

**THE DEVELOPMENT OF CALL ENGLISH LESSONS
FOR NURSING SCIENCE STUDENTS**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy in English Language Studies**

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การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับ
นักศึกษาพยาบาล



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต

สาขาภาษาอังกฤษศึกษา

มหาวิทยาลัยเทคโนโลยีสุรนารี

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I am grateful to my mother, Somboon Hakimtek and my sisters for their kind words and prayers for my happiness and success.

Last but not least, I wish to express my thankfulness to my husband, Dr. Phornsak Sucharitrak and my daughter, Crissinee Sucharitrak who have been encouraging through the difficulties and stress. Thank you for unconditional love, inspiration, endless support and care. Their love has kept me going through the whole process of the study.

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Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

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การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ (1) พัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับ
นักศึกษาพยาบาลศาสตร์ (2) เปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักศึกษาพยาบาลศาสตร์ก่อนเรียน
และหลังเรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอน (3) ศึกษาความคิดเห็นของนักศึกษาที่มีต่อบทเรียน
คอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์

กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ คือ นักศึกษาพยาบาลศาสตร์ ชั้นปีที่ 3 มหาวิทยาลัย
คริสเตียน จังหวัดนครปฐม ที่เรียนในภาคเรียนที่ 2 ปีการศึกษา 2553 จำนวน 30 คน โดยใช้วิธีการเลือกแบบ
อาสาสมัคร โดยนักศึกษาเรียนบทเรียนคอมพิวเตอร์ช่วยสอนที่ผู้วิจัยสร้างขึ้นเป็นเวลา เป็นเวลาทั้งสิ้น 16
ชั่วโมง

เครื่องมือที่ใช้ในงานวิจัย ได้แก่ (1) บทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษา
พยาบาลศาสตร์จำนวน 4 บท (2) แบบทดสอบวัดความสามารถทางด้านภาษาอังกฤษสำหรับนักศึกษา
พยาบาลศาสตร์ก่อนและหลังเรียน (3) แบบบันทึกหลังเรียนของนักศึกษาพยาบาลศาสตร์ (4) แบบ
สัมภาษณ์ถึงมีโครงสร้าง และ (5) แบบบันทึกของผู้วิจัย

กระบวนการวิจัยแบ่งออกเป็น 3 ตอน ดังนี้

ตอนที่ 1 การออกแบบและการพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับ
นักศึกษาพยาบาลศาสตร์โดยผู้วิจัยในฐานะอาจารย์ผู้สอนภาษาอังกฤษ และผู้พัฒนาบทเรียนคอมพิวเตอร์
ช่วยสอน เพื่อสะท้อนความเข้าใจในกระบวนการออกแบบและการพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอน
ภาษาอังกฤษ การสร้างบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษ ประกอบด้วย การเลือกเนื้อหา การ
ออกแบบบทเรียนคอมพิวเตอร์ช่วยสอน และ การสร้างบทเรียนคอมพิวเตอร์ช่วยสอน

ตอนที่ 2 การตรวจสอบประสิทธิภาพของบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับ
นักศึกษาพยาบาลศาสตร์ตามเกณฑ์มาตรฐาน 80/80 (E1/E2) โดยผู้เชี่ยวชาญตรวจสอบประสิทธิภาพด้าน
โครงสร้างและเนื้อหาบทเรียนจำนวนสามด้านคือ ด้านเนื้อหาทางพยาบาลศาสตร์ ด้านการใช้ภาษาอังกฤษ
และด้านการผลิตสื่อและเทคโนโลยี หลังจากปรับปรุงบทเรียนแล้วจึงนำไปทดสอบประสิทธิภาพของ
บทเรียนคอมพิวเตอร์ช่วยสอนแบบรายบุคคล แบบกลุ่มเล็ก และ แบบกลุ่มใหญ่

ตอนที่ 3 การศึกษาผลสัมฤทธิ์ทางการเรียนของนักศึกษาพยาบาลศาสตร์ก่อนเรียนและหลังเรียน
และศึกษาความคิดเห็นของนักศึกษาที่มีต่อบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษา

พยาบาลศาสตร์ โดยการเปรียบเทียบจากผลการทดสอบก่อนเรียนและหลังเรียน ของนักศึกษา แบบบันทึกหลังเรียนของนักศึกษา และผลการสัมภาษณ์แสดงความคิดเห็นต่อบทเรียนของนักศึกษา

การวิเคราะห์ข้อมูลแบ่งออกเป็น 2 ส่วน ได้แก่ การวิเคราะห์ข้อมูลแบบเชิงปริมาณ ได้แก่ แบบทดสอบก่อนและหลังบทเรียน ใช้สถิติ t-test แบบจับคู่ ค่าร้อยละ ค่าเฉลี่ย และค่าส่วนเบี่ยงเบนมาตรฐาน ส่วนการวิเคราะห์ข้อมูลแบบเชิงคุณภาพ ใช้วิธีการวิเคราะห์เนื้อหา ได้แก่ แบบบันทึกหลังเรียนของนักศึกษาพยาบาลศาสตร์ แบบสัมภาษณ์กึ่งมีโครงสร้าง และแบบบันทึกของผู้วิจัย

ผลการวิจัยพบว่า

1. การพัฒนาบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ ผู้วิจัยพบว่ามีความซับซ้อนในด้านขั้นตอนและกระบวนการ ด้านการเลือกเนื้อหา ด้านการออกแบบ และด้านการสร้างบทเรียน ซึ่งผู้วิจัยในฐานะอาจารย์ผู้สอนภาษาอังกฤษ ต้องใช้เวลานานในการสร้างบทเรียน อีกทั้งการสร้างบทเรียนคอมพิวเตอร์ช่วยสอนสำหรับนักศึกษาพยาบาลศาสตร์ ผู้วิจัยต้องมีความรู้และประสบการณ์เป็นอย่างมากทั้งในด้านทฤษฎีการเรียนรู้ การสอนภาษาอังกฤษเป็นภาษาต่างประเทศและความรู้ด้านคอมพิวเตอร์ในระดับสูง
2. บทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ มีค่าประสิทธิภาพเท่ากับ 82.98/82.78 สูงกว่าเกณฑ์มาตรฐาน 80/80 (E1/E2) ที่กำหนดไว้
3. ผลสัมฤทธิ์ทางการเรียนของนักศึกษาด้านการใช้ภาษาและทักษะ การพูดสูงขึ้นหลังเรียนด้วยบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์ อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05.
4. นักศึกษามีเจตคติที่ดีต่อบทเรียนคอมพิวเตอร์ช่วยสอนภาษาอังกฤษสำหรับนักศึกษาพยาบาลศาสตร์

SUPHATRA SUCHARITRAK : THE DEVELOPMENT OF CALL
ENGLISH LESSONS FOR NURSING SCIENCE STUDENTS. THESIS
ADVISOR : SIRINTHORN SEEPHO, Ph.D., 268 PP.

CALL ENGLISH LESSONS/ DESIGN AND DEVELOPMENT OF CALL/
ENGLISH FOR NURSING SCIENCE

The present study has been conducted for (1) developing CALL English Lessons for Nursing Science Students, (2) exploring the language achievement of students who learned with CALL English lessons before and after the lessons, and (4) investigating students' reactions towards CALL English lessons. The subjects of the study were 30 third-year nursing students who were studying the second semester of academic year 2010 at Christian University of Thailand. They studied CALL English lessons for sixteen hours.

The instruments used for this research were (1) CALL English for Nursing Science Students, (2) Pre-test and Post-test, (3) Students' Learning Logs, (4) Semi-Structured Interview, and (5) Researcher's Journal.

The research procedures consisted of three main phases. In the first phases, the design and development of CALL English lessons by the researcher. The perspectives of the researcher as an EFL teacher and a CALL developer were recorded to understand the nature of CALL design and development process. In the second phase, the efficiency of CALL English lessons was approved by the criteria at 80/80 (E1/E2), and was reviewed by the three experts including a content expert in Nursing Science, an English language expert, and an educational technology expert and implemented through the three trials: individual testing, small group testing, and field study testing. In the third phase, a comparison of students' language achievement and students' reactions toward CALL English lessons were

investigated. The students took a pre-test before the experiment and a post-test after the experiment. They also recorded their learning experience with CALL lessons after completing each lesson. Then students were randomly interviewed.

The quantitative data analysis was conducted with the data from the pre-test and post-test scores. The statistic procedures used on pretest and posttest scores were descriptive statistics, the paired-sample t-test, and an analysis of covariance at $\alpha=.05$. The qualitative data analysis was conducted with the data obtained from the learning logs, semi-structured interview and researcher's journals. The content-analysis was employed to find recurrent patterns in the qualitative data. Based on the data analyses, the results can be concluded as follows:

- 1) The development of CALL English lessons for Nursing Science Students by the researcher can provide a deeper understanding of the process of content material development, of how CALL Lessons are designed and of the construction of CALL lesson units. The time-consuming process of creating this program of study required this researcher's collective knowledge and experience, in mastering its complexities.
- 2) The efficiency of CALL English Lessons for Nursing Science students was 82.98/82.78 which reached the standard criteria of 80/80.
- 3) The language learning achievement of students after learning with CALL English Lessons increased and were significantly different at the level of 0.05 in both overall learning achievement and specially speaking performance.
- 4) The students had positive reactions toward learning with CALL English Lessons for Nursing Science Students.

School of English

Student's Signature _____

Academic Year 2010

Advisor's Signature _____

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my research instruments, for being a mentor taking a good care of me while I was working at Department of Languages, Literatures, and Linguistics. Thank you so much. Also I do appreciate Professor Dr. Betsy Frank, an expert in Nursing content. Thank you for always being help for validating the CALL lessons and instruments and for her academic advice throughout the developmental stages of the instruments.

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Heartfelt thanks to my dear friends and classmates who are always ready to pull me from any kinds of desperation from the beginning to the end of the study.

I am grateful to my mother, Somboon Hakimtek and my sisters for their kind words and prayers for my happiness and success.

Last but not least, I wish to express my thankfulness to my husband, Dr. Phornsak Sucharitrak and my daughter, Crissinee Sucharitrak who have been encouraging through the difficulties and stress. Thank you for unconditional love, inspiration, endless support and care. Their love has kept me going through the whole process of the study.

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LIST OF ABBREVIATIONS



CTU	=	Christian University of Thailand
CLIL	=	Content and Language Integrated Learning
CALL	=	Computer-Assisted Language Learning
ICT	=	Information and Communication Technology
CBI	=	Content-Based Instruction
DDD-E	=	Decide-Design-Develop-Evaluation
ESP	=	English for Specific Purposes
ESL	=	English Second Language
EFL	=	English Foreign Language
LSP	=	Language for Specific Purposes
EAP	=	English for Academic Purposes
EOP	=	English for Occupational Purposes
EST	=	English for Science Technology
EMP	=	English for Medical Purposes
ELP	=	English for Legal Purposes
MCALL	=	Multimedia Computer Assisted Language Learning
CELNSS	=	CALL English Lessons for Nursing Science Students

CHAPTER 1

INTRODUCTION

This chapter provides the background of the present study. It includes an introduction, the statement of the problem, the rationale, the purposes, the research questions, the research hypotheses, the scope and limitations of the study, and definitions of the key terms.

1.1 Introduction

The use of English as the world's primary language for international communication has obviously been continuing in the future. Many countries in the world are aware of its significance as necessity. This happens when the Royal Thai Government has positioned Thailand to become a regional medical hub in Asia (Bangkok Post, July, 2008). In response to this policy, more than four hundred hospitals offer the most advanced treatments by an internationally trained medical staff. Consequently, around two million visitors come to Thailand for medical treatment each year (Thai Consulate General Vancouver, 2009). This policy may strongly affect nurses' employment and migration (The International Council of Nurses, 2004). Nurses, who have good command of English language skills, may have a first priority for securing a well-paid job in the international hospital labor market today.

In relation 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). Christian University of Thailand (CTU), a private university which specializes in Nursing and Health Sciences, is attempting to move forward in this direction. The degree programs put strong emphasis on English proficiency for both academic and professional purposes. Students are required to develop their English language proficiency in their fields, through the use of various kinds of academic resources and Information and Communication Technologies (ICT).

To fulfill the goals and objectives of the Department of English at CTU, in producing graduates proficiency in English, students in all programs are required to study five compulsory English courses with a total of 300 hours, as specified in CTU curriculum (Dobson, 2006). The first four compulsory courses generally emphasize the basic English language skills and prepare students for a language competence. The fifth course focuses on language skills used by a student in his/her future profession; for instance, English V for Computer Science students, English V for nursing students, and so on. This course can be considered as a Content and Language Integrated Learning (CLIL) course. Therefore, the core vocabulary and content would be more relevant to a student's background and his/her future needs. Coursework would be meaningful only if its content is connected with the specific language and skills needed. The integration of nursing content in a CLIL course plays a crucial role in achieving these goals in terms of contents.

Besides the content of the materials, teaching approach is also important. For this study, Task-based Language Teaching and Computer Assisted Language Learning (CALL) would be adopted since they yield the positive results for L2 learners as reviewed in detail in chapter 2.

The integration of nursing content and language learning using task-based activities via CALL lessons 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 task activities which focus on language meaning and communication during representation in task-types. Doing communicative tasks enhances students' own personal experiences which are important for contributing elements to classroom learning and also links their classroom language learning with their language use outside the classroom.

Using CALL can be regarded as an important role in EFL teaching and learning as scholars points out its advantages in learning. CALL promotes student's self-paced learning (Sims & Gottermeier, 2000) and it can help students to become more active learners (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. Moreover, using computer technology in the language teaching of students serve CTU's educational goals in relation to the use of ICT at present.

1.2 Rationale of the Study

Nursing students at CTU are required to take English V for sixty hours or about fifteen weeks a semester. This course is abbreviated numerically as a 3 (2-2) course. Language teaching, therefore, involves skill-building with two hours of theory and two hours of practice each week. The syllabus emphasizes language use in nursing profession. The purpose of the course is to increase the effectiveness of English communication in a hospital setting. Therefore, in the two theory hours, teaching and learning rely on a textbook. Grammar and vocabulary are presented whereas language skills, i.e., listening, speaking, reading, and writing are taught in the practice hours. Normally, the various types of teaching materials are used in the practice hours, namely, textbook's audio tapes, CD-Rom, video tape, and sometimes teacher's in-house materials. However, using materials that are related to the contents and objectives of the course would be beneficial to the learners.

Recently, the Department of English has implemented students using commercial software in a computer lab as a part of practice hours for some general English courses, as well as English V for nursing students. Regarding the current software, they enable students to develop language skills for general communication rather than for academic and professional purposes. This set-up can be considered counter-productive especially for professional nurses.

According to the survey for English V course evaluation, which was done by 122 nursing students in the first semester of 2008, they revealed several unexpected results regarding the content of the commercial software used in the practice hours. The survey contained four items with five-point rating scales. The evaluation points cover the relevancy of contents and objectives of the course, applicability and up-to-

datedness of the contents. The results of each item are presented in the Table 1.1 below.

Table 1.1 the Results of the English V Course Evaluation Survey

Items	\bar{X}	S.D
1. Course contents in the software program are relevant to the objectives of the course.	2.63	0.79
2. Course contents in the software program cover the objectives of the course.	3.02	0.66
3. Course contents in the software program are up-to-date.	3.84	0.53
4. Course contents in the software program can be applied into the future career of nursing.	2.86	0.53

(Source: English V course evaluation, semester 1/2008)

According to the average mean scores of Item 1, 2 and 4 from the data, almost half of the students expressed their satisfaction with course contents in the software and its coverage of the objectives of the course, as well as their application into their future career, at the moderate levels. The highest level of satisfaction in the survey was on Item 3, meaning “satisfied” on the up-to-datedness of the contents presented in the software. As a result, the items 1, 2 and 4 need to be improved in order to provide relevant contents in the field of nursing.

Regarding the intensive literature review concerning course materials, it is found that if materials are not suitable for the course objectives and learners, it would be ineffective or inefficient to promote students’ learning (Forsyth, Jolliffe & Steven, 1999; Spratt, Pulverness & Williams, 2005). This is because materials are the center

of instruction and one of the most influential factors which control what goes on in the classroom. A course instructor needs to follow the course goals and objectives, as well as to provide, make and choose materials, supplement and elaborate them according to the learners' content-area and needs (Kitao & Kitao, 1997). 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 the English language commercial software that coincides with the English V for Nursing at CTU, the researcher is interested in designing and developing English CALL lessons to use in English V course. The lessons would be designed by using CALL task-based activities based on English V course syllabus in order to use in the practice hours.

The next part will discuss the rationale behind the integration of content and language-instruction, task-based activities and computer-assisted language instruction.

1.3 Theoretical Framework

The rationale of this study is based on three areas: Content and Language Integrated Learning (CLIL), task-based instruction and CALL theories. A descriptive explanation of these theories and principles is as follows:

1.3.1 Content and Language Integrated Learning (CLIL)

The integration of language to the specific content of a curriculum has gained more popularity in education nowadays due to its advantageous impacts on learning. It is also considered to be beneficial because the integration of language through

content instruction provides students with meaningful content which is rich and relevant to students' lives (Greese, 2005). CLIL program offers an opportunity to both broaden and deepen a student's proficiency in the foreign or second language (Crandell & Tucker, 1990), and provides a student with the study skills and discourse which they can transfer to other academic tasks (Brinton et al., 2003; Mehisto et al., 2008). The necessary conditions for second language learning in content instruction has been asserted by Brinton et al., (2003) as the rationale for teaching CLIL as it:

a) builds on the students' previous learning experiences in subject matters, the target language, and in formal educational settings; b) takes into account the interests and needs of the learners through their engagement with the academic subject matter and discourse patterns that they need to master; c) allows a focus on communicative language use as well as on accurate usage; d) incorporates the eventual uses the learner will make of the language through engagement with relevant content and L2 discourse with a purpose other than language teaching (Brinton et al., 2003, p.241-242).

The conceptions of an integration approach to curriculum branch to modern educational psychology, constructivist learning theory, and schema theory, a holistic learning approach and the implementation of content and language integrated learning.

1.3.1.1 Constructivist Learning Theory

Constructivist learning theory is a theory of learning which refers to the construction of meaning from personal values, beliefs, and experiences (Duffy & Kirkley, 2004). In the constructivist's view, learners learn best when they try to make sense of something on their own, adapt and transform their understanding of new experiences in their existing knowledge (Gerding, 2007). Regarding the integration of content and language in CLIL, constructivist learning theory can be a strong rationale in helping the course developer shapes the curriculum. As far as instruction is concerned, teacher's content materials need to present in such a way that it matches the learner's current state of understanding, and relates to a learner's interests and his/her previous knowledge (Puff, 2007; Madinabeitia, 2007). See more details discussion in chapter 2.

1.3.1.2 Schema theory

In language learning, the role of background knowledge plays a considerable role in the comprehension process. Many instructional course-developers employ the schema knowledge as a principle guideline for prior knowledge procession. Stryker & Leaver (1997) suggest points to take them into account with students learning content through language integration. The main considerations are: 1) their background knowledge (facts, ideas, and concepts); 2) their second language proficiency (syntax, lexis, and discourse); 3) their basis of analytical and thinking skills upon which the instructor proposes to build; and 4) their expectations of learning process match with the instructors' intentions. See more details discussion in chapter 2.

1.3.1.3 A Holistic Approach

The integration of content and language curriculum is seen as a holistic view of learning. In a holistic approach, appropriate contexts are provided for developing language skills and academic concepts for students as an integration. Learners can see how the content areas fit together with language skills and this integration can lead to a greater understanding of the whole. Following the conceptual framework based on Coyle's (1999), and Mehisto et al's (2008), the "4C" formula (content, communication, cognition, and community) under the holistic perspective can serve as a basis for bringing together different facets of CLIL. These four elements can support the holistic development of learners and contribute to reaching a learner's outcomes (Mehisto et al., 2008). Details of the four Cs discussed are in chapter 2.

The rationale above will be referred to as a guideline in implementing the integrated curriculum. Learning a second language may be more interesting and motivating. Moreover, learners will be able to use the acquired language to fulfill a real purpose, and to make students more independent learner and confident in their language communication.

1.3.2 Task-Based Language Learning

Task-Based Language Learning is a language teaching method in which the tasks are central to language activity. The task involves a primary focus on meaning (Ellis, 1996). Students may learn effectively when they are focused on the use of the authentic language in a language task (Willis, 1996, Ellis, 2003). According to Willis (1996), there are six types of tasks which can be introduced to students, namely, listing, sorting, comparing, problem solving, sharing personal experience and creating

tasks. Using a variety of tasks from the simple tasks to the complex tasks may motivate students learning process and help them focus on the language features (Ellis, 1996). Moreover, the presenting of language tasks to students can be regarded as important to the teaching process. Willis (1996) proposed three phases of presenting the language tasks: pre-task, task cycles and language focus. The sequencing steps may help teachers to organize the lessons as a unit plan. Details of the three phases of tasks are in chapter 2.

1.3.3 Principles for Development of CALL

The principles for Computer Assisted language Learning (CALL) have been articulated by many scholars (McDonough, 2001; Chapelle, 2001, 1998; Laurillard, 2002). Based on the application of CALL in the language classrooms, the software must be constructed to support the linguistic conditions for students (Chapelle, 1998). The output processing, such as single-sentence parsing and feedback should be shown to be present for students' retention (Nagata, 1998). More specifically, the acquisition process that is actualized in a computer program crucially affects the design of the learning interface (Clifford & Cranoien, 2007). Chapelle (1998, 2001) provides some key considerations for designing CALL program that follow the models of second language acquisition. More details are presented in chapter 2.

There are several research studies in the literature attempting to develop and implement CALL in English language teaching courses, particularly in higher education. Many researchers (Sukamolson, 1998; Torat & Torat, 2002; Kaewphaitoon, 2006; Wongrak, 2006; Suwannabubpha, 2006, Phongnapharuk, 2008) reported that CALL can be effective in terms of increasing students' language

proficiency and motivation. Besides, in language classes it is believed that if students' anxiety is reduced, students' individual learning is also promoted.

In applying the concepts of the three areas above to this study, the framework of designing and developing CALL English Lessons can be illustrated in the three simple steps which are described in Figure 1.1

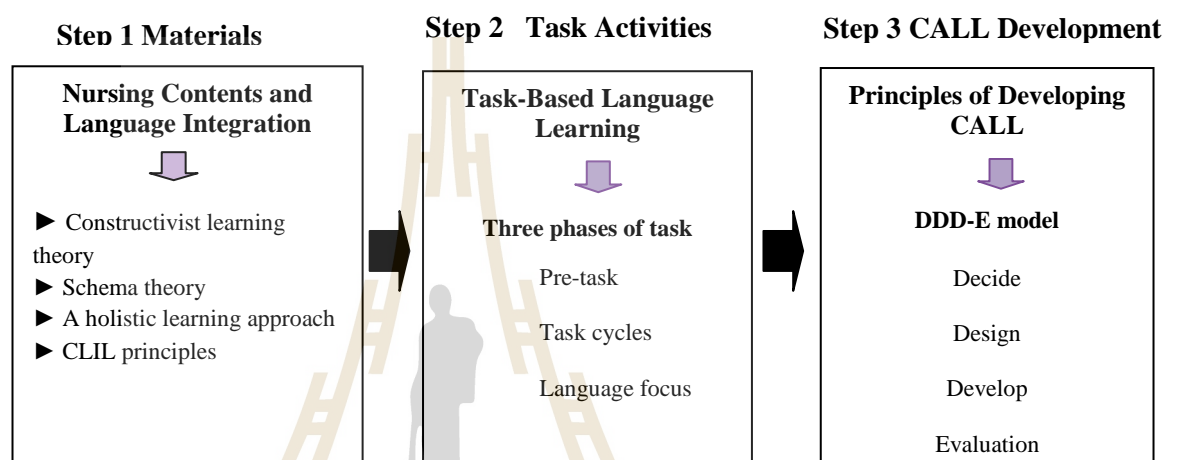


Figure 1.1 Three Steps of Designing and Developing CALL English Lessons

In the first step, the theoretical foundations of constructivist learning theory, schema learning theory, holistic approach and CLIL principles were a guideline for connecting the nursing materials to language skills. Task-based activities were presented in three phases. The principles of SLA in developing of CALL and the DDD-E model were as a framework for instructional design. These three steps of framework provided a strong foundation to produce CALL English Lessons for nursing science students in this study.

1.3.4 CALL English Lessons for Nursing Science Students

English V course for students of Nursing Science is the last course of the five compulsory courses. It consists of sixty hours of instruction or about fifteen weeks a semester. The weekly instruction consists of four hours: two hours of theory and two hours of practice. In theory hours, teaching and learning relies on a different textbook which is compiled by different teachers. Grammar and vocabulary are taught in the first two hours whereas language skills, i.e., listening, speaking, reading, and writing are practiced in the practice hours.

