson Testing.

The effectiveness of CALL English Lessons for Nursing Science Students was examined by using the three steps of the try-out (an individual testing, a small group testing, and a field testing). Through the try-out process, the students studied CALL English Lessons, exercises and took the tests. The students' scores from the two tests were to measure the effectiveness of the lessons. After that, the researcher interviewed them about their opinions toward CALL English Lessons for Nursing Science Students in order to gain some ideas for improving the lessons.

### Phase III CALL Lesson Implementation.

The study employed a one group pre-test – post-test design. Thirty nursing students were taught outside the instructional hours of English V course during the second semester of the 2010 academic year at CTU. In the study, the subjects were trained with some basic computer skills for an hour before starting the experiment, to equalize their computer skills. After the computer training, the subjects were assessed in their English language ability by a pre-test and then studied with four CALL English Lessons for sixteen hours. After the experiment, a post-test was given to all subjects. Learning logs were recorded by every student after each



lesson. Semi-structured interview was administered to explore students' opinions toward CALL English Lessons.

## Results of the Study

The results of this study are presented in three parts:

### 1. Result of CALL Lessons Development

As the final product of the development, the CALL lessons consisted of 4 main units. They were 1) Registering a patient, 2) Orienting a patient and family, 3) Patient education, and 4) Taking a patient's vital signs. The formulation of each CALL English lesson comprised four steps of learning practice. These included vocabulary, conversation, language focus, and review. The vocabulary section aimed at brainstorming the ideas for the lessons as a pre-task. It presented new vocabulary and phrases activities relating to the topic and content which helped students to recall, and learn the useful words before listening to the conversations. For the conversation, it focused on the dialogues that modeled everyday spoken English between a nurse and a patient, and a nurse and a patient's family at hospital wards. In this section, the students could listen to various conversations as often as they wanted in order to complete the activities. The following section was language focus. At this step, the target language structures in the context of each conversation were highlighted and practiced, starting from the controlled to open-ended

exercises to make students aware of the use of the correct English sentences. The last step was review. This step focused on the elements of conversational English related to what they had learned in the previous three steps. Each unit contains four hours to finish the lessons. The result of each exercise was shown at the end of each lesson for students to see if they were satisfied with their learning scores, so they could either choose to go back to the lesson and study again, or record their score results and exit the program. With the help of feedback provided after answers were submitted, it was found that students were encouraged to redo the exercises until they were satisfied with their scores.

### 2. Result of CALL Lesson Testing

The effectiveness of CALL English Lessons for Nursing Science Students was measured through the three steps of the try-out during the development process: individual testing, small group testing, and field study testing. In each step of the try-out in the development process, the CALL English lessons were improved according to their suggestions. The three trials showed that the efficiency index of CALL English Lessons for Nursing Science Students was 82.50/82.33 which met the specified criteria of 80/80 (Brahmawong, 1978). Therefore, it can be concluded that the result of the three tests ensured the effectiveness of CALL English lessons. The results of the three steps of the trials are presented in table 1.



Table 1: The Results of the Three Trials

<b>Trials</b>	<b>E1 (Efficiency of Process)</b>	<b>E2 (Efficiency of Results)</b>
Individual Testing	79.18	76.67
Small-Group Testing	81.88	80.00
Field Study Testing	82.50	82.33

After the three steps of the development testing process, the lessons were used by the sample in the implementation phase to determine the effectiveness of CALL English lessons again. It was found that the efficiency value of the development of CALL English Lessons for Nursing Science student was 82.83/82.78. Therefore, the effectiveness of CALL English lessons of the study met the 80/80 standard criterion.

### 3. Result of CALL Lesson Implementation

#### 3.1 Results of the Pre-test and Post-test

The two sets of parallel tests, a pre-test and a post-test were employed to assess the students' learning achievement, before and after learning, with CALL English Lessons for Nursing Science Students. The pre-test and the post-test were compared. The results showed that the mean score of students in the post-test was higher than that of the pre-test as shown in Table 2.

Table 2. Pre-test and Post-test Scores of the Subjects

<b>Tests</b>	$\bar{X}$	<b>SD</b>
Pre-test	15.07	2.48
Post-test	24.83	1.49

N=30

To examine whether their English language ability increased significantly, the pre-test and post-test scores were compared and

calculated for statistical differences. The descriptive statistic results were presented in Table 3.