1.3.4.1 English V course syllabus

English V course syllabus is aimed to enable nursing students to use English to communicate in their future career. In other words, it helped them improve their listening, speaking, reading, and writing skills to carry out different tasks in hospital settings. The development of CALL English Lessons for nursing science students emphasized the vocabulary and collocations that are commonly used to communicate between the nurses and patients as well as doctors. The course description and the objectives of the course are described in Table 1.2.

Table 1.2 Course Description and the Objectives of the English V Course

Course Descriptions	Course Objectives
An emphasis on professional conversation using vocabulary and collocations for specific professional activities, and a range of types of writing as required for various professions.	<ol style="list-style-type: none"> 1. Use appropriate vocabulary and collocations to elicit and relay information and convey instructions correctly for specific professional activities, verbally. 2. Interpret information in texts and articles and demonstrate understanding by using the information to complete specific professional documents and reports. 3. Determine personal learning style and areas for improvement and apply strategies for self-improvement.

1.3.4.2 The Contents of the Course

The contents are divided into eight teaching units. Each unit emphasizes vocabulary and collocations for specific professional nursing activities. The unit has been designed to match the language needs of nurses in communicating with foreigners at hospitals. The language features and the contents in each unit were researched by the English V course instructors, Department of English (Secomb, 2006) and approved by the language experts and university committee members of English language curriculum at Christian University of Thailand. The examples of teaching units and language features are described in Table 1.3.

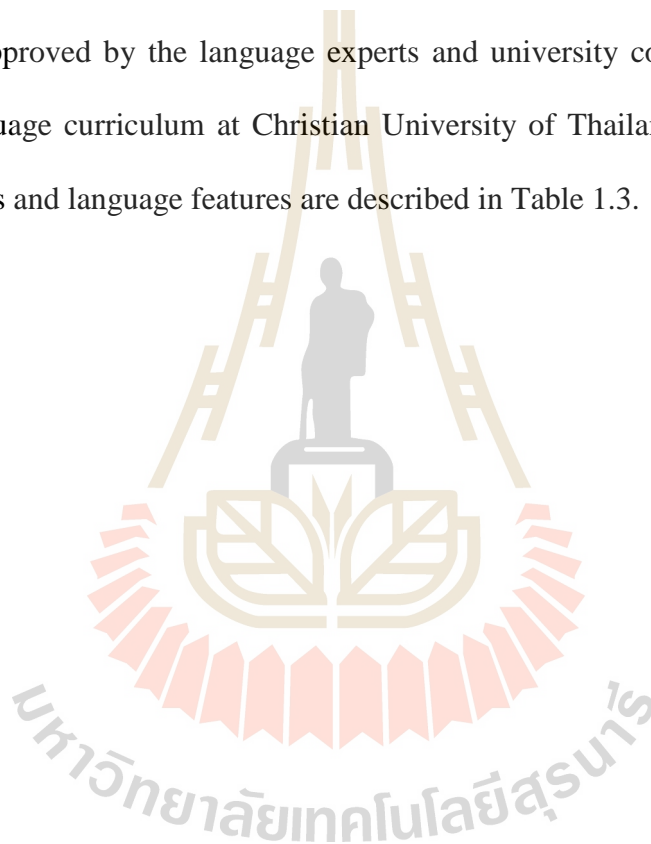


Table 1.3 Examples of Course Teaching Units and Language Features

Teaching Units	Language Features
Unit 1 Hospital Admission 1.1 Handling client registration. 1.2 Interviewing and verbal assessing	Completing a health assessment form <u>General Questions</u> Can you tell me what is wrong with you? What seems to be the problem? <u>Past history</u> Have you ever been to hospital / sick before? When was that? Why were you admitted (to hospital)? Are there any serious or chronic illnesses in your family? <u>Allergies or symptoms</u> Do you have any allergies / pain / dry skin / rashes / swelling / nausea / vomiting / diarrhoea / constipation / pain when? What are they? Can you show me where it hurts /the pain is / where the rash is?
Unit 2 Motoring Patients 2.1 Requesting and giving instruction 2.2 Vital signs and statistics	<u>Inform the patient</u> I'm going to + verb + collocation I'm just going to <i>take your blood pressure</i> . I'd like to + verb + collocation I'd like to <i>change your (wound) dressing</i> . I need to + verb + collocation. I need to <i>collect a urine specimen</i> . Asking permission May I + verb + collocation? May I <i>take your blood pressure</i> ? Giving instructions and requesting Please, sit down. Would you please + verb + collocation ? Would you please <i>change into this (hospital) gown</i> ? Explaining body temperature <i>Your temperature is normal.</i> (fever, a little high, or high is used to express a febrile temperature) Explaining blood pressure Normal reading – <i>Your blood pressure is normal.</i> High reading – <i>Your blood pressure is slightly high.</i> Low reading – <i>Your blood pressure is low.</i>

In this study, teaching contents related to hospital admission, monitoring patients, and discharging patients from the syllabus of English V were taken into considerations in designing CALL English Lessons for Nursing Students. The particular language discourse for communicating at hospitals were emphasized in each lesson.

1.4 Purpose of the study

The three purposes of this study were:

- 1) to develop effective CALL English Lessons for Nursing Science Students;
- 2) to explore English language achievement of students who learned with CALL English Lessons before and after the lessons; and
- 3) to investigate students' reactions towards CALL English Lessons.

1.5 Research Questions

To accomplish the purposes, this study was guided by four research questions.

1. What were challenges encountered by an EFL teacher as a CALL developer?
2. Were the CALL English Lessons for Nursing Science Students effective?
3. To what extent did CALL English Lessons help nursing students develop their English communication at hospitals?
4. What were students' reactions towards CALL English Lessons for Nursing Science Students?

1.6 Research Hypotheses

The research hypotheses of this study were set based on the findings of previous studies (Kaewphaitoon, 2003; Pongsart, 2004; Smidt & Hegelheimer, 2004; Wang & Zhang, 2005; Almekhalafi, 2006; Kijiripanth, 2006; Lai, 2006; Chongchaikul & Arjnonla, 2008; Abraham, 2008).

1. The students had gained more knowledge after learning with CALL English Lessons at the .05 significant levels.
2. The students had positive reactions toward the use of CALL English Lessons.

1.7 Definition of Terms

Definitions of the terms are provided as follows:

1. **“CALL English Lessons”** refers to English Lessons for Nursing Science Students using Computer-Assisted Language Learning. They are designed and developed based on the course syllabus of English V taught at Christian University of Thailand. They are developed by the researcher. They consist of four topics: hospital admission, monitoring patients and discharging patients. They last 16 hours. Students are required to study four hours a week for four weeks. They are an application that can be installed and used with PC and Notebook computers.
2. **“Effectiveness”** refers to the effectiveness of the CALL English Lessons which is evaluated by English language instructors, content specialists, and computer programmers, who can be regarded as experts in their specific fields.
3. **“Students’ reactions”** refers to positive, neutral or negative reactions toward CALL English Lessons stated by the students who study with the CALL lessons. The

students' reactions are gathered from learning logs and semi-structured interview

4. **“80/80 Criteria”** refers to the standard criteria that were used to determine the effectiveness of CALL English Lessons; by using the ratio between the efficiency of the process and the effectiveness of the product, E1/E2 formula (Brahmawong, 1978).

5. **“Language learning achievement”** refers to the learned knowledge or skills that an individual student has gained after taking the CALL English Lessons. It includes vocabulary, conversation and grammar.

6. **“Communicative language achievement test”** refers to the oral test which consists of 5 discrete criteria. They are accuracy of information, pronunciation, word choices, grammatical accuracy, and overall fluency. Each individual subject takes this as a pre-test and a post-test around the CALL English Lessons.

1.8 Scope and Limitations of the Study

The present study was conducted for developing CALL English Lessons for Nursing Science Students, examining the effectiveness of CALL English lessons, determining the students' language learning achievement, and exploring students' reactions towards the CALL lessons. The 16-hour CALL English Lessons were employed with the third year Nursing Science students at CTU on a voluntary basis. The contents of CALL English Lessons were based on vocabulary and collocations which were commonly used for communicating at hospitals. Language features were taken from English V course syllabus, with emphasis on language learning in training professional nurses at Christian University of Thailand.

1.9 Potential Benefits of this Study

The outcomes of this study on the development of CALL English Lessons for Nursing Science Students can be beneficial in the following ways:

1. The CALL English Lessons can be a practical instruction-method for English language teachers as well as optional instruction material for use in English V course for Nursing Students.
2. The CALL English Lessons can be a good model of how language and content can be integrated and see the results of the integration in language learning
3. The CALL English Lessons can reveal some difficulties that a language teacher would encounter when developing CALL materials.
4. The CALL English Lessons can be a good model for CALL lessons in the future so that nursing students can learn by themselves

1.10 Summary

The Department of English at CTU has recently implemented the commercial software for English language learning in a computer lab as part of practice hours in English V course for nursing students. Regarding the results of course evaluation surveys conducted by the department, it was found that the contents in the software are not relevant to the course objectives and it is hard to find connections between the course contents and the future language needs of the students in nursing profession. As a result, English V course for practice hours needs to be revised. As it is hard to find the English language commercial software that meets the requirements of the English V course for nursing students, the researcher is interested in designing and

developing CALL English lessons to use for this course. The lessons were content and language integrated, taught through task-based activities on CALL platform. The process of development of CALL lessons, their effectiveness, the students' language learning achievement and reactions were quantitatively and qualitatively studied.



CHAPTER 2

LITERATURE REVIEW

This chapter reviews the integration of language and curriculum content, underlined the theoretical framework of Content and Language Integrated Learning (CLIL), Task-Based Language Learning, the design and development of Computer Assisted Language Learning, and research studies related to teaching of language and content integration, Task-Based Language Learning, and CALL materials.

2.1 Content and Language Integrated Learning (CLIL)

2.1.1 Definitions of Content and Language Integrated Learning (CLIL)

The term “Content and Language Integrated Learning” (CLIL) was coined in 1994 in Europe (Mahisto, Marsh & Frigols, 2008); it is an umbrella term for several other terms including Content-Based Instruction (CBI). It refers to the situations where a second or additional language is used as a medium of instruction. Besides, it covers a wide range of different approaches in diverse educational contexts, and is used to describe the different contexts in which it is implemented, such as immersion, language-enhanced content learning, mainstream bilingual education, plurilingual education, language shower, and content-based language instruction (Jarvinen, 2005; Mehisto et al., 2008). However, the term Content and Language Integrated Learning (CLIL) is recognized as one of the language approaches to EFL instruction which are

raised in several workshops and TESOL conferences in many regions of Thailand and are therefore, be used throughout this study.

The growth in popularity of CLIL has been accelerating in different countries. Additionally, the definitions and concepts of CLIL have attracted the attention of many scholars in recent years.

Marsh and Marsland (1999) proposed that the new term of CLIL has been introduced in Europe to encompass all forms of content-based instruction, and CLIL for Content and Language Integrated Learning. According to Marsh (1999, 2002), CLIL is a useful term because it does not give emphasis either to language teaching and learning, or to content teaching and learning, but sees both as integral parts of the whole.

Morgan and Neil (2001) describe CLIL as teaching and learning situation which the language is used as a medium for teaching another subject.

Puff (2007) defines CLIL as educational settings where a language other than the students' mother tongues is used as a medium of instruction.

Coyle (2007) points out that CLIL shares some elements with bilingual education, content-based instruction, immersion, and so on where both language and content are conceptualized on a continuum without an implied preference for either.

Mehisto et al. (2008) state that CLIL is a dual-focused educational approach for learning and teaching of both content and language.

The definition of CLIL by different scholars emphasizes the equally important role of both content and language in teaching and learning where language is used as a medium of instruction. A joint curricular role of content and language would envision a systematic integration of content and language syllabus in accordance with

the course curriculum. CLIL requires a lot of practical work which requires collaboration between content and language teachers in material designs (Jarvinen, 2005).

2.1.2 Other Aspects of Content and Language Integrated Learning (CLIL)

The position of CLIL is alongside Content-based Instruction (CBI).

The majority of Content-Based Language Instruction caters to language learners in various ways. According to foreign and second language teaching, content-based instruction is being used in ESL higher education (Crandall & Kaufman, 2002). The commonly known content-based instruction models by Brinton, Snow and Wesche (2003) are theme-based, adjunct, and sheltered models. Details are as follows:

A primary aim of the theme-based model is to help students develop second language learning in ESL course. A language instructor is responsible for language and content instruction. The course is designed around content, and the language skills are integrated into selected theme or topic. A Theme-based course is the most widespread among language teaching for ESL courses and appropriate at all levels of language proficiency (Brinton et al., 2003). A theme can be selected based on the students' area of study and their interests.

The sheltered model is found in many public school systems in the United States which encompasses specially designed math, science, history, English, and social studies courses for L2 learners (Stryker & Leaver, 1997). A sheltered model aims to help ESL students master the subject matter of the courses. In a sheltered class, a content instructor is responsible for teaching. Special methods and techniques

are used with sheltered subject matter and make the content accessible to second language learners (Stryker & Leaver, 1997).

An adjunct model has as its primary aim to help students master content material to prepare for the skills necessary for the mainstream classes. The language course, which is taught separately from the content course, is carefully designed to help ESL students learn appropriate language, and study skills as well as academic content. In this form, an ESL course taught by an ESL instructor is linked to a content area class taught by the content area instructor (Berlin, 2005). To have a clearer picture of the three CBI models, the table below illustrates them with their purposes, responsible instructors, students, courses and evaluation focuses.

Table 2.1 Illustrations of Three Models of Content-Based Instruction

Models	Purposes	Instructors	Students	Courses	Evaluation
1.Theme-based	Help students develop competence within specific topic areas	Language teacher	Non-native speakers	ESL course	Language skills and functions
2.Sheltered	Help students master content material	Content teacher	Non-native speakers	Content course	Content mastery
3. Adjunct	Help students master content material, academic discourse, and academic skills	Content teacher, and language teacher	Non-native speakers, and Native speaker	Linked content and ESL courses	Content mastery, and language skills

Source: Brinton, Snow & Wesche (2003)

Apart from the three different models of Content-based Instruction, Brinton et al., (2003) also present some examples of how content-based language instruction is currently being implemented in native, foreign, and second language settings. The related programs include language for specific purposes, immersion education, and language teaching across the curriculum. Details are discussed as follows:

1) Language for Specific Purposes

Language for Specific Purposes (LSP), related to content-based language instruction (Bailey, 2006), was developed in Britain for the teaching of English for Specific Purposes (ESP). In LSP courses, the basic emphasis is on language instruction and language content that reflects the language needs of learners, namely in professions and academic areas. The LSP courses aim at preparing learners for real world demands through the use of authentic materials and attention to the real life purposes of learner following a methodology of content-based models as a major component in language learning context.

2) Immersion Education

Immersion education is one of the most successful forms of content- based instruction. Language learning in immersion programs began in 1965 with the experimentation of French immersion projects. In the experiment, English-speaking kindergarteners received the regular half-day curriculum through the medium of French from a French-speaking teacher. The results demonstrated the successful mastery of both functional French and school subject matter. The language immersion model from this experiment illustrated the effectiveness for instruction in which the focus on teaching subject matter through medium of the second language and the immersion language program had an effect on content-based instruction (Brinton et al., 2003).

3) Language Across the Curriculum

Teaching language across the curriculum began in 1975 by the British Government as a means of the first language development. The purpose of teaching language across the curriculum aimed to take a reciprocal relationship between language and content learning in reading, and writing. Thus, teaching language across curriculum was a co-operation between language teachers and subject matter teachers. The language teachers gave attention to language problems in reading and writing English, whereas the content teachers focus on activities requiring reading and writing in the learning of subject matter. The movement has influenced second language instructional theory and practice. It is particularly relevant to content-based second language instructional program (Brinton et al., 2003).

The other aspects of CLIL in language teaching outlined above carry with them a number of implications concerning the appropriateness of the models for particular language-teaching settings and proficiency levels. For the integration of content and language instruction in this study, integrated models of content and language are focused and built upon student's language proficiency. In addition, theme and content are connected to students' field of study, as well as students of Nursing Science.

2.2 Theoretical Framework for Integration of Language and Content

The integration of language to the specific content of the curriculum has gained more popularity in education due to its advantageous impacts on learning. For many decades, scholars (Stryker & Leaver, 1997; Brinton et al., 2003; Mishan, 2005) have suggested that the content materials which are relevant to the learners' needs and

interest can raise their motivation as well as their rapid change and development. Additionally, learners can gain more understanding in the content area. This understanding helps to promote the connection of content with the language curriculum. Theoretically, the conceptions of an integration approach to curriculum branch into modern educational psychology, constructivist theory, and schema theory, and the implementation of content and language integrated learning.

2.2.1 Constructivist Theory

Constructivism defines learning as a constructive process in which the learner is building an internal representation of knowledge, and a personal interpretation of experience (Duffy & Jonassen, 1992; Tokana, 2003). The theory proposes that learners can acquire knowledge and utilize it when it builds into existing knowledge structures, and can be interpreted on the basis of experience (Puffer, 2007). Linking constructivist pedagogies to English language learning can provide learners a culturally responsive approach that builds on students' experiences and strengths (Reyes & Vallone, 2007).

Regarding the integration of language and content in CLIL, constructivist theory can be a strong rationale for helping the course developer shape the curriculum, by engaging a student's experience and previous knowledge into the learning process. In CLIL classrooms, students need their big efforts to learn both content and language at the same time. They may try to construct their own understanding of the content through their learning activities; therefore, students should be active learners in developing their own comprehensive of the language content. Then, students attempt to merge their new coming information to prior knowledge they have had to determine the degree of comprehension.

An effective way of getting students to engage in learning by CLIL, a course developer may devise activities in which students have to take part. The activities are designed, and are presented with situations that a student can identify with and construct his/her own meaning (Duffy & Jonassen, 1992). Teachers may elicit students' ideas and experience in relation to key topics and situations that help students elaborate on or restructure their current knowledge (Eshach, 2006). This can contribute to students' long-term application in future language use.

2.2.2 Schema Theory

Schema theory is a theoretical model that explains the role of background knowledge in language comprehension. Since background knowledge plays a crucial role in the comprehension learning process. Educational psychologists view schema theory as an abstract framework, which organizes knowledge in memory by putting information into the correct slots, containing and retaining related parts, and functioning in the process of interpreting new knowledge (Anderson & Pearson, 1984; Wilson & Anderson, 1986). Additionally, schema works as highly functional cognitive networks or concepts which are acquired as result of experience (Westwood, 2004).

In applying this concept, schema knowledge can serve as a springboard to comprehension, supporting recognition of form-meaning relationships and the ultimate retention of new language knowledge (Brinton et al., 2003), and in the acquisition of a second language (Cullen, 1996). Many instructional course-developers employ the schema knowledge as a principle guideline for prior knowledge procession. As noted by Kitao (1989), the criteria for selecting

instructional materials in second language classes included the familiarity of the content background, especially at lower language proficiency levels.

In this study, the materials for the integration of language to content learning attempt to bridge the language learning. Therefore, the material selection would be the most realistic familiar scenarios in teaching, and facilitate student's schema building. A students' existing academic background would accelerate the construction of new knowledge. This association would help him/her understand the specific content.

2.2.3 Learning as a holistic process

Another application of constructivist theory found in integrated curriculum is that learning is seen as holistically oriented and meaning-based (Met, 1998). Scholars (Rivers, 1986; Rigg & Scott Enright, 1986) state that bilingual education teaching and learning should derive from a holistic approach for bi-literary instruction. Learners can perceive the connections between the concepts of their learning as the whole and relate to one another (Cenoz & Genesee, 1998). This approach is unlike traditional methods that often disassociate language learning from the subject contents, and no linking curriculum is established between them (Genesee, 1994). For example, the teaching of science is separated from teaching a new language. The concept of teaching science or language alone contrasts with the real world, and is not realistic for students. An integrated curriculum can bring these domains together; students can see how all content areas fit together, and this integration can lead to an understanding of the whole. An integrated curriculum can provide a rich contextual scaffold to support learners, and that content becomes the medium for learning language (Crandall & Tucker, 1990).

By learning through CLIL, students are developed holistically and gain with the content knowledge and language skills. Coyle (1999) and Mehisto, Marsh & Frigols (2008) advocate the formulaic 4C conceptual framework under which the holistic perspective can serve as a basis for bringing together the different facets of CLIL, and for developing further CLIL pedagogies. The 4C framework focuses on the interrelationship between the content (subject matter), communication (language skills), cognition (learning and thinking), and community (social awareness) which can support the holistic development of learners. The principles of the 4Cs Framework is illustrated in figure 2.2.

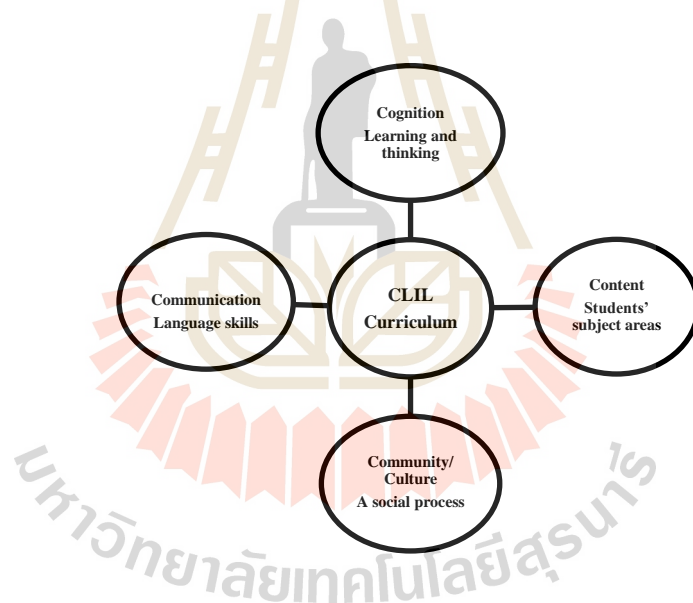


Figure 2.1 A holistic development of CLIL under the 4Cs framework

Sources: Coyle (1999); Mehisto, Marsh & Frigols (2008)

According to Coyle, (1999), the four Cs focus on the process of learning rather than the product. Scaffolding requires planning in terms of what teachers might do to

facilitate opportunities of students' learning. He suggests the all four Cs elements for teachers in designing the curriculum. Each C is listed in Table 2.2.

Table 2.2 Four Cs Elements of the Curriculum

Four Cs	Details
Communication	<ul style="list-style-type: none"> • Linguistic form and functions of the language needed by learners. • Development of communication skills, including discourse strategies. • three Ms, i.e. meeting new language, manipulating it and then making it my own. • Coping with the unexpected.
Content	<ul style="list-style-type: none"> • Coherence. • Progression in knowledge and skills.
Cognition	<ul style="list-style-type: none"> • Development of tasks related to thinking skills. • Construction, sequencing and evaluation of learner tasks.
Community	<ul style="list-style-type: none"> • Developing a sense of otherness. • Contrasting different perceptions of events rooted in different cultures.

Source: Coyle, (1999)

At the concrete planning stage above, the 4Cs framework seeks to assure the quality in terms of guidance for content, communication, cognition and community to support a holistic process of learning.

2.2.4 Content and Language Integrated Learning in ESL Context

The integration of language through content instruction in ESL classes is considered to be beneficial because it provides students with meaningful content which is rich and relevant to students' lives (Greese, 2005). CLIL program offers an opportunity to both broaden and deepen a student's proficiency in the foreign or second language (Crandell & Tucker, 1990), and provides a student with the study

skills and discourse which they can transfer to other academic tasks (Brinton et al., 2003; Mehisto et al., 2008). The necessary conditions for second language learning in content instruction has been asserted by Brinton et al. (2003) as the rationales for teaching as it:

a) builds on the students' previous learning experiences in subject matters, the target language, and in formal educational settings; b) takes into account the interests and needs of the learners through their engagement with the academic subject matter and discourse patterns that they need to master; c) allows a focus on communicative language use as well as on accurate usage; d) incorporates the eventual uses the learner makes of the language through engagement with relevant content and L2 discourse with a purpose other than language teaching (p.241-242).

Many research studies in second language acquisition offer additional support for the integration of language and content. The four findings from the studies in educational and cognitive psychology that emphasize the benefits of content and language instructions cited in Stoller (2002, p.108) include:

1) Thematically organized materials, typical of content-based classrooms, are easier to remember and learn (Singer, 1990).

2) The presentation of coherent and meaningful information, characteristic of well-organized content-based curricular, leads to deeper processing and better learning (Anderson, 1990).

3) There is a relationship between students' motivation and student interest- common outcomes of content-based classes- and a student's ability to process challenging materials, recall information, and elaborate (Alexander, Kulikowich, & Jetton, 1994).

4) Expertise in a topic develops when learners reinvest their knowledge in a sequence of progressively more complex tasks (Bereiter & Scardamalia, 1993),

feasible in content-based classrooms and usually absent from more traditional language classrooms because of the narrow focus on language rules or limited time on superficially developed and disparate topics.

Using these rationales and the previous findings as guidelines for implementing the integrated curriculum may contribute to academic success (Kasper, 1997; Song, 2006) and make learning a language more interesting and motivating. Learners can use the language to fulfill a real purpose, and make students be more independent learning and confident in language communication.

2.2.5 CLIL in English for Specific Purposes (ESP)

Teaching a language curriculum within a particular area of study gives students more integrated views of their own learning, and enables them to see the interconnection of their study, in their specific learning context (Risko & Bromley, 2002). In tertiary programs, the integration of content and language learning has been widely used as English for Specific Purposes (ESP) when the teaching is related to specific professional or occupational skills (Crandall, 1987; Richards and Roger, 2001; Brinton et al., 2003), the language and content are linked to a particular profession, and focused on learners' needs and interests (Dudley-Evans & Saint John, 1998; Hutchinson & Water, 1987).

English for Specific Purposes is concerned with teaching language, discourse and relevant communication skills of the target language for the given profession. According to Dudley-Evans & Saint John (1998), ESP employs three absolute and variable characteristics which are (a) ESP is designed to meet specific needs of the learner; (b) ESP makes use of the underlying methodology and activities of the disciplines it serves; and (c) ESP is centered on the language appropriate to these

activities in terms of grammar, lexis and register, skills, discourse and genre. The variable characteristics related to the design for specific disciplines; specific teaching setting; and learners of ESP course. English for Specific Purposes can be categorized into two groups according to the following disciplines or professional areas: (a) English for Academic Purposes (EAP), and (b) English for Occupational Purposes (EOP). EAP includes English for Science and Technology (EST), English for Medical Purposes (EMP), English for Legal Purposes (ELP) and English for Management Finance and Economics, whereas EOP includes professional purposes in administration, medicine, law, and vocational purposes for non-professionals in work or pre-work situations (Hutchinson & Water, 1987).

Regarding the present study, the English V course for students of Nursing Science is a general English language course which emphasizes the language use for nursing profession. Hence, the course syllabus is designed based on the vocabularies and collocations which are commonly used by nurses for communicating at hospitals.

2.3 Related Research on Content and Language Integrated Learning

Many research studies have been conducted to investigate the effectiveness of the integration of content and language curriculum in various courses in schools and university setting. For the intensive reviews, several research studies on content and language integration have been done in the previous years; for this study, a select number of key studies on language integration in particular courses are examined as follows:

Apichai (2001) studied students' content knowledge in ecotourism management course. The course was concerned with students' English writing ability,

reading strategies, and environment conservation awareness after being taught through integrating English with content. There were 38 third-year students majoring in tourism development at Maejo University participating as subjects. In the study, three integrated content units were taught. After finishing each unit, students took the tests of content knowledge and an English writing ability test. Then, students completed the questionnaire of reading strategies. The results indicated that students' content knowledge and students' English writing ability through integrating of English with content were satisfied in this particular ecotourism management course. Students were taught through integrated lessons, employed associating background knowledge with new information, which was a reading strategy in the cognitive level. Regarding the recommendation of the study, the integrated content area through English learning should be continued to the next English course to increase students' language academic skills.

Ketmongkon (2001) investigated the speaking ability and problem-solving ability of 20 Mattayom Suksa students, and compared the students' environmental consciousness before and after being taught thematic English lessons. After having studied five thematic lessons, speaking ability and problem-solving ability were assessed through the project presentation. The findings indicated that students' speaking ability and problem-solving ability passed the determination scores of 50, and tended to become higher after being taught through the thematic English lessons. Additionally, the students' environmental consciousness was higher and students' problem-solving ability in doing the project increased. The recommendations of the research emphasize the necessity of conducting students' need analysis before selecting the course content materials. Moreover, the reading texts that course

developer choose for students should be relevant to students' background and language competency.

Seepho (2002) developed thematic units as English for Science and Technology (EST) materials at Suranaree University of Technology. The study was to document the process of developing the thematic units, examine the teacher and students reactions to the thematic units, and to explore the classroom interactions while the thematic units were taught. There were 8 teachers and 24 students who participated in the study. Journals, classroom observations, videotaping, and interviews were used for data collection. The data revealed that the majority of teachers and students reacted positively to these thematic units. Students became more motivated to learn language through content and teachers were more confident in teaching language through unfamiliar content. However, the thematic units' development process was found non-linear and the steps of development did not follow one another as planned. The researcher in this study suggests that the materials developers need to have a realistic understanding of the context and learners. The results of the study provide a better understanding of the development and implementation process of thematic units at the university level in English as a foreign language context.

Suppakitjumnong (2002) also studied content-based instruction. The investigation was designed to compare the English academic reading ability and the motivation of the students before and after learning through a program of content-based instruction. There were 32 agriculture and science students from Chiang Mai University enrolled in the fundamental English for Science III course. There were fourteen lesson plans on content-based instruction, reading comprehension test, and

questionnaire on motivation that were used for data collection. The comprehension tests and the questionnaire were employed before and after learning through content-based instruction. The findings indicated that students' English academic reading ability and students' motivation increased significantly after learning through content-based instruction. In the recommendations of the study, the authors suggested that instruction of content and language must be kept in balance and teacher should avoid overwhelming learners with too much content. Lengthy ready passage may simply wear down learners' attention in the lessons.

Kavaliauskiene (2004) explored the various forms of content-based instruction and integrated the relevant content into the ESP course. Additionally, students' content knowledge through task-based learning and holistic approach to language instruction were employed. The study focused on one traditional ESP syllabus with a number of professional specific themes. There were 220 participants from among first and second-year law students at the University of Lithuania who participated in an ESP course. The data for the study collected over four years with self-assessment questionnaires of writing skills, self-assessment of ESP vocabulary, interview and tests of their performance. Results of the study indicated that 1) learning vocabulary in ESP is thought to be more effective if it is learnt from the context. Content-related vocabulary is easier to memorize and retain; 2) integrating content-based instruction into writing activities has a great potential for improving students' writing skills; 3) students' performance in projects has been improved steadily by the end of ESP course. Almost 50% of learners had been awarded good and very good grades, and 30% of the students managed to speak without prompts with some occasional grammar errors occurring in their speech. The other 20% relied on their notes. The researcher

suggested that a course material design for students should be taken into consideration since their learning styles and strategies are vary in class.

Song (2006) investigated the long-term effects and outcomes after students learning on content-based ESL instruction at Kingsborough Community College, New York. The purpose of the study was to evaluate students' performance over time and to compare students in a content-based ESL program with students in a program that was non-content-based. There were 152 students in the Intermediate ESL Reading and Writing course. The experimental group included 73 students for a content-based ESL program while 79 students were in a non-content-based ESL instruction as a control group. The experiment group was designed to study readings from five academic disciplines: language acquisition, computer science, anthropology, biology, and psychology. The control group was not grounded to any specific academic disciplines. The proficiency in reading and writing was assessed for both groups of students throughout all four semesters of the study. The results indicated that students enrolled in the content-based ESL program not only achieved higher pass rates and better grades in the ESL course, but also performed better in subsequent ESL and developmental English courses. In addition, the content-based ESL students had better long-term academic success rates than the non-content based ESL students, in measures such as English proficiency test pass rates, graduation and retention rates and overall GPA.

The previous researches were reported in relation to content and language integration in various settings. The integrated curricula were mostly set in general English courses whose designs were based on themes, namely, ecotourism, environment, science, computer science, anthropology, biology and so on. The results

of the study mostly reported that students' language skills improved after learning with the integration of content and language materials. Students' motivation and reaction to the integration increased after taking the courses. In addition, students had better long-term academic success rather than those in the traditional ESL classes without content integration.

However, recommendations and suggestions noted from previous research need to be taken into consideration for this research study. Several suggestions are on students' needs and interests as well as appropriateness to levels of students' language competency. The instruction of content and language should be neither overemphasized nor under overemphasized. It must be kept in balance. Learning styles and strategies need also to be taken into consideration in designing materials. In addition, the suggestion on the processes of developing materials has to be done in stages and planned. In this research study, nursing content and language skills are attentively linked into the English V curriculum.

Next part, the use of Task-Based Language Learning in designing language tasks, the three phases for task-based language learning, and the advantages of task-based language learning are discussed.

2.4 Task-Based Language Teaching

2.4.1 Definition of Task-Based Language Teaching

Task-Based Language Teaching is a method of language instruction which uses the tasks as the core units of planning and instruction (Richards & Rodgers, 2001). It focuses on the use of the authentic language in doing tasks. While language is used as a vehicle for attaining task goals the emphasis is on meaning and

communication (Ellis, 2003; Willis, 1996). Task-Based Language Learning has led to a different interpretation of tasks (Willis, 1996) which scholars proposed as follows:

1. A task is an activity where the target language is used by the learner for a communicative purpose in order to achieve an outcome” (Willis, 1996)
2. A task is an activity which requires learners to use language with the emphasis on meaning, to attain an objective, and which is chosen so that it is most likely to provide information for learners and teachers which help them in their own meaning (Bygate, Skehan & Swain, 2001).
3. A task contains some form of input data which might be verbal or non-verbal and activity which is derived from the input and sets out what learners are to do in relation to the input (Nunan, 1989).
4. A task is an activity that requires learners to arrive at an outcome from given information through the process of thought and it allows teachers to control the process (Prabhu, 1987).
5. A task is a work plan that requires learners to give primary attention to meaning and to make use of their own linguistics resources (Ellis, 2003).

From the definitions, ‘task’ in task-based language learning is used for requiring learners to use the language to convey the meaning for their communicative goals. Therefore, a different set of tasks which is appropriate with learners and the classroom activities may be taken into consideration in designing and implementation for attaining the course objectives of the lessons.

2.4.2 Six Types of Tasks in Task-Based Language learning

The concept of task has become an important element in syllabus design, classroom teaching and learner in ESL and EFL settings (Nunan, 2004). The learning tasks can also be regarded as a work plan for language teaching courses that provide students opportunities for the refinement of knowledge and capabilities entailed in a new language and its use during communication (Breen, 1987). Regarding the importance of the learning tasks, Willis (1996) listed six main types of task that can be adapted for using with any topics or themes in language teaching. Numbered tasks are:

1. Listing, including brainstorming and fact-finding. The outcome is the completed list or a draft mind map.
2. Ordering and sorting, consisting of sequencing, ranking, categorizing and classifying. The outcome is the set of information ordered and sorted according to a specified criterion.
3. Comparing, including matching, finding similarities, and finding differences. The outcome is the items matched or assembled, or the identification of similarities and/or differences.
4. Problem solving, including analyzing real-life situations, analyzing hypothetical situations, reasoning, decision making. The outcome might be the solution to a problem which can be evaluated.
5. Sharing personal experiences, including narrating, describing, exploring and explaining attitudes, opinions, reactions. The outcome is largely social.

6. Creative tasks, such as brainstorming, fact-finding, ordering and sorting, comparing. The outcome might be the production of an end product which can be appreciated by a wider audience.

As the tasks are essential components in the lessons, the six types of tasks that are suggested can be regarded as a guide to help teachers to generate a variety of tasks. In designing classroom material, the simple tasks are introduced at the beginning in order to draw students' previous knowledge and experience and then followed by the more complex tasks. In addition to "a group learning for a specific purpose, (e.g. hotel reception skills), tasks can be based on their professional knowledge and experience" (Willis, 1996 p.28-29). As Ellis (2003) noted, using varieties of tasks can "induce learners to process, receptively or productively some particular linguistic feature" (p.16).

2.4.3 Framework of Task-Based Language Learning

The sequencing tasks for task-based language learning can be regarded as a major role of instruction. It aims to assist the teachers to manage classroom learning tasks in a unit plan. As noted by Richard and Rodgers (2001), the common stages of task sequence are pre-task, task itself, and post-task. In addition, the implementation phases of tasks to students should contain clear criteria for outcomes assessment (Skehan, 1998). According to Willis (1996) in task-based learning, the sequencing tasks consist of three phrases: pre task, task cycle and language focus. The phases and activities are discussed as follows.

2.4.3.1 Pre-task stage

The pre-task is the beginning stage of the introduction of the class topic and the task. At this stage, teacher introduces and defines the topics and uses activities to help students to recall and learn useful words and phrases (Willis, 1996). According to Richard & Rodgers (2001) and Willis (1996), the brainstorming ideas by using pictures or personal experience can activate topic-related words and phrases of the pre-task. During the pre-task stage, students may note down useful words and phrases from the pre-task activities (Willis, 1996). The pre-task activities, namely, classifying words and phrases, odd one out, matching pictures, brainstorming and mind mapping are suggested to be used in this stage (Willis, 1996).

2.4.3.2 Task-cycle stage

Task cycle stage consists of three steps: task itself, planning tasks and report tasks. The task cycle offers learners the chance to use the language they already know to carry out the task and to improve that language under guidance from teachers while planning their report of the task (Willis, 1996). During the planning task step, students may do the task in pairs or small groups with the help of the teacher (Leaver & Willis, 2004). The practice and rehearsal of speaking or writing are in this step. The task step ends with a report where the learners comment on their performance of the tasks (Ellis, 2003). Learners are experiencing English throughout the whole task cycle (Willis, 1996). Feedback from the teacher comes when learners need to fulfill the task (Willis, 1996).

2.4.3.3 Language focus

The last stage of the task-based framework is the language focus. During this stage, students have a closer look at the specific features of the text which

have naturally occurred during the task cycle (Willis, 1996). By this point students have already worked with the meaning of the new language and they need to focus on form (Branden, 2006; Willis, 1996). The useful words and phrases are brought to the learners' attention at this stage (Leaver & Willis, 2004). All kinds of practice activities, including different drills are used with students to build learners' confidence of using target language.

For this study, tasks can be defined as an activity that present the target language used for communicating between a nurse and a patient at hospital wards. The types of tasks such as listing, ordering and sorting out information, comparing and matching patient cases and problem solving would be used in designing activities in each CALL Lessons. In theory, the formulation of these CALL English Lessons was based on the sequencing tasks (pre-task, language tasks and language focus) by Willis(1996). This is because the researcher believed that this kind of sequencing leads to a coherent instructional unit and step-by-step activity sequence which can help students connect language content from different angles, and help them understand the relationship between each of the parts and the whole lessons. So, in the pre-task stage, lessons presented vocabulary and phrases relating to the topic and content and followed by the language exercises which emphasize language use. It contains the dialogues that modeled everyday spoken English between a nurse and a patient and a patient's family at hospital wards. In the final task, the language structures for each conversation were highlighted and practiced to make students aware of the correct use in English sentences. The well-graded activities can lead students to challenging and more motivated stages of learning.

2.4.4 The Advantages of Task-Based Language Learning

Task-Based language Learning is believed to be an effective way of developing students' communicative language competence (Westwood, 2006). Because of a language communicative task, learners are required to concentrate on task activities which focus on language meaning and communication as representing task-types (Willis, 1996; Littlewoods, 2004). As Westwood (2004) noted, learners' language development is stimulated and enhanced through the communication requirements of the task activities. That is, learners can carry out communicative tasks instead of doing form-based discrete exercises. They are free to choose whatever language forms when they wish to convey what they mean in order to fulfill the task goals (Willis, 1996). In addition, learners are expected to express their own ideas either orally or in written mode about topic of the lesson; these activities can stretch learners' existing skills by using the language in original and functional ways (Westwood, 2004; Cubillo & Brenes, 2009).

The advantages of task-based language teaching has been highlighted by many scholars. Nunan (2004) stated that task-based language teaching has strengthened in terms of principles and practices as; 1) it emphasizes a need-based approach to content selection, and concerns with learning to communicate through interaction in the target language; 2) it provides opportunities for learners to focus not only on language but also on the learning process itself; 3) it enhances learners' own personal experiences as important contributing elements to classroom learning; and 4) it links classroom language learning with language use outside the classroom.

Other advantages have been highlighted by Rooney (2000). In particular, task-based language teaching is supported by empirical evidence which allows material

developers to design based on the research findings of classroom-centered language learning. Task Based approach allows for form-focused instruction within a communicative context that can be beneficial for learners.

Willis (1996) stated that in many parts of the world where students have experimented with task-based language learning, they gain confidence in speaking after beginning a task based course. In addition, they are able to talk about language and cope with natural spontaneous speech much more easily, and they become more independent learners. He also reported that teachers and trainers who have experimented with task-based language learning find that they work much better with mixed-level classes using a Task-based approach rather than a traditional method of PPP and learners can bring their own experiences to lessons and often come up with interesting and original ideas.

The advantages of using task-based language learning are noted by different scholars can bring into the language classroom research by a language course in order to get an understanding of implementing and using tasks in language classroom.

2.5 Related Research on the Effectiveness of Task-Based Language Learning

There has been an interest in task-based language learning in recent years and an amount of research related to the use of the tasks in language teaching (Griffiths, 2008).

Chitthum (2007) investigated students' writing ability after doing task-based learning activities and examined students' self-directed learning before and after

doing task-based learning activities. 26 higher vocational students of North Technology Mubankru participated in the study. The six lesson plans of task-based learning activities, a writing ability evaluation form, and self-directed learning questionnaire were used for data collection. After implementing six lessons of task-based learning activities, the findings indicated that students' writing had improved and passed the criteria of 50%. In addition, students' self directed learning was increased after having studied task-based learning activities.

Rattanawong (2004) studied the effect of teaching using task-based learning towards English language communicative ability of Prathom 6 students. The study used a control group and experimental group, 49 students each. The experimental group was taught by using task-based learning approach (TBL), whereas the control group was taught by the conversational method. Both groups were taught for 10 weeks. Data collected included a test of English language communicative ability, student's self report and questionnaires. The findings indicated that the four skills of listening, speaking, reading and writing of experimental group were higher than those of the control group. In addition, students in the experimental group had more confidence in using English speaking and the working skills had increased.

Laohametanee (2003) implemented task-based language teaching with undergraduate students at Rajamangala Institute of Technology, Northern Campus.

The purposes of the study were to compare the students' English speaking ability and the students' grammatical knowledge before and after receiving supplemented task-based language teaching with focus on form activities in the course of English for Career 2. There were 32 fourth-year undergraduate students in the study. The five lesson plans focused on form activities, speaking test and grammar test were

administered before and after the experiment. The findings indicated that the English speaking ability and grammatical knowledge level of students were higher from the fair level to the good level after being supplemented by task-based language lessons.

The previous researches were reported in relation to task-based language learning attempted using task-based learning activities into the language classes. The purpose of using task-based language learning tasks was to explore students' language abilities (speaking, writing and grammatical knowledge) changes after their learning by task-based lessons. The results of the study mostly reported that students' language skills improved after learning with task-based language learning. In addition, students' confidence in using language and working skills increased after taking the courses.

2.6 Computer Assisted Language Learning (CALL)

2.6.1 Definition of CALL

Computer Assisted Language Learning (CALL) refers to human interaction by means of computers to enhance second language learning (Erben, Ban & Castaueda, 2008). CALL can be defined as “the search for and study of applications of the computer in language teaching and learning” (Levy, 1997 p.1). It can be inferred that CALL application should go beyond the language theory when implemented. Using CALL in language class can promote students learning in an environment that helps them feel relaxed. Additionally, students may tend to transition from passive learners to active learners (Beatty, 2003). This is because CALL can present sentences, graphics, and moving pictures, including sound that make learning more enjoyable and interesting. Moreover, a teacher's role as the instructor shifts from a disseminator

of knowledge to a moderator; thus, it increases student participation (Heift & Schulze, 2007).

2.6.2 The development of CALL

The development of CALL can be categorized into three main phases (Warschauer, 1996), including behaviorist CALL, communicative CALL and integrative CALL. The first phase, called behaviorist CALL, was first implemented in the 1960's and 70's, when the Grammar-translation and Audio-lingual method were mostly used. They provided students with repetitive drills and practices. The behaviorist CALL used the computer to give instructions as a tutor, presenting drills and non-judgmental feedback (Moras, 2001).

The second phase of CALL is communicative CALL and is based on the communicative approach to language teaching. Communicative CALL focuses on using forms. The communicative CALL programs provide skill practices in a non-drill format, through types of programs such as courseware for reading, language games, cloze test, puzzle and text reconstruction (Warchauer, 1996). This approach also represents the computer as a tutor model. The use of computer as a tool provides the means for students to become active learners (Levy, 1997). Software, namely, word processors, desk-top publishing programs, spelling and grammar checkers, and concordances do not provide language learning activities, but facilitate the students understanding and use the target language (Warchauer, 1996).

The final phase, integrative CALL is based on multimedia computers and the Internet. These technological developments have brought texts, graphics, sound, animation and video to individual computers. These resources are all linked and called 'hypermedia', enabling learners to navigate through multimedia CALL with

multimedia CD-ROMS, DVDs, and the Internet at their own pace and path (Moras, 2001). These materials provide authentic learning in which language skills are easy to integrate. The integrative CALL makes a shift from teacher-centered to learner-centered and supports individual life-long learning.

2.6.3 The Benefits of CALL in Language Teaching

Nowadays, computer technology plays an important role in EFL teaching and learning. Many researchers have pointed out the benefits of using computer- assisted language learning. Warschauer and Meskill (2000) stated that using computer in language classroom creates opportunities for authentic and meaningful interaction both within and outside the classroom and provide students with the tools for their own social, cultural, and linguistic exploration.

Han (2008) and Hughes (2004) reveal that CALL has gained in popularity in foreign language learning more than in other applications since it is mainly beneficial for second language learners as follows:

- 1) CALL programs could offer second language learners more independence from the classrooms;
- 2) Language learners have the option to study inside and outside classroom, and can repeat the material as often as he or she deems necessary;
- 3) CALL programs can be powerful stimuli for second language learning;
- 4) Computers can promote learning interactions between learners and teachers;
- 5) Computers can help classroom teaching with a variety of materials and approaches; and

- 6) Content and/or interactivity of computer-assisted instructions can be customized to match the learner's abilities and preferences, as well as the teacher's pedagogical strategy for a particular learner or, more commonly, a particular profile of learners.

Hughes (2004) presents the significant findings that are most often cited for language teachers in terms of using computers in language classes for a number of reasons including:

- 1) A complete unit of learning;
- 2) A complementary learning unit;
- 3) A unit to introduce learners to new materials and activate reflections and reactions;
- 4) An instrument to diagnose or evaluate the learners' knowledge and abilities before beginning a course, during a course, and upon completion of the course.
- 5) An instrument to reinforce the learner's assimilation and retention of the material; and
- 6) Remedial work for slower learners that need more attention than the teacher can reasonably provide.

In addition, according to Sims & Gottermeier (2000), CALL is an effective teaching and learning tool, and has a significant positive impact for all major subject areas from preschool through higher education. They summarize that students feel more successful, are more motivated to learn, and have increased self-confidence and self-esteem when using computers for learning. They also suggest that the interactive

video is especially effective when the skills and concepts to be learned have a visual component and when the software incorporates a research-based instructional design.

2.6.4 Principles for Developing CALL

The implications for developing CALL language learning software have been voiced by many scholars (McDonough, 2001; Chapelle, 1998, 2001; Laurillard, 2002). Based on the application of CALL in language classroom, the software must be able to work with a learner's output to set the stage for acquisition (Clifford & Cranoien, 2007). The output processes such as single-sentence parsing, and feedback should be presented for retention (Nagata, 1998). More specifically, the acquisition process that is actualized in a computer program crucially affects the design of the learning interface (Clifford & Cranoien, 2007). Chapelle (1998, 2001) provides some key considerations for designing a CALL program that follows the models of second language acquisition as follows:

Firstly, the linguistic characteristics that learners are to pay attention to during CALL activities need to be made explicit. This can be accomplished by means of highlighting on the screen in a different color or by linking with graphics or supporting text. In application to CALL software design, the relevant linguistic input are carefully selected by a CALL course designer or instructor. The software should be constructed to allow learners to perform communicative tasks, such as formulating questions to elicit information, making alternative responses to questions. These tasks should provide the meaning focus basically in authentic communication.

Secondly, learners should receive help in comprehending semantic and syntactic aspects of linguistic input. Linguistic input can be provided through written or aural language (Chapelle, 1998). The techniques for helping the learners with

semantic and syntactic comprehension are simplification, elaboration, repetition, and redundancy through non-verbal cues, decreased speed and change of input mode.