Table 3. T-Test Comparison of Pre-test and Post-test Scores

	Paired Differences					t	df	Sig. (1-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-test								
Post-test	-9.767	2.861	0.522	-10.835	-8.698	-18.698*	29	0.000

\* $p < 0.05$

The table above reveals the statistical differences between the pair tests, the 95% Confidence Interval of the Difference, the  $t$  value, the  $df$ , and the one-tailed  $p$ -value. It was found that the value of the test statistic  $t$  is 18.698 and the one tailed  $p$ -value is 0.000. The one tailed  $p$ -value shows that there was significant difference at the level of 0.05. This proved that the students gained more knowledge after learning with CALL English Lessons for Nursing Science Students.

### 3.2 Results of the Students' Opinions toward CALL English Lessons

The data gathered from the students' learning logs and semi-structured interviews were reviewed to explore their opinions toward CALL English Lessons for Nursing Science Students. The students' responses relating to

what they had learned with CALL English Lessons, they reported they had learned the nursing contents, medical words and English language skills. They added that what they had learned was very useful for their future career; as their jobs would be dealing with patients at hospital wards or clinics and CALL lessons really arouse their attention in learning. When they were asked to specify their preferences, two major parts of the CALL English lessons they liked the most were the steps of learning and the design of the CALL English Lessons. For the steps of learning, they stated that they were easy to follow, practical, and well-organized; starting from the basic words to complex sentence exercises. For the design for CALL English Lessons, the students mentioned that the design of the CALL lessons were





creative with the use of different colors and styles of the font texts, and contained various types of exercises. The pictures were authentic and attractive and the audio narrators' sounds were clear. These technical features made the lessons more interesting and motivating to learn. When asked the students whether the training hours of CALL English lessons were helpful for them, all students responded that the time was worth spending because they could learn more vocabulary and essential language from the practice that could be used with foreign patients in a hospital setting in the future. The program of CALL English lessons allowed them to study as frequently as they wanted and it reported the scores at the end, so it helped them evaluate themselves, which they found very useful and practical. They also felt that the more hours they spent with CALL English lessons, the better their English became.

Regarding their difficulties in learning with CALL English Lessons, the students found that the listening exercises were the most difficult in the lessons. They said the reasons were because of their weaknesses in listening. They had to spend a lot of time listening to the questions in order to provide the correct answers. Another problem they found were the exercises on writing in some parts of the lessons. They had to type answers such as words or phrases to complete the sentences using the computer keyboard. They found it was hard to spell the words correctly.

## Discussion and Recommendations

### 1. Discussion

The discussion is organized into the three major parts.

#### 1.1 The Discussion on the CALL Lessons.

From the researcher's direct experience in the CALL development process, it can be concluded that effective CALL lessons should contain a) contents that serve learners' needs, b) interesting and interactive tasks for practices, and c) advanced technical features in order to capture learners' attention. In addition, the researcher also learned that the development process of CALL English Lessons for Nursing Science Students is complex, containing several steps that require the researcher's collective experiences, knowledge and skills. These include the knowledge of English language teaching and learning theories, content knowledge of other academic disciplines, knowledge of the learning principles of CALL, adequate skills and understanding of available computer software programs. Moreover, the development process of the CALL lessons was very time-consuming but well- worth the effort.

#### 1.2 Discussion on the Findings of the Effectiveness of CALL English Lessons for Nursing Science Students

Regarding the results of the development of CALL English Lessons for Nursing Science Students, CALL English Lessons had efficiency at 82.83/82.78 which



was higher than the proposed level of an 80/80 standard. The reasons were because the CALL English Lesson development was strictly followed through the process of planning, designing and developing. In the development process, they were tried out three times to determine their efficiency. The data obtained from each stage of the try-out helped the researcher to find out both the strengths and the weaknesses of the CALL English Lessons in order to improve their effectiveness. Besides, the validity of the CALL English Lessons was checked by three experts in Nursing Science content, English language teaching and educational technology. The suggestions and recommendations from the three experts were taken into serious consideration to improve CALL English Lessons to reach the set of criteria. In sum, these steps ensure the effectiveness of the CALL lessons.