Thirdly, learners need to have opportunities to produce comprehensible output. Comprehensible output occurs when the learners pay attention to their own talk, and as a result they produce more comprehensible, coherent, and syntactically improved discourse (Swain, 1995). The attention to output can be extended to the learner, in that learner pays careful attention to syntactic as well as semantic process. For CALL implications, a CALL designer should give opportunities for learners to use particular language discourse in contexts and create activities that provide students with more interaction among learners.

Next, learners need to notice errors in their own output. It is only through the output that the learner's degree of acquisition can be determined and analyzed to provide him/her with feedback, and with the adjusted input necessary for improvement and advancement (Chapelle, 1998). According to Chapelle (2003) the relevant aspects of second language acquisition to CALL are noticing of the input, the intake or comprehended language that may help develop the language system and the negotiation of meaning that can facilitate second language development.

Fifth, learners need to correct their linguistic output. Correcting linguistic output refers to the learners' own correction of errors in the language they have produced (Chapelle, 2003). Their existing errors may come from self-evaluation or any signals from the computers or interlocutor. Error correction provides the opportunity to focus on form. It is beneficial when error correction occurs during the process of attempting to construct meanings. In task design, immediate feedback and a pop up box with different colors can assist students to notice their mistakes.

Sixth, learners need to engage in target language interaction between the learner and the computer. The role of interactions in language classes helps students make the input comprehensible when they contain unknown linguistic elements (Larsen-Freeman and Long, 1991). CALL supports modified interaction between the learner and the computer by providing them a mouse click and hypertext links or through the learner's linguistic output and the speech recognition system (Chappelle, 1998).

Seventh, learners should be engaged in L2 tasks designed to maximize opportunities for good interaction. Interactions are considerably hypothesized to be essential when they occur in through learners' communication task. Communication task and information gap tasks would lead to an increase of successfully negotiated interactions and thus be most beneficial to SLA (Pica, Kanagy & Falodun, 1993).

The seven features outlined above are supported by theory and research on SLA that can be applied to CALL in this study. They may provide a valuable starting point in designing and developing CALL lessons.

2.6.5 Material Design and Development

Many educational institutions are developing curricula and materials based on content approaches to teach learners content subjects and skills. Due to content approaches, they can provide learners with a rich exposure to the target language use, and facilitate language acquisition through motivated and meaningful interaction (Tomlinson, 2005).

Generally, effective instructional materials in language teaching are shaped by consideration of a number of factors, including teacher, learner, and contextual variables (Richards, 2005). Hence, people involved in designing and developing

instructional materials need to understand teaching as a part of interrelated set of factors and processes that we refer to as curriculum development.

Hutchinson and Water (1999) emphasize the reasons a course developer needs to design his own material. First, it is because the teaching materials are very limited at markets and the material tailored to the needs of specific group of learners are available for a current course. Then, specific content materials may also be written for non-educational reasons. For these reasons, there is a need to produce in-house materials for specific content in a course.

Many scholars have investigated the effects of the material development process and design in teaching and learning in particular contexts of English as a foreign language for the instructors in order to seek for the needs and interests of learners in courses.

Celce-Murcia and Olshtain (2000) argued that the materials development process should stress the importance of integration, namely, content, process, product and context in a discourse-based curriculum. They suggested that the content is what should be included in the course. The process is how learning and teaching are implemented. The product is what should be achieved with the context in which learning takes place and where curriculum is implemented. For each domain described in the Figure 2.2, the curriculum should present a statement of intent and a list of guiding principles, which facilitates effective implementation of the curriculum and help the potential learners.

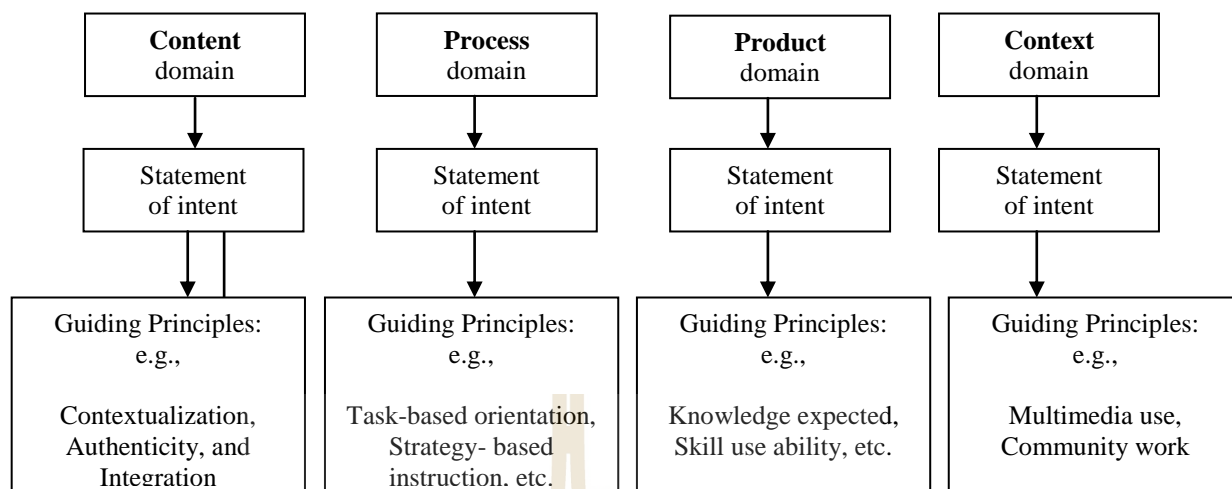


Figure 2.2 A Discourse – Oriented Language Curriculum: An Integrated Approach

Source: Celce-Murcia and Olshtain (2000)

Under their framework, the process of material development needs to be: a) defined according to age level, school grade, and professional needs; b) developed and made compatible with the general curriculum; c) specified in the curriculum and translated into detailed mapping of what needs to be taught, and made a checklist for the evaluation of materials; d) specified the policy and procedures with respect to the evaluation processes; e) specified the curriculum field testing and plans for revision (Celce-Murcia and Olshtain, 2000).

The evaluation of language programs is also considered as necessity to cycle the material production process. Dick and Carey (2005) describe a system approach model for design, development, implementation, and evaluation. The nine basic steps of material production process are illustrated in the Figure 2.3.

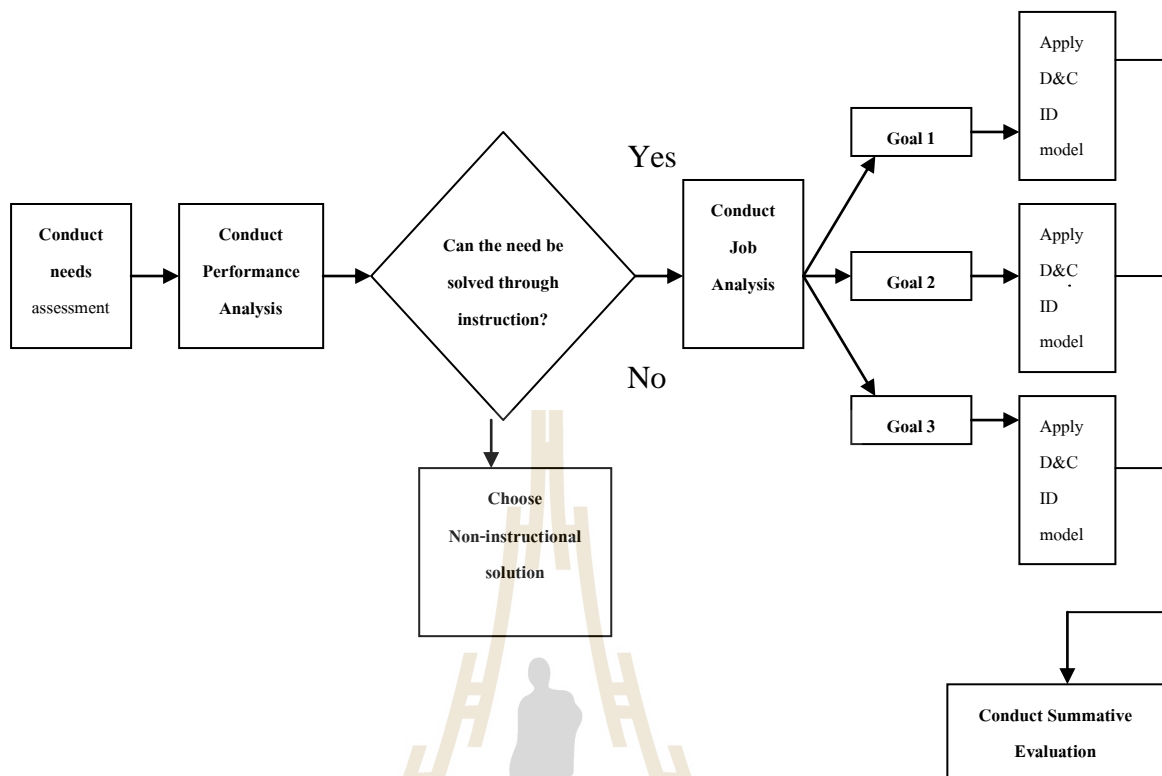


Figure 2.3 Dick and Carey's model of material production process

Source : Dick and Carey (2005)

The nine basic steps are referred to as a system approach that can assess the absolute and/or relative value or worthiness of instruction and which occurs after the instruction has been formatively evaluated and sufficiently revised to meet the standards of the designer. It is made up of interacting components, each having its own input and output, which produce predetermined products. The final product can be modified until it reaches the desired quality level. When instructional materials are being developed, data are collected and the materials are revised in the light of these data to make them as effective and efficient as possible.

In conclusion, the models of material development above are presented as a systematic process. The focus of the material is on content of the language, including students' needs, context of learners, learners' level, and the input that provide opportunities for learners to use the information processing skills and the existing knowledge both of the language and the subject matter. Through the process of material development, such as setting objectives, selecting content, designing learning activities, and devising an evaluation, a developer must be included as the main component.

2.6.6 A Model for the Design and Development of CALL Lessons

There has been the movement in CALL design and development which focuses on process and analysis, development and evaluation of the CALL program.. The idea was introduced and followed by a model of Ivers & Barron (2006) which accommodates the design, development and adoption of computer projects in a classroom. Their Model is based on 3Ds and an E which are DECIDE, DESIGN, DEVELOP, and EVALUATE. Ivers and Barron provide a framework for the phases of CALL design and development.

2.6.6.1 DECIDE

The first phase in CALL projects is DECIDE. This phase sets the stage for the entire projects which is influenced by many variables, including the content area, location and number of the computers, available software and students' experiences and expertise. The DECIDE phase includes the following activities for teachers and students. Firstly, a course developer needs to set the instructional goals, decide whether the instructional goals can best be achieved through the production program. Secondly, assess students' basic computer skills which are needed to

complete the CALL project, and take an inventory of the hardware and software options that are available for the CALL project setting.

2.6.6.2 DESIGN

The DESIGN phase outlines the goals and content of the project. It produces the blueprint for the entire project in the form of content outlines, screen templates, flowcharts, and storyboards. A flowchart can be used to depict the sequence and structure of the program. There are several common flowchart structures, including linear, tree, start and cluster. After the flow of the project is diagrammed, a course developer should determine the look and feel of the screens that are used in the projects. The primary functional area for instructional screen may include title, text, graphics, direction or student prompt and navigation options. Finally, a course developer creates the storyboards which contain all the information of the program. The visual representation of the screen, scripts for the audio, details for the video and branching information are provided in this stage.

2.6.6.3 DEVELOP

After the storyboards are complete, the development process can begin. The DEVELOP phase may involve producing audio elements, video segments, graphics, or text. It also covers the programming or authoring program. The media elements, namely, animation, audio, and video are key components of CALL projects that provide the realism, color, motion and sound.

2.6.6.4 EVALUATE

To ensure the CALL project is purposeful, a course developer needs to correlate the objectives with assessment measures to ensure that what students are learning is specified in each objective. Assessment criteria can be clarified and

categorized using rubrics. Rubrics can provide feedback about the effectiveness of the instructions and provide benchmark for measuring and documenting students' progress. The DDD-E model are illustrated in the Figure 2.4

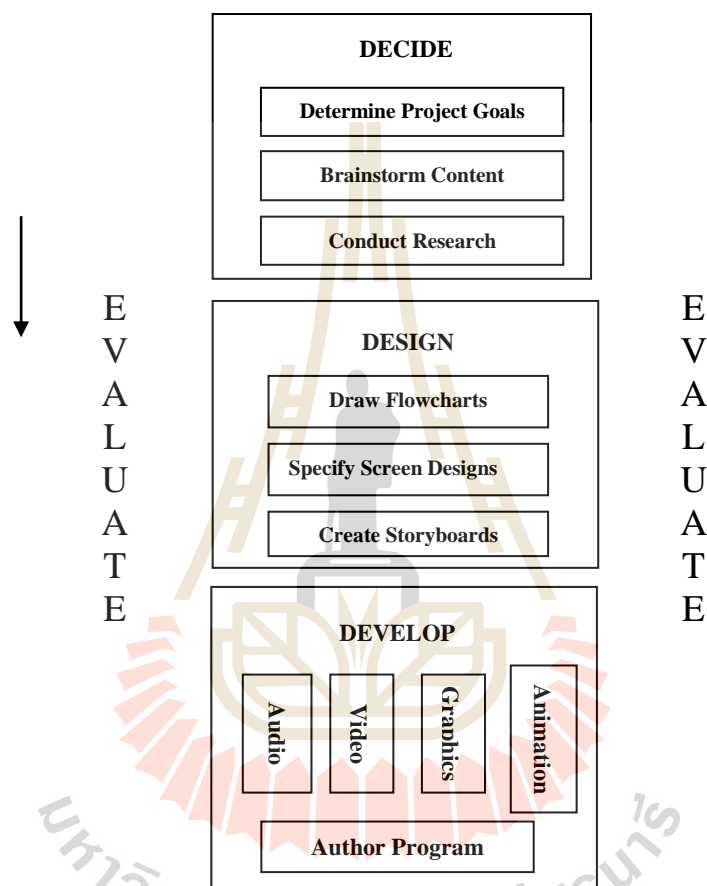


Figure 2.4 The DDD-E Model

2.6.7 CALL material for English Language Courses

Choosing and using CALL material is a complex process that a course developer needs an effort, liaison, time and resources (McCarthy, 1999). To produce a CALL project, design materials and develop language learning tasks that match to students' needs and goals, those needs and goals need to be determined.

Chapelle (2003) suggested that at least four issues need to be taken into consideration in designing CALL materials. The issues addressed are topics and activities to process in a course, participants of language learning, modes of language use, and evaluation. A similar concept noted by Levi & Stockwell (2006) is that it is essential to include teaching objectives and the role of computer in designing language learning tasks. To guide the CALL materials design, a material developer incorporates the set of CALL principles into a teaching model in terms of authentic texts and tasks with some valuable insights. To be an authentic task, lessons should be designed to: 1) respond to the real-life communication; 2) orient toward the goals and outcomes of the course; 3) create learning activities expectation in response to the course outcome; 4) promote natural interaction between learners and the text; 5) involve realistic communication among learners and activate learners existing knowledge of the target language and culture. The task specification can help a designer to frame CALL designs in order to create the real world language learning task that is appropriate to the course and learners.

To produce learning material in a language course, elements such as input, content focus, target language and tasks should be emphasized (Hutchinson and Water, 1999; Celce-Murcia and Olshtain, 2000). The language input for CALL can provide a stimulus material for the student's language use, and a topic for communication. It also allows them to use their information to process the relevant language skills. CALL language input can be a text, a dialogue, a video-recording, diagrams or any piece of communication data that are relevant to the course goals and objectives (Celce-Murcia and Olshtain, 2000). CALL materials should be designed,

therefore, towards a communicative task in which learners can use the content and language knowledge through the theme or unit (Celce-Murcia and Olshtain, 2000).

In this research study, CALL lessons were designed using media of instruction such as graphics, texts, sounds, and video clips to provide the authentic input for language learning and communication skills practices.

2.6.8 Evaluating CALL materials

Evaluating a CALL program is a necessity for a course developer in order to monitor the effectiveness of CALL material production process. Johnson (1992) states that the principle purpose of evaluation of CALL is to assess the quality and effectiveness of a program. The construction of CALL lessons are measured as either ready-made products or generic CALL applications (Levy & Stockwell, 2006). According to Blake & Chun (2008) in assessing CALL programs, CALL should not be evaluated in the same way as the other computer applications. In addition, it needs to be considered separately from SLA research questions concerning the effects and effectiveness of CALL because they have different purposes and students are asked to achieve different goals.

Regarding the evaluation of CALL, the most commonly used form of evaluation is the evaluation checklist (Levy & Stockwell, 2006). The checklist has been a common feature in CALL evaluation nowadays (Levy & Farrugia, 1988; Susser, 2001; Hemard, 2003). It is usually based on Likert scales, numerical rating from 1 to 5 with room for additional comments which focus on design issues for evaluating CALL materials (Blake & Chun, 2008).

The checklist for evaluating CALL by Levy & Farrugia (1988) consists of the fourteen categories. Each category can be broken down into a series of questions which serve as a good example for CALL evaluation. The checklist details are:

- 1) Content;
- 2) Program objectives;
- 3) Documentation;
- 4) Program instruction;
- 5) Student use;
- 6) Program response to students;
- 7) Program design;
- 8) Technical quality;
- 9) Authoring material;
- 10) Motivational devices;
- 11) Teacher utility;
- 12) Multiple choice questions;
- 13) Difficulties for ESL students; and
- 14) Presentation

Apart from the evaluation after the checklist, Levy & Stockwell (2006) suggest using the survey. Questionnaire or interview is used frequently in CALL evaluation, since it provides a useful instrument for evaluation purposes by language teachers-designers who create CALL materials for themselves. The instruments are employed to gain insight into how well a particular program design is working. (Levy & Stockwell, 2006).

Other examples of evaluating CALL activities suggested by Chapelle (2002) are that the evaluation of CALL should consider task goals, learners' activities, software design, and the roles of learners. Moreover, Hubbard (1996) highlights three factors which are concerned with the right fit of CALL software to teachers' instructional approach which are: 1) the teacher fit, referring to teacher's methodological approach; 2) the learner fit, referring to learner profiles, interests, and computer infrastructure; and 3) the procedural fit, referring to interface features and activities types.

Chapelle's framework of CALL provides more SLA driven theory (Blake & Chun, 2008) for CALL evaluation. Therefore, it should include language learning potential, meaning focus, authenticity, positive impact, as well as practicality (Chapelle, 2001).

The CALL checklists proposed by different scholars (Levy & Farrugia, 1988; Hubbard, 1996, Chapelle, 2001, 2002) are used to evaluate CALL lessons in order to explore students' reactions to the CALL program.

2.7 Related Research on CALL English Lessons for Nursing Science Students

Many research studies have been conducted to investigate the effectiveness of computer-assisted language learning in general English courses in university setting. However, there are a small number of studies in the area of English for students' fields of study.

Torat & Torat (2002) developed a multimedia English lesson for academic purposes for graduate students at Faculty of Education, Silpakorn University. The

findings reported that the students learning via multimedia English lessons have high positive attitudes toward the multimedia English lessons. Students' learning achievement was improved after learning via multimedia English lessons.

Kaewphaitoon (2006) developed a CALL program for the course of English for Hotel 2 at Loei Rajabhat University. The purposes of the study were to examine the effectiveness of the program and to compare the students' speaking and listening skills after using the program. 85 students were participants in the studies. The questionnaire and students' journals were used to obtain the data of the students' attitudes towards the program. The results revealed that CALL encourages students to study and enhances their understanding of the information in English for Hotel 2. The students' language ability was improved, and the students gain more confidence in listening and speaking in English.

Wongrak (2006) investigated the use of Multimedia CALL for job interviews with 14 third-years, non-English major students at the Faculty of Humanities and Social Sciences' at Khon Kaen University. The purposes of the research were to examine the effectiveness of MCALL program and to help students develop listening and speaking skills as well as to explore the students' attitudes towards the program. The preliminary survey and program evaluation were implemented to obtain the data for revising the program. A pre-listening test, a post-listening test, a pre-job interview, and post-job interview assessment were used to assess the student's speaking and listening abilities. The attitudes towards MCALL program was obtained via an observation checklist and interview. The findings indicated that the post-test scores of the listening test and the job interview were higher than the pre-test scores of both tests, but the accuracy of the listening and speaking improvement were non-

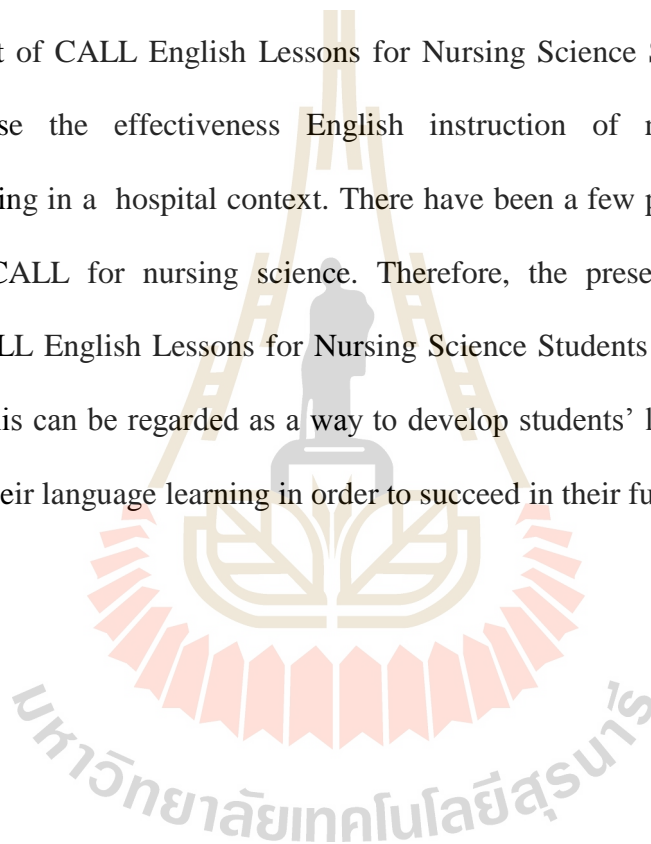
significant because of the small effect size. The students had a positive attitude towards the program.

Suwannabubpha (2006) studied the effects of the content-based CALL software on the understanding of the reading texts regarding Kamma, a Buddhist principle by a group of Thai Buddhist-university students. A pre-post test design was used to investigate whether the content-based CALL software could improve the reading comprehension in EFL context. The findings indicated that the participants' learning achievement were higher after using the content-based CALL activities. They also had positive views on the content-based CALL in relation to their reading performance.

Seferoglu (2005) studied students' pronunciation through accent reduction software in advanced English language classes at the university level. The findings showed that the accent reduction software was useful in improving students' pronunciation. It was suggested from the research that EFL learners should be provided with exposure and practice as well as interaction in the target language through specifically designed software programs.

Wang and Munro (2004) studied the use of computer-based training for learning English vowel contrasts to test the effectiveness of computer-based training on three English vowel contrasts – /i/-/ɪ/, as in *beat* vs. *bit*, /u/-/ʊ/, as in *Luke* vs. *look*, and /ɛ/-/æ/, as in *bet* vs. *bat*. The results showed the improvement of perceptual performance and learners' knowledge to new contexts. These findings support the feasibility of the use of computer-based, learner-centered programs for second language instruction.

The previous studies on the use of CALL lessons suggest many future applications on the use of CALL. There has been attempted to integrate CALL into various language teaching courses to increase the effectiveness of the instruction especially in ESP courses in university settings. The evidence from both the previous studies and the literature review show the usefulness of integration of content and language learning through Computer Assisted Language Learning. In this regard, the development of CALL English Lessons for Nursing Science Students in this study may increase the effectiveness English instruction of nursing students for communicating in a hospital context. There have been a few pieces of research that related to CALL for nursing science. Therefore, the present study attempts to develop CALL English Lessons for Nursing Science Students in Communicating at Hospital. This can be regarded as a way to develop students' language skills. It was motivated their language learning in order to succeed in their future career.



CHAPTER 3

METHODOLOGY

The present study aims to develop CALL English Lessons for Nursing Science Students (CELNSS). This chapter describes the research methodology, the subjects, the research procedure, and the research instruments used in this study. The construction and effectiveness of CALL lessons, data collection, and data analysis are also presented.

3.1 Research design

This study was composed of three major phases: CALL Lesson Development, CALL Lesson Testing, and CALL Lesson Implementation. Therefore, a mixed method design is needed in order to serve the purpose of the study.

Phase I CALL Lesson Development. The qualitative research method was employed in order to understand the nature of CALL Lesson Development process from an EFL teacher as a CALL developer. The researcher recorded in a journal any challenges and direct experiences she came across.

Phase II CALL Lesson Testing. The CALL lessons would be tested in three trials: Individual, small group, and field testing. In order to determine the effectiveness of the CALL lessons, the quantitative research design was used based on the criteria 80/80 (Brahmawong, 1978). However, some qualitative data would be collected in order to obtain some suggestions for improvement.

Phase III CALL Implementation. The purpose of this phase was to explore students' language learning achievement. Therefore, a pre-experimental research study using one group with a pre-test and post-test design (Cohen, Manion & Morrison, 2007; Creswell, 2003) before the experiment, thirty students were measured in their English language ability by a pre-test, and then studied with four CALL English Lessons for sixteen hours. They were asked to record their learning experience with CALL in their learning logs after each lesson. After 16 hour lessons, the subjects took the post-test. After the experiment, ten students were interviewed. The one group pre-test and post-test design was presented in Figure 3.1.

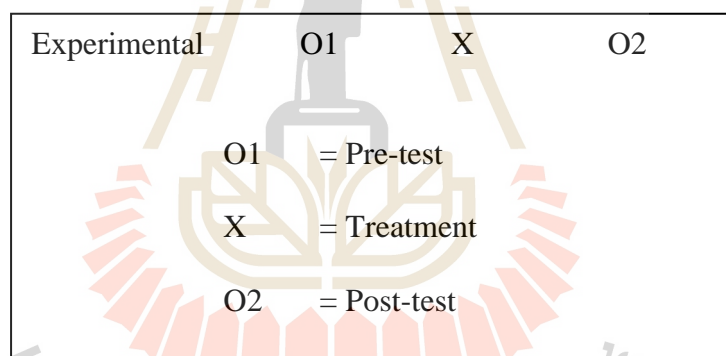


Figure 3.1 The one group pre-test and post-test design

3.1.1 Subjects

The population was third-year undergraduate students at CTU's College of Nursing studying during the second semester of the academic year 2010 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 2010 at CTU. Second, he/she had already passed all four

general English courses, namely: English I to English IV at CTU. From a total population of 247 third-year nursing students, 30 students were selected to take part in the study as volunteers. The process of selecting students as volunteers was as follows. First, the researcher sent a formal letter to the university asking for permission to do the research. Then, the applicants' qualification requirements for the study of CALL English Lessons for Nursing Science Students were relayed to the third-year students at College of Nursing. In applying to be a volunteer for the study, each student was asked to provide information on his/her English course background and how much available time he/she had from course work. The class day and time were arranged for the study. Finally, thirty students were selected to participate in the study based on the first thirty who applied and could meet at the class time.

3.1.2 Research Procedure

Phase I CALL Lesson Development. This phase was composed of materials selection, designing of CALL and Construction of CALL. The researcher as a CALL developer would regularly keep records of CALL development in her journals throughout the development process.

The following were the procedural steps in the development of CALL English Lessons for Nursing Science Students:

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 lesson. The CALL English Lessons for Nursing Science Students would be regarded as tutorial CALL activities.
4. Studying necessary computer program such as Adobe Captivate 5 for PC computers, Photoshop CS2, and Dreamweaver V.8 program, which were used for developing CALL English Lessons for Nursing Science Students.
5. Designing a flowchart of the lessons and a storyboard. The main menu of CALL English Lessons for Nursing Science Students consisted of "Home", "Pre-test", "Lessons", and "Post-test". The web links, such as a dictionary and instructor's email were provided for immediate assistance. The details of the ENS CALL lessons are illustrated in the figure 3.3 on the next page.
6. CALL English Lessons for Nursing Science Students were examined by three experts: 1) a content expert in Nursing Science; 2) an English language teaching expert, and 3) an educational technology expert. The experts were to examine if the integration of the content and language

was successful and it 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 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 calculated to measure the effectiveness of the lessons. After that, the researcher interviewed them about their reactions to the CALL English Lessons for Nursing Science Students in order to gain some ideas for improving the lessons. The three steps of the try-out included:

1. Individual Testing

The first step was an individual test. Three students from the College of Nursing with different English proficiency levels (high, moderate, and low achievers) participated in this step. The criteria for dividing students into different levels of English proficiency were as follows: high achievers were the students who have received the letter grades "A, B+, and B" in English IV course, the letter grades "C+, C" for moderate achievers, and the letter grades "D+ and D" for low achievers. The three students were asked to take a pre-test on CALL English Lessons for Nursing Science Students. They studied CALL English Lessons for Nursing Science Students at the computer lab for one lesson; after that, they took a post-test. The students were asked to provide feedback after the experiment in order to improve the lessons.

2. Small-Group Testing

The second step in the try-out process was small group testing. Twelve students from the College of Nursing were asked to participate in this stage. These include four high achievers, four moderate achievers and four low achievers. The same procedure was employed with these students as with individual testing. Finally, the researcher asked them for their opinions and their feedback on CALL English Lessons for Nursing Science Students. The exercises, contents, and structures, as well as the sounds, graphics, pictures, font sizes, colors, and the formats of the lessons were examined.

3. Field Study Testing

The last step of the try-out procedure was the field study testing. Thirty students from the College of Nursing with high, moderate, and low English proficiency levels participated in this step. The same procedure was employed with these students as with small group testing. Finally, the students' scores from the post-test of individual testing, small group testing, and field study testing were analyzed to establish the effectiveness of CALL English Lessons for Nursing Science Students referring to the criteria of the 80/80 standard level using E1/E2 formula (Brahmawong, 1978).

Phase III CALL lesson Implementation. The study employed a one group pre-test – post-test design. Thirty nursing students were instructed 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. 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' reactions to CALL English Lessons. The research procedure is illustrated on the next page as figure 3.2.



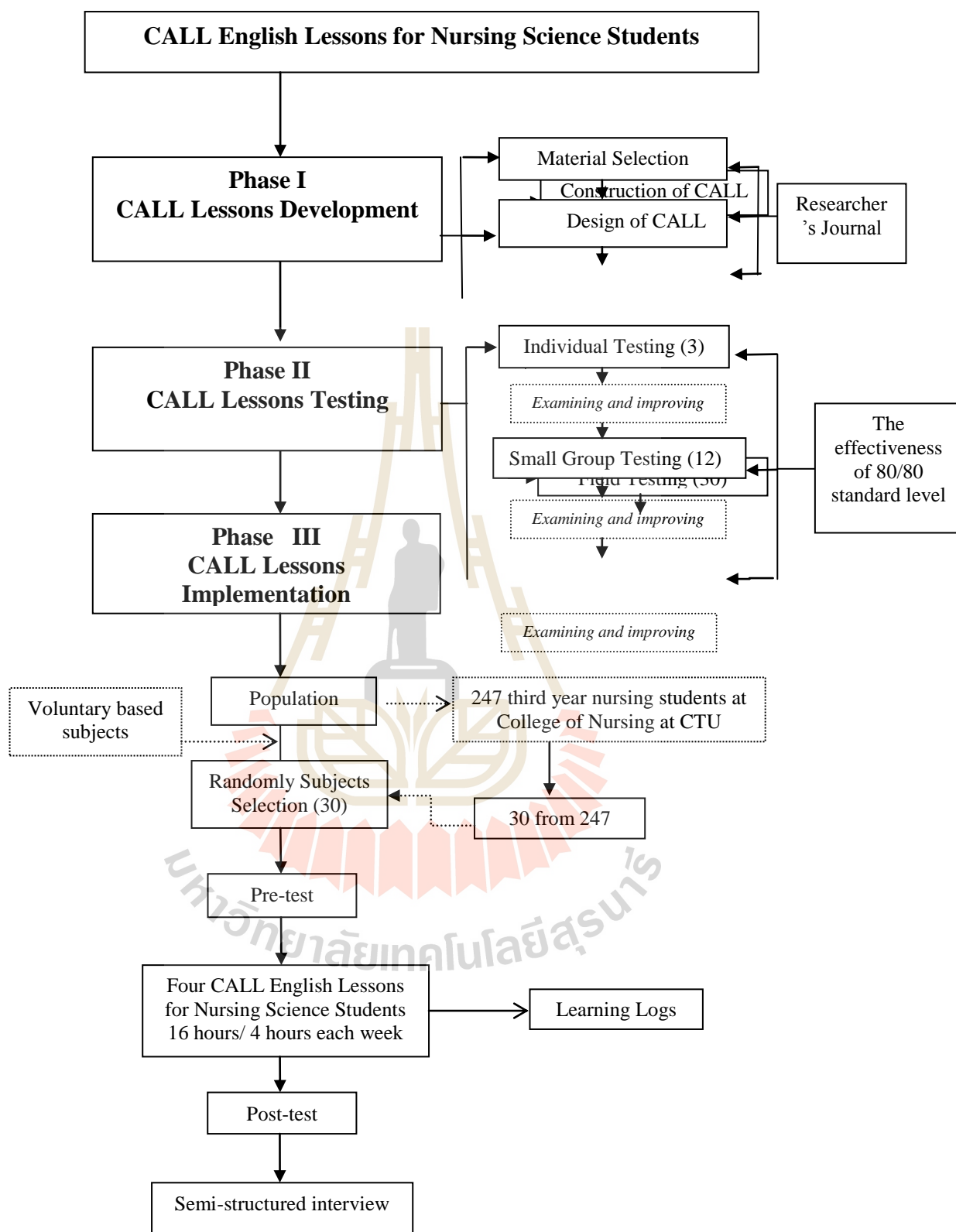


Figure 3.2 Research Procedure

3.1.3 Variables

1. Independent Variables. Independent variables in this study refer to CALL English Lessons for Nursing Science Students.
2. Dependent Variables. Dependent variables consist of English language ability of each student and his/her reactions toward CALL English Lessons for Nursing Science Students.

3.2 Research Instruments

The instruments used in this research were as follows:

3.2.1 Researcher's Journal

A researcher's journal is a very useful form of data collection and promotes its metacognition study. It is a good record of the possible issues and difficulties that researcher encountered during the process of designing and developing CALL English Lessons. As this research study aims at developing CALL English Lessons for Nursing Science Students, many challenges would be faced by the researcher who was an EFL teacher and had fair knowledge of computer programs. It could be a good experience for other to see the possible difficulties a teacher may have while trying to construct CALL materials. The systematic journal-keeping by the researcher as the course developer, would provide a true understanding of the nature of the CALL design and construction progress.

3.2.2 CALL English Lessons for Nursing Science Students.

CALL English Lessons for Nursing Science Students were constructed by the researcher. The design was based on the content specified in the course syllabus of

English V for nursing students. It typically involved communication between a patient and a nurse, or a nurse and a doctor, in various types of situations. The effectiveness criteria using the 80/80 standard were used to measure the CALL English Lessons for Nursing Science Students. After the effectiveness, these CALL English Lessons were used with 30 nursing students after the pre-test.

The CALL English Lessons were used outside the practice instruction hours of English V course and to do so in the computer laboratory. They were composed of 2 major themes with four-unit lessons. The first theme was hospital admission. It consisted of two unit-lessons, registering a patient and orienting a patient and family. The second theme was monitoring a patient. It consisted of two-unit lessons, patient medication and taking a vital science. Each unit organized into four learning steps; vocabulary, conversation, language focus, and review. The study time of CALL English Lessons was four hours a week for four weeks or 16 hours in total. Each unit contains four hours to finish the lessons.

3.2.3 Tests

Two sets of parallel tests, a pre-test and a post-test were employed before and after the experiment. The objective of the tests was to assess the students' learning achievement in learning with CALL English Lessons for Nursing Science Students. Both tests were written by the researcher based on the principles and processes required in the test construction. First, the researcher studied how to construct the test for CALL English Lessons for Nursing Science Students, and then designed the test specifications.

The parallel tests consisted of two parts: multiple-choice questions and communicative language ability test. The two parts of the test were developed

according to the objectives of the lessons in the English V course syllabus. The 80 multiple-choice items consisted of three parts: vocabulary, sentence construction, and conversation. To measure how nursing students were able to use English in the given situations, four parallel situations (based on the hospital theme) were employed with students in the communicative language ability test.

The content-validity of the test was examined by the three designated experts. On the basis of the suggestions from experts, Modifications and revisions were made based on the suggestions from experts. After that, the try-out trial was implemented with 30 third-year students of Nursing Science at Christian University of Thailand (CTU). Finally, the 60 multiple-choices items were selected as a pre-test, and post-test with 30 items in each. The level of difficulty (p) and discrimination power (r) of the sixty test items were determined by the criteria for the test development. The reliability of the test was examined by using Kuder-Richardson's formula (KR.-20). The criteria of $KR.-20 \geq 0.7$ were considered acceptable in this study. For the communicative language ability tests, the band score criterion was employed as a rating instrument for both test-content and language-skills, in establishing the inter-rater reliability of the tests.

3.2.4 Learning Logs

The learning logs were used to explore the students' learning experience after each CALL English Lessons. 30 students who studied with CALL English Lessons for Nursing Science Students were asked to reflect their feeling at the end of class about what they have learned. The learning logs provided an opportunity for students to organize their thoughts and to generate questions which they might have about

CALL English Lessons. The learning logs were reviewed by the researcher after each CALL English Lesson.

3.2.5 Semi-structured Interview

The semi-structured interview was used to examine the students' reactions toward CALL English Lessons for Nursing Science Students and to provide the researcher with more in-depth information. The interview was conducted individually after the post-test with the nursing students in the experimental group. The interview questions were open-ended based on the three main topics: (1) the students' reactions toward the design of the CALL English Lessons, (2) their reactions toward the content of the CALL English Lessons, and (3) the reactions toward the use of CALL English Lessons. The interview questions were validated by the experts.

The subjects were randomly selected for the semi-structured interview based on the criteria of selecting samples by Boonthum (2006). He suggested that the sample size must not have less than 10% of the population in the descriptive research study. Therefore, ten out of 30 subjects were selected. The interview for each subject lasted about ten to fifteen minutes to give his/her reactions and comments on CALL English Lessons content. The interview was recorded to ensure that all the information was gathered and used for the future reference of data analysis.

In conclusion, the instruments to be used in this study included the CALL English Lessons for Nursing Science Students, the pre-test and post-test, the learning logs, the semi-structured interview, and the researcher's journal. Each of them served different purposes of the study.

3.3 Data Collection

In the this study, the CALL English Lessons for Nursing Science Students were implemented with nursing students at Christian University of Thailand in the second semester of the academic year 2010. The data obtained were both qualitative and quantitative.

3.3.1 Researcher's journal

For the researcher's journal, the data collections were from the three steps of CALL lessons design and development. The challenges, difficulties, feelings, thoughts and reflections were regularly described in the journals in details throughout the three stages of material development, design of CALL and construction of CALL.

Krefting (1991: 215) suggests that a qualitative study is considered credible when it “present such accurate descriptions or interpretations of human experience that people who also share that experience would immediately recognize the description”. To enhance the credibility of recorded data, the supervisor as an outside person was asked to be a peer reviewer who went through the data periodically and point out bias when necessary.

3.3.2 Pre-test and post-test

The quantitative data from the pre-test and post-test were systematically collected. The steps involved in data collections were as follows;

- 1) Orienting the students about the use of CALL English Lessons for Nursing Science Students.
- 2) Administering the pre-test to determine the English language ability of the students. The two parts of the pre-test, multiple choices and communicative English language test were used to assess their existing knowledge. The students had forty-

five minutes to take the first part of the computerized pre-test and ninety minutes for the communicative English language test;

3) Administering the experiment. The students were assigned to study using the CALL English Lessons outside the practice instruction hours of English V course and to do so in the computer laboratory for 16 hours (4 hours a week).

4) Administering the post-test after the experiment to determine the language outcome.

3.3.3 Learning logs

The data were the writing records from students' reactions towards each CALL lesson. The four specific questions to which students were asked to respond after each lesson was: 1) What have I learned from this unit? 2) Knowing about this topic, in which ways do it help me? 3) What part do I like the most and why? And, 4) What part do I find difficult the most and why? The weekly learning logs were reviewed by the researcher. Each student kept 4 journals (one time after each unit). Therefore, all together, there were 120 journal entries to be analyzed.

3.3.4 Semi-structured interview

Ten students were randomly selected to be participants for a semi-structured interview to obtain their reactions toward the use of CALL English Lessons. Eight questions were used for the semi-structured interview (see the appendix.). The obtained data from the audio recording were transcribed into the written version. Three students who were classified in the same proficiency level were interviewed at the same time. It is believed that they would provide more information if they were together. It took about 30 minutes for each small group interview.

3.4 Data Analysis

The data obtained from each instrument would be analyzed differently as discussed below.

3.4.1 Researcher's Journal

The researcher as a CALL developer documented the process of every step of courseware development throughout the study. The data were organized into three stages of narrative: planning, development and implementation. The journal entries were reviewed and content-analyzed to find recurrent patterns throughout the CALL construction process. The potential themes were derived and discussed.

3.4.2 Pre-test and Post-test

In order to measure the students' English language ability before and after being taught by the CALL English Lessons for Nursing Science Students, the pre-test and post-test scores were calculated for the arithmetic means (\bar{x}). To assess students' English language ability for oral communication, the oral skills evaluation sheet was used for measuring oral proficiency by three different examiners (Hadley & Mort, 1999). The data obtained from three different examiners were collated, compared, and analyzed. Inter-rater reliability was established to assess the consistency of the test scores. Then, the paired samples *t*-test was employed to determine if there was a significant difference between the pre-test and the post-test scores of the subjects. The computer software program SPSS was used to analyze the data in the first part of the test. The results of data analysis are discussed in Chapter 6.

3.4.3 Learning Logs

Learning logs aim to explore students' learning experience from CALL English Lessons. Responses from students were read for emergent themes. The potential themes were categorized and discussed.

3.4.4 Semi-structured Interview

The interview aimed to examine students' reactions toward CALL English Lessons for Nursing Science Students. Data obtained from the interview were transcribed. Then, the data were reviewed, labeled, and classified into positive, neutral and negative reactions toward their learning via CALL English Lessons. Any themes that emerged would be presented and discussed.

3.5 Summary

The present study was a mixed- method study. It employed a qualitative design or a pre - experimental research design to serve different purpose of the study. There were thirty voluntary participants selected from the third-year undergraduate students of the College of Nursing during the second semester 2010 at Christian University of Thailand, Nakhon Pathom campus. The CALL English Lessons for Nursing Science Students were an independent variable, whereas students' learning achievement and reactions toward CALL English Lessons for Nursing Science Students were dependent variables. To collect the data, the instruments included CALL English Lessons for Nursing Science Students, pre-test and post-test, learning Logs, semi-structured interview, and researcher's journal. The study was composed of three main phases: CALL Lesson Development, CALL Lesson Testing, and CALL Lesson Implementation. In the development process, the research instruments were examined to ascertain their effectiveness by content, language and technology experts. In the experiment, the students took a pre-test before studying CALL English Lessons for Nursing Science Students. The post-test was employed after the experiment. Finally, the semi-structured interview was conducted to investigate students' reactions

towards CALL English Lessons for Nursing Science Students. A researcher's journal was kept throughout the research process. The obtained data were analyzed to determine whether students' achievement was significantly different and to explore students' reactions toward the CALL English Lessons for Nursing Science Students.



CHAPTER 4

RESULTS OF THE DESIGNING AND DEVELOPMENT OF CALL ENGLISH LESSONS FOR NURSING SCIENCE STUDENTS

The present study aims to design and develop CALL English Lessons for Nursing Science Students at Christian University of Thailand. The CALL English Lessons were constructed by the researcher, who is an EFL instructor. It answers the first research question: What are challenges encountered by an EFL teacher as a CALL developer?

The designing and developing CALL English lessons phase included three steps: material selections; the design of CALL English lessons; and the construction of CALL English lessons. The researcher's journal was the major source of the data for this question. The answers included the description of the three steps of developing CALL English Lessons. The process of development, the reflections of the problems and solutions which the researcher came across throughout the process were reported in this chapter

4.1 Designing and Developing CALL English Lessons

In designing and developing CALL English Lessons for Nursing Science Students, the researcher followed the three major steps including material selection, the design of CALL English lessons, and construction of CALL.

4.1.1 Material Selection

A number of things needed to be considered when developing CALL English lessons, for instance, the content of CALL lessons, resources to support CALL lessons, pre-requisite skills and background knowledge, assessment techniques, and time allocation. Most of the researcher's time was spent on planning and organizing materials of CALL English lessons. In this study, the material development would be the first stage of overall process. It consisted of four steps which included: 1) identifying the instructional goals and objectives; 2) defining the scope of the content and language skills; 3) selecting and developing content materials; and 4) specifying the instructional design and activities. The detail of each step was described as follows:

1. Identifying the Instructional Goals and Objectives

The significant aspect that must be dealt with when developing materials is identifying of learning goals and objectives. It allowed the developer to create a clear picture of what and how to be taught (Pardo & Tellez, 2009). To design CALL lessons, the researcher studied the course description of CTU's English V curriculum for Nursing Students in order to define the instructional goals and objectives of CALL English lessons. The course objective of English V was to enable nursing students to use English to communicate in their future career. In other words, it would help them improve their listening, speaking, reading, and writing skills to carry out different tasks in hospital settings. In this study, the researcher selected three objectives of the course and used them for designing CALL English lessons. It is described in Table 5.1 on the next page.

Table 4.1 Course Description and Objectives of English V Course

Course Descriptions	Course Objectives
An emphasis on professional conversation using vocabulary and collocations for specific professional activities, and a range of types of writing as required for various professions.	<ol style="list-style-type: none"> 1. Use appropriate vocabulary and collocations to elicit and relay information and convey instructions correctly for specific professional activities, verbally. 2. Interpret information in texts and articles and demonstrate understanding by using the information to complete specific professional documents and reports. 3. Determine personal learning style and areas for improvement and apply strategies for self-improvement.

(Source: English V course curriculum at CTU, 2009)

Stating learning goals and objectives before developing CALL content materials gives a sense of direction of the lesson of a course and it also benefits the developers in teaching and learning process improvement (Graves, 1997; Pardo & Tellez, 2009). Having clear objectives gives the teacher a basis for determining which content and activities are appropriate for the course (Graves, 1997).

“I didn’t find any problems of determining the objectives of an English V course because the current learning objectives were stated clearly and I could use them to shape the scope of content for my course. This also guided me in selecting materials in the next stage.”

Researcher’s journal: September 12th

2. Defining the Scope of the Contents in CALL English Lessons

The second step encompassed the incorporation of the language aspects and content learning. To achieve the desired learning outcomes, the researcher specified the scope of the content that was directly relevant to Nursing Science and based on

the course syllabus of English V. In order to scope down the content materials, several factors such as teachers, students and contextual variables should be taken into consideration (Richard, 2005). The researcher needed to work with a conception of needs determined by the institution and students' future career setting (Graves, 1996). To seek for the needs and interests of students in the course, initially the researcher researched the content from the textbooks and listed the hospital themes and topics based on the objectives of the course. These included the hospital admission, monitoring a patient, and discharging a patient. Then the researcher asked thirteen people - three nursing teachers (two Thais and one foreigner), three English language instructors (two Thais and one foreigner), five nursing students and two nurse practitioners from private and public hospitals, to ensure the content in CALL English lessons met their career needs. The useful comments and suggestions were provided for final decisions. Finally, two hospital themes, i.e., hospital admission and monitoring a patient were selected. For the hospital admission, the situations were: registering a patient, and orienting a patient and family while monitoring a patient deal with taking a vital sign and patient medication.

After breaking up the themes into the specific content, the target language needed to be determined (Graves, 1996). In this course, the objective language of learning was for communicating between a nurse and a patient at hospital wards. The language features in contexts, such as registering a patient, orienting a patient and family to the ward, giving and explaining the medication to a patient, and monitoring a patient's vital signs were covered. Each unit aimed to emphasize words and phrases for specific nursing activities. Various types of conversational situations were selected

and taught throughout the lessons. Language skills focus and exercises were centered on communication at hospital settings.

“Even though I already had the contents listed for the course, getting people (nurse practitioners, nursing teachers, ELT teachers, and nursing students) involved in the content selection were very helpful. As they were working in the real situations, in some cases dealing with foreigners, they could provide me with detailed information such as which situations at hospitals should be taught. Luckily, they were so nice and willing to help me. This would be my first course that I did through this process.... After I had received comments on the lessons from them, I felt more confident that the themes and topics I planned for each lesson could attract nursing students’ attentions in learning because they are truly relevant to them..”