From the efficiency of learning with CALL English Lessons at 82.83/82.78 (E1/E2), it could be seen that the efficiency of the learning process (E1=82.83) was slightly higher than the efficiency of the outcomes (E2=82.78). The reason might be that the students may have learned many of the words presented in CALL English Lessons from other nursing courses or sources since the core content of the CALL English Lessons were centered on nursing content. The second reason might be because the students practiced and did exercises on their own after the computer lab classes since they

were allowed to take CALL English Lessons for additional practices at home. So they gained more knowledge about vocabulary. Another reason might be that the students wanted to gain higher scores which were reported at the end of each lesson. If they were not satisfied with their learning scores, they could do the exercise again until they got higher ones. As a result of these factors, the students' scores in learning process (E1=82.83) were increasingly improved and slightly higher than the efficiency of the outcomes (E2=82.78).

These findings agreed with many research studies. Suwannabubpha (2006) developed a content-based language learning software on Kamma and the efficiency of the process for the field study was 82.53 (E1) while the efficiency of the outcome was 80.53 (E2). Inthakanok (2007) developed CALL Communicative Grammar Exercises for Adjectives and the program had the efficiency rate of 82.45 (E1) and 81.43 (E2). In addition, Kittipornkul (2008) developed CALL Lessons for teaching communicative grammar on reported speech and the efficiency of the CALL program showed that the students' average scores in learning process (E1=87.50) were higher than the efficiency of the outcome (E2=84.93).

### 1.3 The Discussion on the Findings of the Students' Learning Achievement.

The results reveal that the students who learned with CALL English Lessons for



Nursing Science Students had a significantly higher average post-test mean score ( $\bar{x}=24.83$ ) than that of the pre-test ( $\bar{x}=15.07$ ) at 0.05 level. The results of this study are similar to studies of Torat & Torat, 2002; Kaewphaitoon, 2006; Wongrak, 2006; and Suwannabubpha, 2006.

The increase of the students' achievement may be due to the following four reasons.

First, the CALL English Lessons were well-organized and planned. During the planning stage, the researcher used the model of the 3Ds and an E, DECIDE, DESIGN, DEVELOP, and EVALUATE by Ivers & Barron (2006) as a framework for design and development of CALL English Lessons. Each phase of 3Ds was presented the steps clearly that researcher could follow. The well-organized and planned of CALL English Lessons turned students into effective learning process and helped students improve their language learning ability and affected their higher scores of the post-test.

Second, CALL English Lessons for Nursing Science Students contained the multi-media functions that could motivate students to learn. The available computer programs provided the options for adding graphics, pictures, audios, texts and flash combinations which allowed the developer to design CALL English Lessons in a more interesting way.

Regarding the multi-functions of the programs and interactive lessons, these might be stimulating students to learn with CALL. Some previous studies also pointed out the same reasons. Meekaew (2003) who developed CALL on English vocabulary with multimedia CALL found that the program with audios, animated pictures and graphics helped students learn vocabulary more effectively. This result is congruent with Soothdhiwannarak (2005) who designed CALL Lessons by using texts, pictures and graphics, and audios that arouse students' interest in reading in CALL. Moreover, these motivating features may lead to the increase of students' learning scores at the end of the program.

Third, CALL English Lessons were developed on the specific content of nursing which was linked to the English V curriculum. The integration of nursing content and language learning skills in CALL English Lessons were based on two themes: hospital admission and monitoring a patient. Because of students' background knowledge which was relevant to what they are learning, these may encourage students to concentrate more on learning and result in better comprehension of the content. In turns, this led to their improvement of performance from the post-test scores by the end of the course. The following studies: Apichai, 2001; Ketmonkon, 2001; Suppakitjumnong, 2002; Seepho, 2002; Kavaliauskiene 2004; and Song 2006 also



presented similar results. That is, students became more motivated to learn when integrating English with content that is relevant to their background and needs. This is likely to help them improve their language learning performance.