Researcher’s journal: September 27th

3. Selecting and Developing Content Materials

In selecting materials for CALL English lessons, the criteria used by Kito (1989) emphasized the familiarity of the students’ content background knowledge and their proficiency levels. Moreover, it should be authentic, and facilitate student’s knowledge building (Westwood, 2004). To achieve the purpose of the course, Grave (1997) suggested including their appropriateness of the materials for students, students’ language level, interest and its background relevance. In this study, nursing content materials and language skills were explicitly linked so the selecting and developing materials of CALL English lessons primarily depended on these mentioned factors. To do this, the researcher set up a students’ characteristics form and had students fill in their information. Then the detail of students’ previous

learning of English courses, skills and their interest in language learning and learning styles were used to decide in selecting and developing content materials phase.

Regarding the content material for CALL, the researcher searched for and attempted to collect materials related to professional nursing from various resources. These included textbooks, commercial books, CD's, articles, magazines, internet websites, brochures, and information sheets from hospitals, supplementary activities, and other accessible content experts in Nursing Science. In addition, the existing in-house content materials could be selected. The combined resources were combined and exploited to meet the needs of students as well as their proficiency level in English language learning.

“It took me several weeks to find the materials that I wanted for each lesson... I found that the content in nursing contained lots of medical terms, and the texts were very long for the CALL lessons and I thought it would not be interesting to students. Then I kept searching more and more and I thought the ESL textbooks and in-house materials would be good choices for this source too. So I combined them. I think finding the materials takes time, not only to get the right text for the lessons but also the developer needs to carefully choose the appropriate text for the language class. That means both difficulties of content and language should be taken into consideration at the same time. So, I think nursing content and language to teach should be well- balanced.”

Researcher's journal: September 27th

4. Specifying the Instructional Design and Activities.

CALL English lessons for Nursing Science Students primarily were developed on tutorial CALL activities to increase the effectiveness of English communication at hospital settings. The useful words and expressions employed in communication between nurses and patients were centered in the learning activities. To specify the instructional design, many teachers considered the sequence of materials as the most crucial element of each lesson. The focus is on gradually building of content from simple to complex, from more close-ended, more open-ended, and from concrete to abstract (Grave, 1997). At this point, the researcher took advantages of the sequencing of CALL content-based materials and design, based on the building blocks which were gradually graded from the simplest language activities to the most complex ones. In addition, one task should be connected to another activity in a logic sequence of learning process. In the implementation of sequencing tasks to students, Richard and Rodgers (2001) and Skehan (1998) suggested that the tasks should contain clear criteria for the outcomes assessment, and assist teachers to manage learning tasks in a unit plan. With these ideas, the sequencing of tasks (pre-task, task-cycle, and language focus) by task-based language learning for CALL content-based materials would be beneficial for students. In relation to these, the researcher reviewed the task-based principles in designing task and employed the sequencing tasks of task-based activities, in creating the learning steps of CALL unit. The illustration of the learning steps in each lesson was presented on the next page in the Figure 4.1

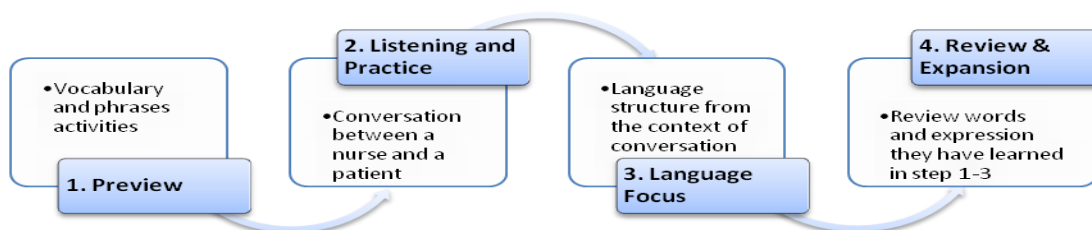


Figure 4.1 Learning Steps of CALL English Lessons for Nursing Science

Students

As seen above, the formulation of CALL English lesson comprised four steps of learning practice. These included Preview, Listening and Practice, Language Focus, and Review and Expansion. The Preview step aimed at brainstorming the ideas for the lessons as a pre-task. It presented 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 Listening and Practice step, 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 and Expansion. This step focused on the elements of conversational English related to what they had learned in the

previous three steps. Revision and Expansion was the follow-up to the lesson and reading associated nursing contents was also included for the revision.

“I had experience in designing learning activities from my language classes and I understood how to design successful lessons that can motivate my learners but here it was nearly the third weeks since I got the materials and I made no progress on designing them. I had to remind myself that my course aimed at using the language to communicate at hospitals so the language presentation needed to be authentic and directly relevant to the purpose of the lessons. To decide language features from the nursing content for each lesson was not easy as the nursing contents contained lots of technical words that I thought were difficult. They are hard for me as a language teacher and the students alike. This also affected the steps when I had to design activities for learning. I spent a long period of time to revise them. It often happened that: I had to go back to the materials again and again until I saw and felt them fit with the learning activities. In addition, sequencing tasks was another story that needed a great deal of time and effort to organize appropriate teaching scenarios. However, apart from difficulties I learned that sequencing tasks by using the task-based learning principles as guideline was really practical to my course!”

Researcher's journal: September 27th

It is hoped evidence that a coherent instructional unit and activities can help students connect language content from different angles, and understand the relationship between the parts and the whole lessons. Moreover, well-graded activities and well-selected materials can lead to challenging and motivating material.

4.1.2 The Design of CALL English Lessons

After the content-based nursing materials were designed and developed, the next step was to deliver the task to a computer program. At this step, the design phase of CALL was considered to be extremely crucial, because CALL application envisaged an important role for the teacher in monitoring students' language learning performance and progress (Jayachandran, 2007). Therefore, the design of CALL needed to go beyond the language theory when implemented. Chapelle (1998, 2001) provides some key considerations for designing a CALL program that follows the models of second language acquisition (details in chapter 2). In this phase, the blueprint for the entire CALL lessons in the form of the delivery system software, content outlines, screen templates, flowcharts and storyboard. Also, it presented design guidelines and recommendations for structuring and formatting of the CALL English lessons. The flowcharts, screen design and storyboards need to be done in the designing stage.

1. Selecting a Software Delivery System

Regarding the development of CALL English lessons, the researcher studied the application of educational software programs from various resources, and the capacity of the computer hardware in order to produce effective CALL English lessons. The researcher explored available various types of computer software from various sources extensively and found that the Adobe Captivate 5 was the most popular software, at that time. Moreover, it was suggested by many scholars (Daughterty & Russo, 2007; Braun, 2007; Gervasi, Murgante, and Lagana, 2008) that it was a suitable and effective educational software program to create such computer lessons. The reasons were because the software was developed for the use of most

educators in producing e-learning. It is a new and easy tool for creating computer lessons and can also be incorporated into a tutorial CALL. In addition, it is compatible with media elements, images with the Adobe Photoshop and other types of program files that the researcher can open and edit using those applications, when needed. Importantly, the computer software can also track and report students' learning throughout the program. With these advantages, the researcher, as a course developer of CALL decided to choose the Adobe Captivate 5, the latest version for producing CALL English lessons. In this study therefore, the researcher used her personal computer to create the CALL English lessons, the computer hardware needed to meet the system requirement of the program in order to work it effectively.

Briefly, selecting computer software to deliver system of learning activities must be taken into a careful consideration because the software should optimize students' chances in interacting with the content, engage in activities, and develop competence with the foundations of learning, and it should help determine learning outcomes. Deep understanding of the relationship between the applications of computer software and desired learning activities in CALL, allows a designer to support student learning in creative ways.

"I had spent almost three months to finally choose the computer software that was right for me as I am an EFL teacher and had less experience in using it. I started exploring the current educational computer software programs that were probably user-friendly but virtuously effective. I went to the software forum via the website inside and outside Thailand to get the updated software news to design my CALL lessons. There was plenty of computer software that involved with Flash animation and it was very hard for me to start with and I had to give it up after a few months

trial. I kept watching closely to news of tutoring software for education to see if there was any application that was right with my existing computer knowledge and skills or even a little above my existing ability. I don't mind trying. ...Then I found Adobe Captivate 5 through the internet forum of educational software. I thought it would be suitable for me. I started reading about this software and practicing from the tutorial via the YouTube. Most of my time now was spent to acquire the useful technical elements available on Adobe Captivate 5 to create CALL. ...After I found what I needed, "worries turn into excitement." I was exciting to see my first lessons."

Researcher's journal: December 5th

2. Drawing Flowcharts of CALL English Lessons

In designing CALL, the researcher initiated the flowchart to depict the sequence and structure of the program. There were two main sections in CALL English lessons - the introduction and the main menu. The introduction comprised the information of CALL English lessons, including the title and objectives of the course. The main menu consisted of "Home", "Pre-test", "Lessons", and "Post-test" that could link the two themes. Each theme contained two lesson units. The first flowchart (figure 4.2) on the next page illustrated the CALL program.

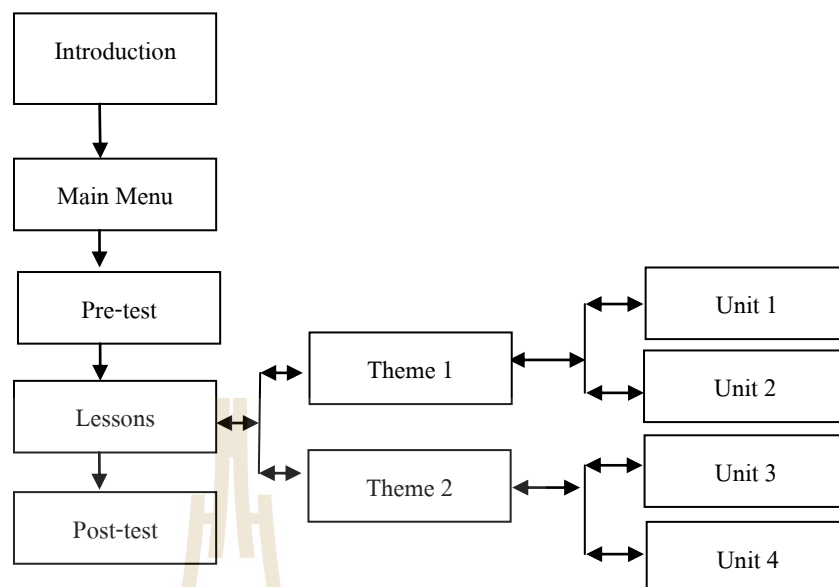


Figure 4.2 The Flowchart of the CALL program

For more detail, the researcher created a diagram of CALL English lessons to indicate the sequence of the frames which appeared on the screen from the beginning to the end of the lessons. In the use of CALL, every student needed to install the program to their PC at the computer lab, start the lessons by taking a pre-test, and then study in each CALL unit by following the learning steps provided, until the end of each lesson. The feedback from each exercise was provided for students to self-evaluate their learning. 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. This actually helped them remember the words and

structures presented in the lessons. The illustration of the CALL themes and units are presented on the next page in figure 4.3.

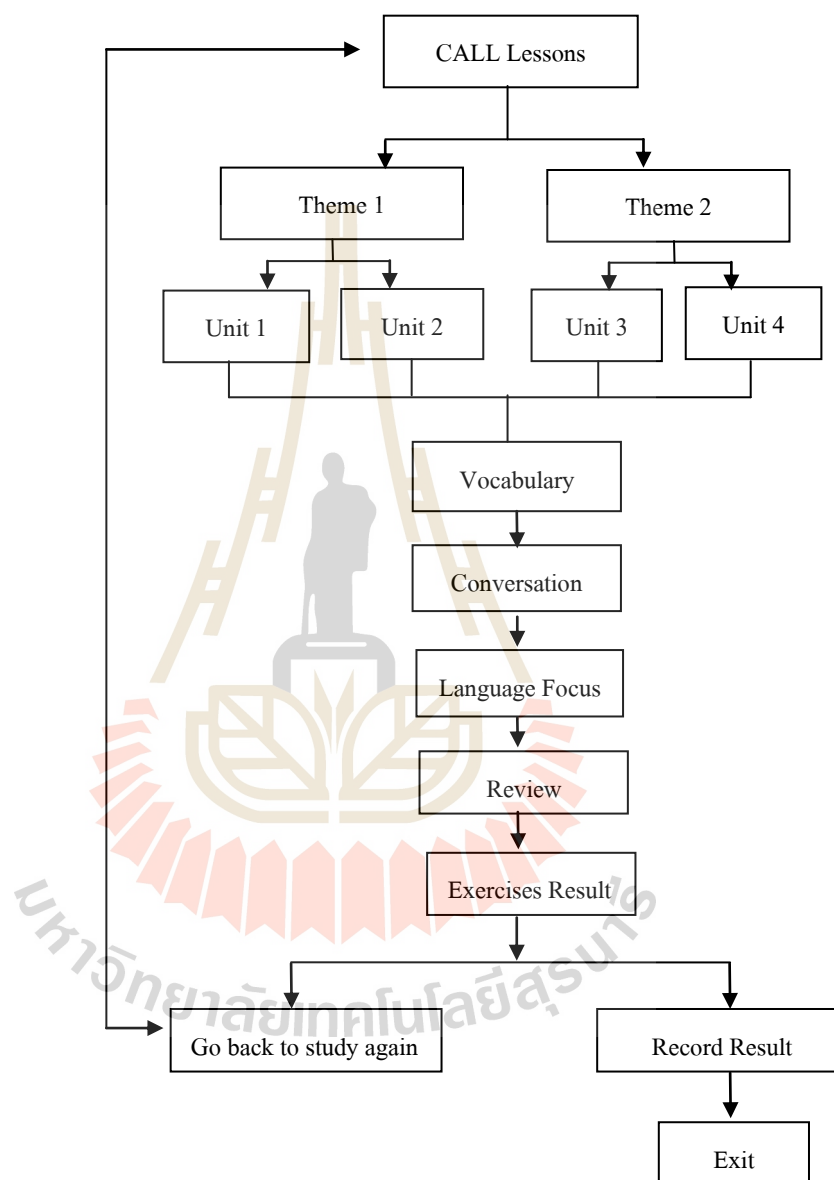


Figure 4.3 The flowchart of CALL Themes and Units

“The Flowchart could depict the route for the lessons to go via the computer software program. As I had no experience in doing such kind of flowchart for the computer lessons, I had asked the technology experts for advice before I began to draw it by myself. As a result, I have learnt that to be able to draw a flowchart, I have to possess the lessons’ sequences step by step and choose the appropriate structure for the route of the lessons”

Researcher’s journal: December 18th

3. Specifying Screen Design

The next thing to consider after the design of the flowchart was the look and feel of the screen that is used in the project. This includes defining the color scheme and location of graphics, icons, audios, buttons and check boxes. The effective screen design should reflect balance among learner attributes, content factors and processing requirements of the learning tasks, and should maintain learners interest (Stemler, 1997). In this study, each CALL unit contained the primary functional areas based on the purpose of each screen including title, instructional text, the graphics, feedback, icons and navigation options. In the CALL unit, the title of each screen is located at the top of the page and shows the unit title. The text is on the right above the graphic while the feedback, icons and navigation options are on the bottom. However, the tiles of the menu screen and question screen design are slightly different in the functional areas. It contains the directions and questions, answer choices, graphics and pop-up dialog for the feedback. The unit title and the learning steps is on the top, while the text of questions and answer options were under the graphics. The feedback text is down below the answer, and the same icon box consistently appeared on the screen

for the listening section. The pictures on the next page of figure 4.4 show the examples of the screen design for CALL lesson unit.

Title of the Lesson



The question page



The dialog box for the feedback page



The exercise results page

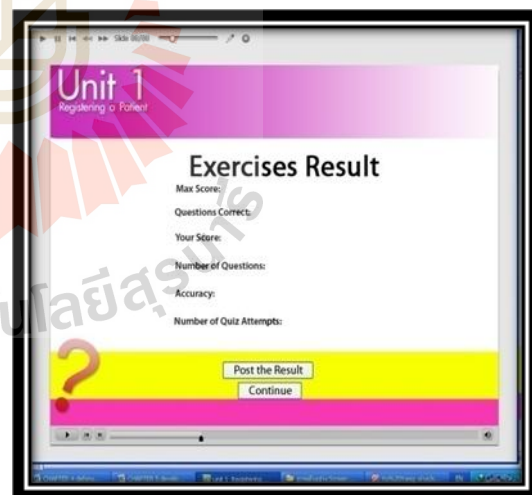


Figure 4.4 the screen design of CALL English Lessons for Nursing Science Students

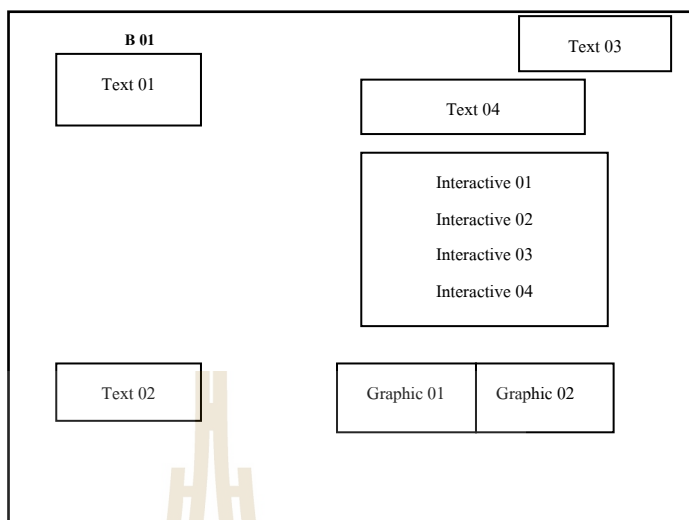
“ I had to be a good graphic designer for this stage to make the screens look good and should be aesthetically pleasing to my students. This would be my first experience to do this kind of thing. First, I started to draft the set of screens and the flow from one screen to another and within each one. Then I worked with the graphics to lay out the screen and created the screenshot. I had to know how to put the widgets (menus, buttons, checkboxes and etc.) from the software to the screen. After I finished, I showed them to my colleagues, and of course to my advisor to give the comments on the screenshots. The positive comments were encouraging me. I only adjusted the colors of the screens to get lighter and plainer. This step taught me how to be a patient and careful designer. It took several weeks to complete with the four-unit lesson screenshots.”

Researcher's journal: January 23rd

4. Creating a Storyboard

After the content had been outlined and the screen designs had been determined, the researcher started drawing a square on the paper with the detailed descriptions of what should be in each frame in lessons. The detail includes the Unit number, subject, and frame, text, graphic, interactive, and sound. The outlined descriptions helped the researcher organize the ideas before creating the actual CALL English lessons, seeing the sequencing of the whole lessons systematically. The example of the storyboard was presented on the page in the figure 4.5.

Screen Template



<u>Descriptions</u>	
Unit :	1
Subject:	Registering a Patient
Frame:	2
Text:	Text 01: Unit title, Text 02: Theme, Hospital Admission Text 03: Main menu, Text 04: Registering a Patient
Graphic:	Graphic 01-02: pictures of hospital receptions B.01: light to soft pink / B. 02: off white Interactive:
Interactive	Interactive 01 Vocabulary Interactive 02 Conversation, Interactive 03 Language Focus Interactive 04 Reviews * Mouse click and link to practice exercise
Voice:	Text 01-02: audio 1 Interactive 01-04: audio 2

Figure 4.5 The Storyboard of the Main Page

“Placing texts, icons, graphics and sound with written descriptions for each screenshot took a great deal of time. However these features were very important for language learning especially through CALL. So, to start, I began to draw each screen

with the details. At first, I attempted to have about 60 screenshots for each lesson. But along the way, unexpected issue happened. I found that there were too many texts to read in each frame and that looked distracting. So, I removed some reading texts from the current frame and created a new frame for the removed part. This served to have a significant effect on the whole structure of the lesson frames, my goodness. The screenshots increased ranging from 60-85 frames in each unit lesson. It was a hard job for me when I had to create them. This is a very important lesson that I learned from this stage. ”

Researcher's journal: February 27th

4.1.3 The Development of CALL Lesson Unit

After the flowcharts and story boards had been approved, the researcher produced the drafts of the primary text information of the four unit lessons, and had the experts review it, then made revisions as required. To develop the elements of CALL lessons, audios, graphics and images, instructions and directions, questions and texts should be taken into account. For completing CALL English Lessons, the segments of the audio, pictures, and types of questions were outlined. The following were the details of the elements which the researcher intended to include in CALL.

1. Creating Audio Scripts & Records

The researcher prepared a script of both written and spoken texts read by a native speaker. To make the lessons more interesting, the audios were added to CALL English lessons in parts of the directions, the pronunciation, the conversations between a nurse and a patient, and the feedback. The audio scripts were read and recorded by both male and female native speakers. The audio files were exported to

be MP 3 files. After that, the process of editing and adjusting the sound was employed to make the audio clearer using the audacity software sound editor.

“I am so grateful to all friends from overseas who devoted their time to help me read the scripts and record them, sent them back and forth for my CALL lessons. I understood some of you faced many technical problems during recording and had to correct and redo them several times for me. I really appreciate your great help. ... At this step, I had to be sure that the audio recordings I received from them worked well and were ready to use for my learning activities in the CALL lessons. I learned to use the audio corrector’s software to slice and mix the audios. I think dealing with the audios was fun. The Audacity audio editor and recorder could help me a lot at this step.”

Researcher’s journal: March 1st

2. Collecting Picture for the Lessons

The pictures are visual aids that can be very effective, meaningful and authentic if used in direct correlation with the lesson (Wright, 2006). In this study, the researcher collected the pictures from various sources. These included the picture dictionary, pictures from picture stocks, and pictures from the university nursing station. In order to get authentic pictures for CALL English lessons, the researcher took a picture of the nursing activities and rooms, and medical instruments at an authentic place to make it fresh and interesting. For this case, the researcher used Christian University as the setting for the picture of CALL English lessons. Before getting to it, the researcher needed to ask for the permission from the Dean of College of Health Science and Nursing Science at CTU. The detailed descriptions were listed for the place and the people who would be in the scenes.

“I thought CALL lessons might be exciting to students if they see some pictures in the lessons which are directly related to the university/hospital that they are studying. I asked for permission from the Dean of College of Nursing at CTU to take pictures of the rooms and medical equipment at the nursing arch for my lessons. Then, I wrote the scripts for each picture and location. I asked two students and two nursing teachers to be models on the scenes. I then made an appointment with them to take pictures. I was so excited to be a camerawoman and so were they for their modeling. Things went smoothly on that day. I hereby thanked my fellow teachers and students for their attempt to be a part of my lessons.”

Researcher's journal: March 23rd

3. Creating Exercise types and Texts

The tutorial of CALL English lessons were aimed to train students' language use in communicating at hospital wards. To make the training hour meaningful for students, the researcher created the teaching contents and graded quizzes including several types of questions using the Adobe Captivate software. For designing the learning activities, several researchers (Pica, Kanagy, & Falodun, 1993; Larsen-Freeman and Long, 1991) suggested that the learning activities, by using a mouse click or filling the blanks would lead to an increase in successfully negotiated interactions. The learning activities in this study included the multiple-choice, Fill-In-The-Blank, Short Answer, Matching, and Sequencing. Through the software system, the researcher could control what happens to the learner answering questions correctly or incorrectly, and also could track their progress in learning. To develop the learning activities, the researcher wrote the texts and the correct responses to layout the

instructions in each exercise, and noted the feedback for correct and incorrect responses for the beginning and ending activities and lessons, and then produced them. The flowcharts and design when and what kind of interaction would occur between the computer and student were made to see the process of learning.

“I found that designing learning activities via CALL was not similar to the learning activities on the handouts because students had to interact with the computer instead of the teacher.I had to make their hours of learning practice as useful and interactive as I could. With the exercise types provided by the software, I could use matching, filling in words, sequencing, hot spotting, and multiple choices. I thought it was enough for my lessons. And from many research studies, they suggested that giving feedback to students’ responses can enhance more learning. Therefore, I decided to provide immediate feedback in a pop-up box with different colors. My feedback was not only the written statement but also the sound to make students awake and encourage them.....designing learning exercises via software was not fun when the format and styles are fixed. It would be more customized if the developer is able to adjust some simple things such as the font size. As a result, I sometimes got frustrated because I couldn’t easily get what I wanted my lessons to look like.”

Researcher’s journal: March 27th

4. Delivering Media Pieces

Having the audio recordings for lessons, images, and question slides, the next step was to combine the pieces of media into a frame design with the software program to present CALL English lessons.

“Constructing CALL was not an easy process to do especially putting pieces on the screen as designed in the former steps and for all four-unit lessons because

each unit consisted of 60-85 screenshots. Each step of learning of the screenshots contained different texts, pictures and audios that I had to put in one screen. The test of each screenshot has to be done by checking the timeline display, adjusting the sound, and the pictures in each frame. This needed lots of energy and effort to do. Of course, this was another stage that's really time-consuming. I got tiring when I had to sit for long hours a day to finish each of them. It was painstaking work and a tediously hard job!"

Researcher's journal: April, 20th

4.1.4 The Evaluation of CALL

To ensure CALL English lessons for Nursing Science Students are purposeful, the alpha testing was employed. The researcher had experts in the area of nursing content, educational technology and English language teaching to validate the CALL English lessons. The evaluation checklist form containing the topics of content and presentation, graphics, sounds and instructions and learning management system, were assessed for the quality of the program (Johnson, 1992). The researcher revised the CALL program where needed, according to the evaluation results and experts' comments.

For the effectiveness of the CALL English lessons, the researcher employed the beta testing to examine the efficiency of CALL English lessons. The three steps of the try-out were implemented through the development process with the nursing students at Christian University of Thailand. The effective of CALL English lessons were measured using the criteria of the 80/80 standard level using E1/E2 formula (Brahmawong, 1978). The results of the try-out are reported in the next chapter.

4.1.5 Solutions to the Problem in Developing CALL English Lessons for Nursing Science Students

The researcher, an EFL teacher as a course developer, attempted to design and develop these CALL English Lessons for Nursing Science Students. The researcher encountered technical problems dealing with the computer software program due to less collective experience and limited computer skills. This caused the considerable delay in completing the design and development of CALL lessons. The problems often occurred during creating CALL lessons; the most frequently encountered problem was about setting inappropriate timelines when all media were combined together. This often made the slides become white and still, which took a lot of time to fix. Another problem was the delay of the slide transition from one slide to another that needed to be adjusted. These technical problems were so severe that they deserved to be mentioned for other researchers. To solve these problems, the researcher often went to the social network and asked the computer software experts about these issues for suggestions by posting the questions. Their responses assisted the researcher to go on with the designing tasks. The researcher personally found that it took time to learn from the computer software tutorial alone. Practicing the suggested steps by videos available on the Internet could really help her handle the problematic issues.

In summary, this chapter provides the details of the three major steps of material selections, the design of CALL English lessons, and the construction of CALL English lessons. The reflections of the problems and the solutions which the researcher came across throughout the process were reported. The results of the try-out process of CALL English Lessons for Nursing Science Students were on the next chapter.

CHAPTER 5

RESULTS OF THE TRY-OUT PROCESS

OF CALL ENGLISH LESSONS

The present study aims to develop CALL English Lessons for Nursing Science Students. This chapter describes the three steps of the try-out process of CALL English Lessons. The steps included individual testing, a small group testing, and the field testing. Each step was reported the effectiveness of CALL Lessons based on the 80/80 standard criterion and the improvement of the program. It answers the second research question: Are the CALL English Lessons for Nursing Science Students effective?

The answer consists of two parts: the report of the improvement of the program through each step and the effectiveness of CALL Lessons based on the 80/80 standard criterion.

5.1 The Try-Out Process

The three steps of the try-out process of CALL English Lessons were conducted from September to December 2010. It aimed to examine the effectiveness of the CALL English Lessons for Nursing Science Students, to check the feasibility, to improve the program and the research methodology. The try-out was done using three steps of testing: individual testing, small-group testing, and a field study.

Individual testing was conducted with a group of three volunteer third-year nursing students whose English proficiency levels were rated as being high achievers, moderate achievers and low achievers. Small group testing was also employed. The twelve volunteer third-year nursing students received the same process which had been done during individual testing. Field study testing was conducted with thirty volunteer third-year nursing students whose English proficiency levels were determined to be ten high achievers, ten moderate achievers and ten low achievers. The students were first asked to take a pre-test including speaking ability test and a 30-item computerized test, before they studied the CALL English Lessons. After the pre-test, the students were asked to study the CALL English Lessons for 16 hours. The learning logs were given to the students to record their reflections about what they were learning and how they were going about learning it. Then the students took a post-test at the end of the experiment. The students were asked to give an opinion on the CALL English Lessons.

5.2 The Result of the Three Steps of the Try-Out Process of CALL English Lessons

The effectiveness of CALL English Lessons for Nursing Science Students was measured using the three steps of the try-out during the development process: individual testing, small group testing, and field study testing using the criterion of the 80/80 (E1/E2) standard level (Brahmawong, 1978). In each step of the try-out in the developmental testing process, the lessons were modified and the mistakes were identified and noted in order to improve the lessons and make them more suitable and effective.

5.2.1 Individual Testing

At the first stage, individual testing results showed five features of the CALL Lessons that needed to be modified. Firstly, the size and colors of the fonts were changed and redesigned to make the lessons more visually interesting. Secondly, the hover-over icons of listening exercise were added to every listening section to encourage more practice. To do this, students just had to place their computer mouse over the listening icon. Thirdly, the slide transitions were adjusted to make the move from one slide to another faster. This helped to make the learning exercise and activity more effective, less time-consuming, and appropriate with the available running time. Next, the pictures of people were changed to be more authentic, illustrative, and suitable for the lessons. Unclear and uninteresting pictures were cut and replaced with more colorful ones. Lastly, some of the directions in each exercise had Thai language translations added to be more bilingual so that students would more clearly understand what they had to do with the activities in the lessons. Therefore, the effectiveness index of an individual testing did not meet the 80/80 standard level, it was 79.18/76.67. The result of the effectiveness of CALL English Lessons in an individual testing presented on the next page in the Table 5.1.

Table 5.1 Effectiveness Evaluation of CALL English Lessons in an Individual

Student Number	Pre-test Score (30 points)	Exercise Score (40 points)	Post-test Score (30 points)	E1	E2
1	17	35	25	79.18	76.67
2	15	31	23		
3	13	29	21		
Total Score	45	95	69		
Mean Score	15.00	31.75	23.00		
Percentages	50.00	79.17	76.67		

Testing

$$\begin{aligned}
 \bar{X} &= 95/3 \\
 &= 31.67 \\
 \text{E1} &= (31.67/40) \times 100 \\
 &= \mathbf{79.18}
 \end{aligned}$$

$$\begin{aligned}
 \bar{X} &= 69/3 \\
 &= 23.00 \\
 \text{E2} &= (23.00/30) \times 100 \\
 &= \mathbf{76.67}
 \end{aligned}$$

5.2.2 Small-Group Testing

At this stage, the program was improved for the use of small-group testing. The CALL English Lessons for Nursing Science Students were implemented from October 1st to October 22nd with 12 voluntary third-year students from College of Health Science and Nursing. Their English proficiency levels were classified into the three levels, as previously described. The same procedures were employed with these students as with individual testing. To respond to the feedback of students, two things were modified to make the lessons more interesting. First, more audio clips for each word and each phrase were added in the vocabulary sections in order to help students with the pronunciation of the words. Second, the colors of frames were

changed to make it more visually appealing and possibly more motivating to students. In this step, the effectiveness index of a small group testing met the 80/80 standard criterion at a level of 81.88/80.00. The result of the effectiveness of CALL English Lessons in a small-group testing is presented in Table 5.2

Table 5.2 Effectiveness Evaluation of CALL English Lessons in a Small-Group Testing

Student Number	Pre-test Score (30 points)	Exercise Score (40 points)	Post-test Score (30 points)	E1	E2
1	12	34	25		
2	13	30	24		
3	15	34	20		
4	16	33	25		
5	15	32	25		
6	14	32	24		
7	15	34	26		
8	16	35	23		
9	22	32	24		
10	14	30	24		
11	16	32	24		
12	13	35	24		
Total Score	181	393	288	81.88	80.00
Mean Score	15.08	32.75	24.00		
Percentages	50.28	81.88	80.00		

$$\begin{aligned}
 \bar{X} &= 393/12 \\
 &= 32.75 \\
 \mathbf{E1} &= (32.75/40) \times 100 \\
 &= \mathbf{81.88}
 \end{aligned}$$

$$\begin{aligned}
 \bar{X} &= 288/12 \\
 &= 24.00 \\
 \mathbf{E2} &= (24.00/30) \times 100 \\
 &= \mathbf{80.00}
 \end{aligned}$$

5.2.3 Field Study Testing

The field study was conducted from November 16th to December 6th as the last try-out step in the development testing process. At this stage, the language content in the exercises was checked and the programs were exported in different types of program files for students to access. The results indicated that the effectiveness of the CALL English Lessons had an effectiveness level of 82.50/82.33, higher than the target level of 80/80.



Table 5.3 Effectiveness Evaluation of CALL English Lessons in a Field-Group Testing

Student Number	Pre-test Score (30 points)	Exercise Score (40 points)	Post-test Score (30 points)	E1	E2
1	16	35	26		
2	15	32	23		
3	18	32	22		
4	16	31	20		
5	14	33	22		
6	16	34	24		
7	15	33	22		
8	16	35	25		
9	22	35	24		
10	14	35	27		
11	14	34	27		
12	13	32	26		
13	15	29	23		
14	14	32	25		
15	20	34	27		
16	13	33	22		
17	18	33	24		
18	15	32	25		
19	14	33	27		
20	13	31	24		
21	16	32	26		
22	14	36	25		
23	16	33	26		
24	15	35	24		
25	18	33	24		
26	16	32	27		
27	17	33	25		
28	15	37	28		
29	17	34	25		
30	16	34	26		
Total Score	465	990	741	82.50	82.33
Mean Score	15.50	33.02	24.70		
Percentages	51.67	82.50	82.33		

$$\begin{aligned}
 \bar{X} &= 990/30 \\
 &= 33 \\
 \mathbf{E1} &= (33/40) \times 100 \\
 &= \mathbf{82.50}
 \end{aligned}$$

$$\begin{aligned}
 \bar{X} &= 741/30 \\
 &= 24.70 \\
 \mathbf{E2} &= (24.70/30) \times 100 \\
 &= \mathbf{82.33}
 \end{aligned}$$

All three steps of the development testing process in the try-out process were executed and the CALL English Lessons for Nursing Science students were used with the sample in the main study of the implementation phase.

5.3 Students' Reflection on CALL English Lessons

In the three steps of the try-out process, learning logs and students' interview were also used to get students' reflections on CALL English Lessons.

From the students' learning log entries, it was found that most of the suggestions were related to the lessons' presentation and the media elements provided within each CALL English Lesson.

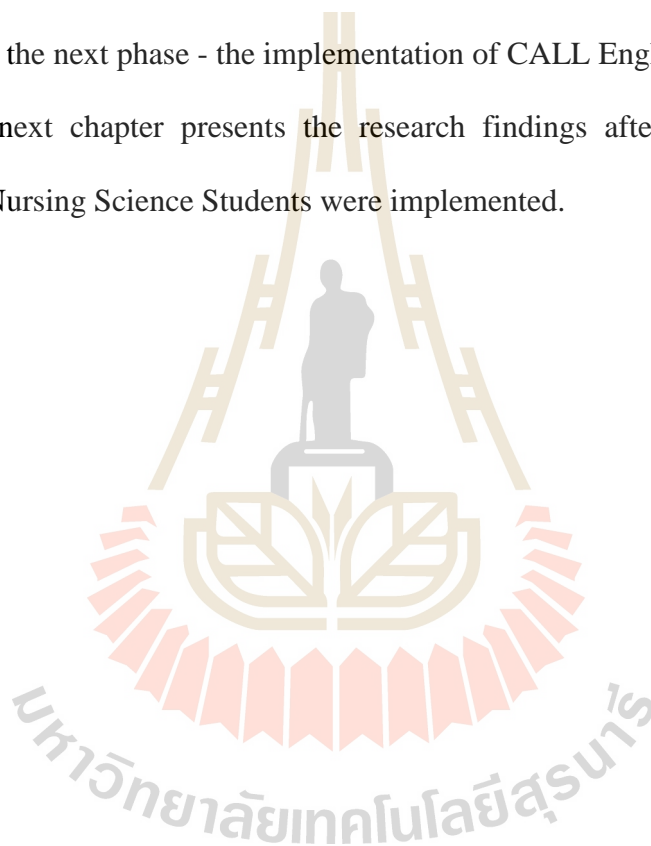
The Lessons' Presentation. The several features of CALL i.e., fonts, text sizes, colors, and screen templates were suggested to change and improve to make them more appealing and attractive to students after they used them in the first try-out. Most of them stated that the attractiveness of the lessons might motivate them to learn and might lead them into a more positive educational experience.

The media elements. The technical problems related to media elements (slow slide transitions, unclear pictures and audios and feedback) were recommended to be improved in order to capture students' attention more effectively. Icons should be

added to every listening section to assist students learning with CALL English Lessons. Students also suggested making the font size bigger in CALL Lesson Unit 3 and 4 and adding the interactive buttons in some slides of CALL Lesson Unit 2 to make them more interesting.

The comments about the CALL English Lessons obtained from students' reflections in the try-out process were beneficial for the researcher as a course developer for the next phase - the implementation of CALL English Lessons.

The next chapter presents the research findings after the CALL English Lessons for Nursing Science Students were implemented.



CHAPTER 6

RESULTS OF THE STUDENTS' LEARNING ACHIEVEMENT AND THEIR REACTIONS TOWARD CALL LESSONS

This chapter reports the research findings which answer the research questions below:

1. Are the CALL English Lessons for Nursing Science Students effective?
2. To what extent do CALL English Lessons for Nursing Science Students develop their English communication at hospitals?
3. What are the students' reactions toward CALL English Lessons for Nursing Science Students?

The presentation of the findings is divided into three parts. The first part reports the results of the development of CALL English Lessons for Nursing Science Students based on the 80/80 standard criterion. The second part displays the results of comparing students' learning achievements before and after learning with CALL English Lessons for Nursing Science and the last part reveals the students' reactions towards CALL English Lessons.

6.1 Results

6.1.1 Results of the Development of CALL English Lessons for Nursing Science Students based on the 80/80 standard criteria.

CALL English Lessons for Nursing Science Students were constructed by the researcher. The lesson structures were submitted to the three experts in nursing science content, English language teaching, and educational technology to examine the content and language as well as the design of the lessons.

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 effectiveness index of CALL English Lessons for Nursing Science Students was 82.50/82.33 which met the specified criterion of 80/80. Therefore, it can be concluded that the result of the three tests ensured the effectiveness of CALL English lessons. In other words, the CALL English Lessons were effective. The results of the three steps of the try-out are presented in table 6.1

Table 6.1: The Results of the Three Trials

Trials	E1 (Efficiency of Process)	E2 (Efficiency of Results)
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 sample in the implementation phase to determine the effectiveness of CALL English lessons. 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. This can be answered by research Question two (see Appendix A for details).

6.1.2 The Results of the Students' Language Learning Achievement before and after learning with CALL English Lessons for Nursing Science Students

To answer research question two, two sets of parallel tests, a pre-test and a post-test were employed to assess the students' language learning achievement before and after learning with CALL English Lessons for Nursing Science Students. The two parts (multiple choice questions and communicative language achievement test) of 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. The table 6.1 contains the descriptive statistics of pre-test and post-test scores of the students.

Table 6.2 Pre-test and Post-test Scores of Students in CALL English Lessons for Students of Nursing Science

Tests	\bar{X}	SD
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 are presented on the next page in Table 6.3

Table 6.3 T-Test Comparison of Pre-test Scores and Post-test Scores for the Experiment with CALL English Lessons for Nursing Science Students

Paired Differences								
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (1-tailed)
				Lower	Upper			
Pre-test								
Post-test	-9.767	2.861	.522	-10.835	-8.698	-18.698	29	.000

* $p < .05$

The table above reveals the statistics of the 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 .000. The one tailed p-value shows that there was significant difference at the level of .05. This proved that the students gained more knowledge after learning with CALL English Lessons for Nursing Science Students.

To find out the students' language learning achievement in speaking after learning with CALL English Lessons for Nursing Science Students, the scores of the second part of English Oral Communicative Test were analyzed based on the speaking test criterion to see the overall results of students' speaking performance. The mean scores (\bar{X}) of each category from the test criterion are presented on the next page in the table 6.4.

Table 6.4 Pre-test and Post-test Scores of English Oral Communicative Test

Oral Skill Criteria	Pretest (\bar{x}) (4)	Post-test (\bar{x}) (4)
1.Accuracy of Information	1.73	3.48
2. Pronunciation	1.78	2.57
3. Word Choice	1.89	3.30
4. Grammatical Accuracy	2.01	2.70
5. Overall fluency	1.62	3.20
N=30		

Table 6.4 contains the descriptive statistics of the pre-test and post-test scores of the students in English oral communication. The result shows that the students' mean score of the post-test in every category were significantly higher than those in the pre-test. The students' post-test mean score of the accuracy of information (\bar{x} = 3.48) was the highest and the word choice was the second (\bar{x} = 3.30). The third was overall fluency (\bar{x} = 3.20), followed by grammatical accuracy (\bar{x} = 2.70) and finally pronunciation (\bar{x} = 2.57). The results supported the research question two, as it can be said that the English CALL Lesson can enhance students' learning in both content and language at the same time.

6.1.3 The Students' Reactions toward CALL English Lessons

To answer research question three, the obtained data from the learning logs and semi-structured interview were reviewed to find out student' reactions toward CALL English Lessons for Nursing Science Students, the results of the students' learning logs and semi-structured interview were presented.

6.1.3.1 The Results of Students' Learning Logs

In order to find out students' learning experience and reactions toward CALL English Lessons, the weekly learning logs were reviewed after each lesson was studied. The themes and patterns were derived from the specific questions to which students were asked to respond after each lesson. The questions in the learning logs were:

- 1) What have I learned from this unit?
- 2) Knowing about this topic, in which ways does it help me?
- 3) What part do I like the most and why?
- 4) What part do I find most difficult and why?

These guided questions were used as the main structure of the data presentation. Comments and suggestions about the CALL lessons from the students are stated as follows.

What Have These Students Learned?

The students' responses relating to what they have learned can be classified into three categories. Firstly, all students mentioned the topics or the contents of CALL English lessons that were relevant to their current study, namely, registering a patient, giving a direction to a patient and family, giving patients' medication, and taking patients' vital signs. For example, two students commented that they gained more knowledge about patients' illnesses and health problems from listening exercises. Others mentioned the ways of asking patients' personal information and details for a patient record, learning about the nurse's role in admitting patients to hospital, taking blood pressure, and giving the instructions concerning patients' medication.

Secondly, most of the students (83.33%) noted that they have learned more vocabulary and phrases related to medical science from CALL English lessons, which could enlarge their vocabulary repertoire. For example, they mentioned about the new vocabulary connecting to hospital departments and directions, symptoms and illnesses, medical instruments, types of medication and treatment, and taking a vital sign (i.e. check your balance, take your blood pressure, and measure your height).

Lastly, half of the students mentioned about language skills that they have learned from several parts of each unit of CALL English lessons. These students reflected that listening to the conversations in various situations, and relating to the hospital settings, helped them remember the words and sentences as they could listen to, and do the repeated exercises. In addition, the native speakers' sound could also help their pronunciation and intonation of sentences. One student wrote reflective comments on her learning *"I improved my listening skills from listening to the conversations provided."* Another stated that she learned *"reading from the vocabulary and listening exercises"*

Knowing About This Topic, in Which Ways Does It Help Them?

100 % of the students commented on the topics that were related to the hospital themes that helped them learn English in several ways. First, half of the students' records from the logs stated that getting to know the topics and contents about hospitals, was very useful for their future career, as their jobs will be dealing with patients at hospital wards or clinics. Nine students noted that CALL English lessons enabled them to use words, phrases and sentences that were associated with hospital settings correctly. In addition, they were able to use them to communicate with foreigners at hospitals confidently. Other reflections touched upon their course

contents in nursing. They said that learning with CALL English lessons could widen their knowledge concerning nursing study because they were similar. Therefore, they could transfer some background knowledge from nursing courses to English classes.

What Part Do They Like the Most and Why?

CALL English lessons were composed of four-unit lessons. They were registering a patient, orienting a patient and family, patient medication, and taking a vital sign. Each lesson was designed differently in terms of technical features such as pictures, fonts, colors, widgets and types of exercises. The learning steps began with vocabulary followed by conversation, language focus and then review.

When the students were asked to specify their preferences in the logs, two major parts of the CALL English lessons they liked the most were:

1) *Steps of Learning in CALL English Lessons.* Based on the logs the students wrote about the four units of CALL English lessons, the steps of learning in CALL English lessons were positively ranked number one. They stated that the steps of learning were easy to follow, practical, and well-organized; starting from the basic words to complex sentence exercises. One student replied “*It was well-organized, systematic and easy to learn in each step*”. Other students noted “*The steps of learning were clear and appropriate and made me interested in the lessons*”

2) *The Design for CALL English Lessons.* The students (83%) reported on the design of CALL English lessons as the second most part they liked. Most of them mentioned some specific aspects of the components of the lessons such as the types and design of exercises, the font size, the graphics, the audios and the pictures in the screen template. They said that the design of the CALL lessons were creative, using 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 to learn. Some students said *“they like the design of the listening exercise that allowed them to listen as often as they wanted by placing the mouse over the icon. The exercise like this helped them remember the whole conversation better.”*

What Part Do They Find Most Difficult and Why?

All students mentioned in their logs more than once that the parts they found the most difficult were exercises in the lessons. For listening exercises, they said that they had to spend a lot of time listening to the questions in order to provide the correct answers. They said the reasons were because of their weaknesses in listening. 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. The last thing students mentioned was the text for reading. They said the text was difficult to understand because they did not know much vocabulary, so they tried very hard to get the correct answers when completing the exercises.

The findings emerging from the learning logs allowed the researcher keep track of students' own learning experience and reactions toward CALL English Lessons.

6.1.3.2 The Results of the Students Semi-Structured Interview

The semi-structured interview was used to assess the students' reactions toward CALL English Lessons for Nursing Science Students, and to provide the researcher with more in-depth information about the strengths and weaknesses of the program. Ten participants were randomly selected for a semi-structured interview

to obtain their reactions toward the use of CALL English Lessons. Eight questions were used for the semi-structured interview (see Appendix H). The results are as follows:

Question 1: Do you like to learn English with CALL English Lessons for Nursing Science Students? Why? Or Why not?

When the students were asked if they liked to learn English with CALL English Lessons for Nursing Science Students, it was found that all ten students (100%) liked to learn with CALL English Lessons. The reasons they provided were as follows:

Content associated with nursing professions. Six students (60%) noted that CALL English lessons helped them learn more English vocabulary and the conversation used for communicating at hospitals, such as registering a patient, giving a patient medication and instructions, taking a patient's vital sign, blood pressure and checking a balance.

In Class and Out-of-Class learning. Two students (20%) said that they liked learning with CALL because it was convenient. They could study, review and practice the lessons after the intact classes. They said they gained a lot of knowledge from learning with CALL English lessons. One student wrote *"I practiced listening exercises ten times with CALL English lessons in order to remember the conversation and it helped me a lot"*. Another stated *"... I could do exercises as often as I wanted ...when I my answer was wrong, I tried to get it right next time."*

Fun Lessons. Two students (20%) expressed that learning with CALL English lessons was fun. They said that colorful pictures in lessons motivated them to learn.

One student wrote *“I like it because when I answered the questions in the exercises, I got the immediate feedback whether I was right or wrong.”*

Question 2: What do you like most in CALL English Lessons?

The second question was about what they liked and disliked the most when they learned with CALL English lessons. Several reasons were given to support their preferences.

Firstly, it was the content of the lessons. They said that the content in CALL English lessons was connected with what they were studying in nursing classes, especially conversations. They found these conversations were very useful when dealing with the foreign patients at hospital wards. They pointed out some topics they liked such as giving instructions to a patient, giving a patient medication, filling a form for patient registration and history, giving directions to the hospital wards, and patient's symptoms and illnesses.

Secondly, it was the design of lessons. They mentioned that the conversations with many listening questions were practical, because it allowed them to listen to the same conversation many times and helped them remember the sentences in the conversation. They also said that the design of the lessons was well organized and the directions were clear. To illustrate, the lessons gradually started with basic words and phrases at the beginning of the lessons and then more sentences. They said that the lessons were easy to follow and continued to do the next exercises.

Lastly, they liked the pictures and vocabulary that were associated with the patients and nurses in vocabulary sections. For example, the pictures of medical equipment, types of medication and vital signs. They said that pictures facilitated the recall words they had learned and also motivated them to study the next lessons.

Question 3: What do you dislike most in CALL English Lessons?