Fourth, CALL English Lessons allowed the students to conduct learning activities independently with minimal support from teachers. In addition, CALL English Lessons could give immediate feedback or correct errors on exercises automatically. When practiced with CALL English Lessons, the students could do the exercises as often as they wanted until they felt satisfied with the scores reported in their own computer. By doing this, the students could get more confidence in learning and had less anxiety. Besides, doing exercises repeatedly may increase ability in remembering words and structures from various conversations. Potisompapwong (2002), Choophuboot (2005), Soothdhiwannarak (2005), Prempho (2007) and Kittipornkul (2008) reported the same results.

#### 1.4 Discussion on the Findings of the Students' Opinions.

Based on the data obtained from the students' learning logs and semi-structured interview, it was found that the students had positive opinions toward CALL English Lessons. Numerous studies corroborate these data (Torat & Torat, 2002; Potisompapwong, 2002; Chomphuboot, 2005; Soothdhiwannarak,

2005; Wongrak, 2006; Suwannabubpha, 2006; Prempho, 2007, Inthakanok, 2007). This is because the students felt more motivated to learn. CALL lessons could promote students' independence outside classrooms. The students could repeat the lessons as frequent as they wanted and they felt they could control their own learning. The audios, graphics and pictures in CALL aroused their attention in learning and they felt relaxed while learning with CALL. This agreed with many researchers. Han (2008) and Hughes (2004) stated that CALL programs could offer students options to study inside and outside classroom, and can repeat the material. Therefore, learning with CALL can increase students' self-confidence and self-esteem (Sims & Gottermeier, 2000).

#### 2. Pedagogical implications

The following are four specific implications.

1. CALL content lessons are the content-based English teaching for specific group of nursing students. The core contents are related to the professional nurses. For the materials selection in terms of nursing content and language feature, it is necessary for the teachers to focus on students' background knowledge and their proficiency level. The content is needed to be selective to ensure that it is applicable for real communication for their future use, i.e., in hospital settings.

2. CALL English lessons for Content-based Instruction should be appealing,



interactive, interesting, and self-contained. The colorful and authentic graphics and pictures, and audio texts can make students feel more interested in the content-focused lessons. In short, these technical features are extremely necessary to enable the CALL lessons to capture students' attention and spend more time and attention with the lessons.

3. EFL teachers can be CALL developers. However, to lessen some challenges, they should be trained to use the authoring software, know how to design and develop the effective CALL for their own courses, especially for the English courses that the contents are intensively focus. Without basic knowledge and skills in computer programs, the lessons can be very dry and not attractive enough to get the students' attention.

4. Based on the learning logs and interview data, some students revealed some difficulties in learning with CALL due to their English proficiency level. Different levels of tasks, exercises, and other language learning activities for the same learning objective should be provided for students to choose the most appropriate level for them. These may help students achieve their learning at their convenience and at their own pace. In this case, some students may require more hours than others. To conclude, different levels of difficulty of exercises and number of learning hours should be taken into consideration when designing and implementing the CALL lessons.

### 3. Suggestions for Further Study

The results and the interpretation of this study lead to many recommendations for further studies, which are as follows.

1. This study was conducted with a third year nursing students at Christian University of Thailand and their language learning achievement increased. It is advisable that the study should be conducted with other nursing students at other institutions who should possess the same background knowledge to see if CALL English lessons can help them improve their language learning.

2. CALL English Lessons for Nursing Science Students in this study were based on 4 topics: a) registering a patient; b) orienting a patient and family; c) patient education; and d) taking a patient vital signs. These topics were related to their future professional use and the students really liked these topics because they were extremely useful for them. They also had positive opinions toward CALL English lessons. So, the development of CALL English Lessons of other themes and topics such as administering injections, intravenous therapy, personal care, patient education, and discharge planning should be produced to enhance students' language learning.

3. It is recommended that additional studies for content-based language instruction with other groups of students such as Hotel and Tourism Management, Accountancy and



Marketing should be conducted. The researcher can implement the principles of the design and development of CALL, integrate English with particular content areas, and investigate if CALL-CLIL English lessons would help enhance their command of English communication skills.

4. The study about the result of vocabulary retention as a result of learning with CALL Lessons should be conducted to concretely see to what extent the CALL Lessons can affect students' retention of the structure of English and usage expressions.

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