When the students were asked about what they disliked most when learning with CALL English lessons, two students did not answer this question because they felt they liked learning with CALL English lessons and they had nothing to say about their dislikes. However, eight students gave some comments on what they disliked such as some types of exercises and the low-speed Internet connection. Six students mentioned that they did not like the rearranging type of exercise. They had to rearrange the words or phrases into the correct order of sentences or reorganize the steps of instructions by moving the whole sentences in the right order as heard. They said that this kind of exercise was too difficult. The second type of exercise they mentioned was filling-in the blanks. They said they tried hard to type the answers in the blanks but it was hard because they could not spell the words properly. This, in turn, discouraged them. Technically speaking, fill-in the blanks type of exercise or the authoring program does not allow misspelled words to be correct at all. The students must spell every single word in phrases or sentences correctly. Two students mentioned they disliked the low-speed Internet connection. When they were expected to post the results at the end of each lesson, the long time to send the results to the teacher made them frustrated.

Question 4: Is It Convenient for You to Learn English with CALL Lessons?

When they were asked about the convenience of learning with CALL English Lessons for Nursing Science Students, nine students (90%) said that it was very convenient for them to study with CALL while one student (10%) disagreed. Two reasons were provided for agreeing. Firstly, they said they could study CALL English lessons at home because it was easy to use and there were several programs that were

compatible with CALL English lessons, such as GOM player, Media Player or even Internet Explorer. Secondly, they stated that they could learn CALL English lesson as often as they wanted without anxiety or stress. The reason given by one student thought learning with CALL English lessons was not convenient because her computer was old, and it was very slow when loading the CALL program.

Question 5: Are CALL English Lessons for Nursing Science Students interesting?

When the students were asked if CALL English Lessons for Nursing Science Students were interesting for language learning, all of them reported that learning with CALL English lessons were very interesting, and the learning exercises in CALL also made them interested in learning English. They said it was because CALL English lessons consisted of pictures and sounds that helped them with the words' meaning and promoted their comprehension in learning. They said that the audio narrations by native speakers and foreign speakers in CALL helped them learn more about pronunciation and vocabulary better.

Question 6: Do CALL English Lessons Arouse Your Attention in Learning English?

When asked if CALL English lessons aroused students' attention in learning English, their responses were positive, and they said CALL English lessons in nursing content helped them concentrate more on completing the lessons, because the content in nursing and specific skills practice in CALL Lessons corresponded with their present field of study, and that really aroused their attention. In addition, they mentioned about immediate feedback which they could get after completing each question. They said their attention in practice with CALL increased when they got the feedback of an incorrect answer; they put more effort and tried to do it again to get the

correct answer. One wrote “... *if my answer was wrong, I usually went back to study it again until I got the right answer and I could control my learning.*”

Question 7: Do CALL English Lessons for Nursing Science Students help you develop your knowledge of English vocabulary and conversation related to a nursing career?

When the students were asked about their knowledge and development of English vocabulary and conversations relevant to nursing after learning with CALL English lessons, all of them replied that their knowledge of vocabulary increased and their English listening and speaking abilities were better than before. In addition, they could remember some particular sentences used in conversations in each situation well. One example of the topic that one student recorded was about taking a patient's blood pressure. She recited “*May I take your blood pressure, please....please roll up your sleeves and rest your arm on the table.*” Another student wrote “*I could remember how to give directions to hospital departments and give patients medication and the side effect.*”

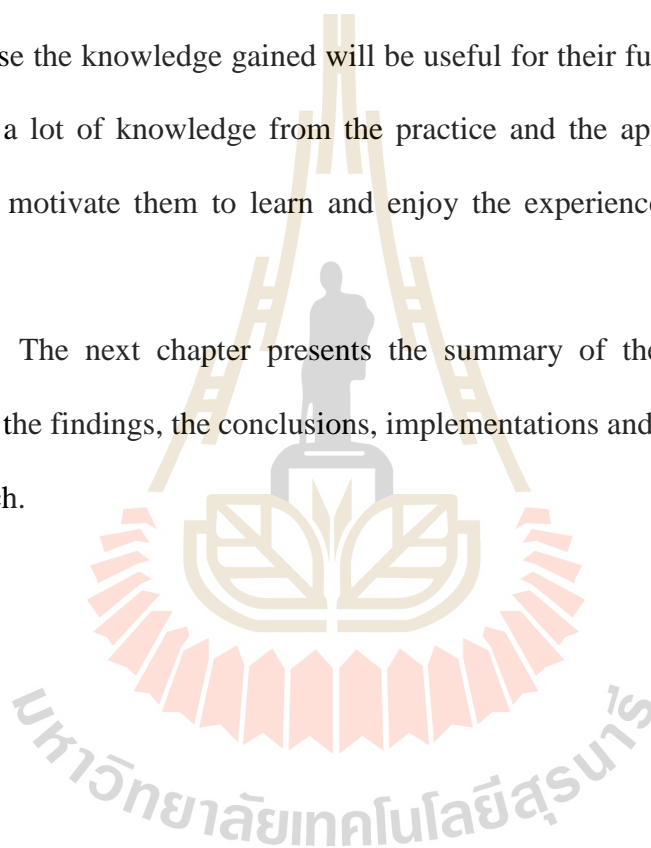
Question 8: Do you consider the training hours with CALL English lessons helpful?

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 the 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. They also felt that the more hours they spent with CALL

English lessons, the better their English became. One student stated *“I spent several hours on learning with each CALL unit after class so I could remember the English sentences and words better.”*

In conclusion, the results from the students’ reactions toward CALL English Lessons were overwhelmingly positive. The students found that CALL English Lessons for Nursing Science Students were very useful for these students. That is simply because the knowledge gained will be useful for their future career and needs. They gained a lot of knowledge from the practice and the appealing CALL lesson design could motivate them to learn and enjoy the experience when learning with CALL.

The next chapter presents the summary of the research study, the discussion of the findings, the conclusions, implementations and recommendations for future research.



CHAPTER 7

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

In this chapter, the findings of the study from the previous chapters are summarized and discussed. The discussion is organized into the three major phases of the study: Phase I, CALL Lesson Development; Phase II, CALL Lesson Testing; and, Phase III, CALL Lesson Implementation. The conclusions, implications and recommendations for further research studies are also presented.

7.1 Summary of the Study

The present study has been conducted for (1) developing CALL English Lessons for nursing science students, (2) exploring the language achievement of students who learned with CALL English Lessons before and after the lessons and (3) investigating students' reactions towards CALL English Lessons.

The 30 subjects of the study were third-year undergraduate who were from the College of Nursing studying the second semester of academic year 2011 at Christian University of Thailand and were selected on a voluntary basis. These students studied CALL English Lessons for sixteen hours of instruction hours over and above the regular hours of instruction.

The research procedure consisted of three main parts. The first part included the design and development of CALL English Lessons for Nursing Science Students. The second part was the determination of the efficiency of CALL English Lessons. The third part included the comparison of language achievement and the exploration of students' reactions toward CALL English Lessons.

In the first part, the design and development of CALL English Lessons by this researcher consists of three phases: material selection, design of CALL, and construction of CALL. This researcher's perspective, as an EFL teacher and the CALL developer, found that the development of CALL English Lessons for Nursing Science Students has several unique characteristics which set it apart from general language teaching materials. This researcher's personal reflections on CALL English Lessons development were to illuminate the nature of CALL design and developmental process.

In the second part, CALL English Lessons for Nursing Science Students was designed and developed by the researcher. The efficiency of CALL English Lessons was set to satisfying the criteria of 80/80, and was reviewed by the three experts. These experts included a content expert in nursing science, an English language expert, and an educational technology expert. For the determination of the efficacy of this study program, CALL English Lessons were implemented through the three trials: individual testing, small group testing, and field study testing. The lessons were tried out with three students in the individual trial, six students in the small group trial, and thirty students in the field trial.

In the third part, a comparison of students' language achievement and exploration of students' reactions toward CALL English Lessons was included.

Before the experiment, students' English language ability was assessed by using a pre-test. After the experiment, a post-test was given to all subjects. Learning logs were kept by students after completing each lesson. They had to record what they had learned through the CALL English Lessons. They were interviewed. The process of designing and developing CALL English Lessons was recorded by the researcher. The obtained data from each instrument were analyzed quantitatively and qualitatively. The quantitative data was factored along with the data from the pre-test and post-test scores, The qualitative data analysis was integrated with the data obtained from the learning logs, semi-structured interviews and this researcher's journal. The statistical procedures used on pre-test and post-test scores were descriptive statistics, the paired-sample t-test, and an analysis of covariance ($\alpha=0.05$). Based on the data analyses, the results compel one to conclude the following:

1. This researcher's development of CALL English Lessons for Nursing Science Students can provide a deeper understanding of the process of content material development, of how CALL Lessons are designed and of the construction of CALL lesson units. The time-consuming process of creating this program of study required this researcher's collective knowledge and experience, in mastering its complexities.
2. The efficiency of CALL English Lessons for nursing science students was 82.98/82.78 which met the standard criteria of 80/80.
3. The language learning achievement of students after learning with CALL English Lessons increased with significant quantitative statistical differences at a level of 0.05 in both overall learning achievement and especially speaking performance.

4. The students had positive reactions toward learning with CALL English Lessons for Nursing Science Students

7.2 Discussion

7.2.1 The Discussion on the Findings of the Development Process of CALL from Researcher's Perspectives

From data presented in Chapter 4, the researcher learned that the development of CALL English Lessons for nursing science students has several unique characteristics which set it apart from the development of general language teaching materials. The CALL English Lesson development process 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 theory, content knowledge of other academic disciplines, knowledge of the learning principles of CALL and understanding available computer software programs and skillfully using them. Moreover, the development process of the CALL program of study was very time-consuming but well- worth the effort. Each characteristic is discussed in detail in the following sections.

7.2.1.1 A Material Development as a Complex Process

The development of material for class teaching is understood as a linear process and having systematic sequences which involve a number of steps. The steps often start by setting the goals and objectives, conceptualizing the content, selecting and developing the materials and activities, organizing the contents and activities and ending by evaluation. These steps are widely-known and commonly

used among course developers and educators in class material design and development. Unlike in the development process in content-based learning materials via the computer lessons, with CALL English Lessons for Nursing Science Students, the material development process is more complex than it seems and every step needs to be presented in great detail. In other words, the complexity comes from the three phases of the development process of CALL English Lessons for Nursing Science Students. The first phase was to develop the content material in nursing science. It is hard for this researcher because she does not have the background knowledge in nursing science. Therefore, consultation with content experts needed to be done, frequently, in making every single decision concerning material content selection. The second phase was to design the materials for the use of CALL English Lessons. The researcher found that designing the computer lessons was much different from doing it on paper. The screen design, drawing the flowcharts and storyboards was not easy and could take an hour to finish. The third phase was to construct CALL English Lessons. The researcher had difficulties in inserting each media item into the layers of the template and had to adjust the timeline display of each screen. Dealing with technical problems made progress more difficult. In addition, each phase had its own principle and idea in creating them. Also, it often happened that there were some reverse steps within each phase. Figure 7.1, on the next page, shows the process of development of CALL English Lessons and this researcher's personal reflections toward each phase.

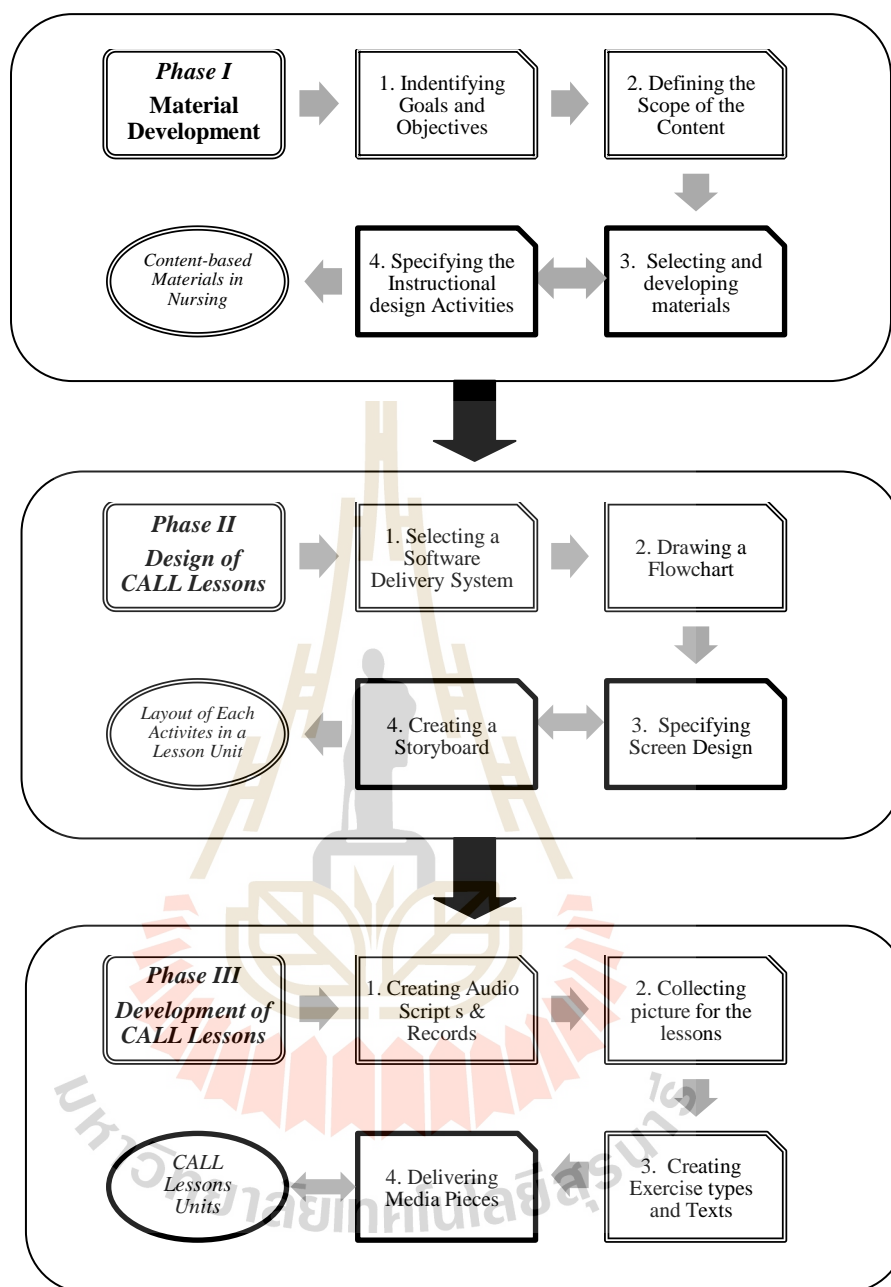


Figure 7.1 The CALL English Lessons Development Process

The diagram shows the three phases of the development process of how CALL English Lessons worked. Each phase consisted of four steps and the arrows show the

complexity of the reverse steps inside the diagram which the researcher would describe and reflect on throughout the process.

Phase I describes the material design and development process for nursing students. A list of step 1) identifying goals and objectives, 2) defining the scope of the content), 3) selecting content materials and 4) specifying the instructional design presented the steps of getting the content-based materials in nursing. Regarding the ongoing process, the researcher found that there were two steps (3 and 4) which were not sequenced automatically leading by the arrow back and forth in the process. The unexpected issues encountered within these steps were because the content materials found in the step 3 contained lots of technical words and phrases that are too complex for designing tasks for nursing students. Therefore, the researcher had to go back to step 3 to revise the contents and had to select the simple ones to use, instead. These barriers kept this researcher stuck in these two steps for months and made her feel frustrated without seeing progress in the process.

Phase II describes the process of CALL design. In this phase, the researcher strictly followed the steps in order to get an effective layout of each activity in a lesson unit. The design is the heart of the development process of CALL and permits the developer to create her own learning materials and pass them on to the students (Kohn, 2001). Therefore, in this phase, the researcher spent her time concentrating on screen design (step 3) and detailed descriptions of each activity in the lessons, after having had the software delivered (step 1) and after having had created the flowchart (step2). As seen from the Figure 7.1, there were the reverse steps between the step of the screen design (step 3) and the details of the storyboard (step 4). It happened because the researcher wanted to make sure that there was consistency in the location

of the title of the lesson, text and graphic block, feedback and navigators. The changes between the two steps were often made during the process. My personal feelings about the design of CALL in this phase were very confusing and complicated that it took quite a lot of effort and encouragement for me to get it finished and to move on to another phase. However, it was useful to be organized for the next section. Ivers and Barron (2006) indicate that if developers do not dedicate sufficient time and energy to this phase, they may end up wasting valuable time during the development phase and this researcher agrees with them.

Phase III illustrates the process of the construction of CALL. The construction of CALL relied on the selected educational software program. There were lots of things relating to the software programs that the researcher needed to know, including the functions of the program and the application tools. Most importantly, the capability of the researcher's personal computer was a prime concern in creating CALL English Lessons. At this stage, the audios (step 1), pictures (step 2) and exercise texts (step 3) were added to the screen design. The researcher could follow suggested steps without any problem but when the researcher combined all pieces of media (step 4) to the learning activities in each CALL lesson unit, several challenges were encountered. To illustrate, the text was too long for the screen, the interaction button did not work, the transition of slides was too slow, the duration of the audios and the length of the texts was not synchronized, and the exercise types were not practical. It often happened that this frustrated researcher gave up trying for awhile and this delayed progress. Only time, and understanding the CALL lesson development, helped encourage this researcher to see the task to completion.

7.2.1.2 The Needs of ELT Knowledge, Content Knowledge and Computer Skills

In addition to the material development process of CALL, there were several tasks and steps that require this researcher' collective experience, knowledge and skills to deal with the issues that were encountered during the process of development. These experiences include ESL material development, extended experience with commercialize materials, i.e., Nursing Science, the knowledge of English language teaching and learning theory, content knowledge of other academic disciplines, the learning principles of CALL, computer skills, and knowledge of the computer software programs. Lacking any of these domains could lead to this project not being completed. Meganathan (2008) also supports this finding. “... *lacking an understanding of material process would not only find it difficult to develop materials but also would find it much difficult to delivery them to an effective manner*” (page7)

In the development of content-based materials in nursing science, the developer should have knowledge of the content of other disciplines and an understanding of the specific language features of the target language. Medlin (2009), Arakelian, Bartran and Magnall (2003) assert that the language in a hospital setting is comprised of register, jargon and lexicon containing the technical language of a special field. Many words are used in the hospital have a special meaning, i.e., negative (a good test result), drip (an intravenous medication), rhythm (heartbeat). This type of language would assist the researcher in identifying language form in order to explain the usage for students.

Another point the researcher wants to convey is that the developer's ability to use educational software programs in creating multi-media materials is extremely

necessary. According to Wong, Fong and Zhang (2009), many instructors suffer difficulty while producing computer teaching materials because they have insufficient technological skills. Similar events happened to this researcher when producing the materials in CALL. I found that it required lots of experience and knowledge of designing and developing CALL materials. Self-study and self-practice may be not enough to creating the CALL program of study. Special training of the ELT teacher in the use of educational software may be beneficial at least to understand the principles, application, and basic computer skills and in bringing them to construct their own materials to teaching class, as expected.

7.2.1.3 Time-Consuming

Material development is complex and time consuming (Markee, 1997; Tomlinson, 1998; Seepho, 2002). In this study, the researcher spent about 7 months developing CALL English Lessons. As mentioned earlier, the development of CALL English Lessons consisted of multi-steps and the reverse steps —often coming between steps in the process —that needed the researcher's time while revising the content materials.

For the example, the step that took a lot of my time was designing activities for each CALL lesson via the computer software. Creating specialized activities meant looking in each computer template. This was complicated due to the number of frames in each lesson. Another instance, is when this researcher needed to shorten the text length, adjust the sound volume, or even customize the screen templates, it was not easy to accomplish due to the location of the objects and frames. In fact, each CALL unit contained about 60-85 frames of task activities. Making minor changes during the process increased the time to finish them.

Besides the phase of development, this researcher's time was spent getting to know the software application because inexperience using computer software programs could lead into the ineffective CALL. It is necessary for a researcher to have the computer skills required to handle unexpected issues or technical problems that may be encountered. Therefore, most of this researcher's time was devoted to study the tools and the tricks of computer software programs, and put them in practice. It took this researcher several months to master the programs, prior to the construction of CALL.

From the beginning phase of the development process of CALL, to the end, led this researcher to conclude that producing CALL materials requires not only the knowledge of English language teaching, content knowledge or computer skills but also possessing creativity, and have experience in the architecture, design and development of both content specific materials and Computer-Assisted Language Learning materials. Moreover, the materials developer needs to have an understanding of the nature of the course, and be able to adapt and adopt the materials to his/her own teaching.

7.2.2 The 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 80/80 standard. The reasons were because CALL English Lessons were strictly followed through the process of planning, designing and developing. In the development process, the three steps of the try-out were used to examine the efficiency of CALL English Lessons. These were

individual testing, small group testing and field study testing. First, 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 the effective of CALL English Lessons. Second, 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 under serious consideration to improve CALL English Lessons to reach the set of criteria.

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) was slightly higher than the efficiency of the outcomes (E2). The reason might be that the students may have learned many of the words related to CALL English Lessons from the nursing courses or other sources since the core content of the CALL English Lessons were centered on nursing content. The second reason might be because the students were encouraged to practice and do exercises after the computer lab classes since they were allowed to take CALL English Lessons for additional practices at home. In this case, the students may have studied CALL English Lessons more than once so they gained more knowledge about vocabulary. Another reason might be that the students wanted to gain higher scores from the learning exercise which were reported at the end of each lesson. If they were not satisfied with their learning scores, they could do the exercise again and again until they got a higher one. As a result of these factors, students' scores in learning process (E1=82.83) were increasingly improved and slightly higher than the efficiency of the outcomes (E2=82.78).

The findings agreed with many research studies. Suwannabubpha (2006) developed the 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).

7.2.3 The Discussion on the Findings of the Students' Learning Achievement of CALL English Lessons for Nursing Science Students

The results revealed that the students who learned with CALL English Lessons for Nursing Science Students had a higher average post-test score ($\bar{x}=24.83$) than the average pre-test score ($\bar{x}=15.07$) which is a statistically significant different of 0.05.

As presented in the literature review in Chapter II, most studies indicated that the post-test scores were higher than the pre-test scores and students' learning achievement was found improved after learning with CALL English Lessons. The findings of this study are consistent with the studies of Torat & Torat, 2002; Kaewphaitoon, 2006; Wongrak, 2006; and Suwannabubpha, 2006. The achievement of students' learning from the post-test was significantly higher than the pre-test 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) which reviewed in chapter 2 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.

The second reason was because CALL English Lessons for Nursing Science Students contained the multi-media functions that motivated student to learn. The researcher could use the graphics, audios and interactive widgets to create appealing CALL. In this study, CALL English Lessons were developed through the Adobe Captivate 5 which was the latest version and the most suitable educational computer software for producing CALL (Daughterty & Russo, 2007; Braun, 2007; Gervasi, Murgante and Lagana, 2008). Moreover, the programs provided the options for adding the graphics, pictures, audios, texts and flash combinations which allowed the researcher to design CALL English Lessons in a more interesting way. Regarding the multi-functions of the programs, and interactive lessons, these might be motivating 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, sounds 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.

The third reason, 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 more concentrate on learning and help them comprehend the contents when in learning with CALL English Lessons and that led to their improvement of performance from the post-test scores by the end of the course. The findings of this study are consistent with the studies of Apichai, 2001; Ketmonkon, 2001; Suppakitjumnong, 2002; Seepho, 2002; Kavaliauskiene, 2004 ; and Song, 2006. That is, the findings revealed that the students became more motivated to learn more when the integrating of English with content that is relevant to their background and this is likely to help them improve their language learning performance after taking the course.

Fourth, it was because CALL English Lessons allowed students to conduct learning activities independently in front of the computer with minimal support from teachers. In addition, CALL English Lessons can give immediate feedback to students or correct errors on exercise automatically. When practiced with CALL English Lessons, the students could do the exercises as often as they wanted or when computers are available for them to use. They could do exercises in each lesson again and again until they felt satisfied with the gained scores reported in their own computer. By doing this way, the students could get more confidence in learning and had less anxiety. Besides, doing exercises repeatedly may increase students' ability in remembering words and structures from various conversations. The finding is similar

to Potisompapwong, 2002; Chomphuboot, 2005; Soothdhiwannarak, 2005; Prempo, 2007; and Kittipornkul, 2008. That is, the finding of students' average score of CALL Lessons were above 80% and it was statistically proved that learning occurred after learning with CALL.

For communicative language ability, the results reveal that students' mean scores in every category of the speaking test (accuracy of information, pronunciation, word choice, grammar, and fluency) were greatly increased after learning with CALL English Lessons for Nursing Science Students. This may be due to the fact that CALL English Lessons for Nursing Science Students contained many listening exercises that provided students with sufficient practice on listening. With the lessons, the students could listen as often as they wanted in order to complete the activities. Becoming familiarized with the target language and sound repeatedly from the listening exercises may help students remember words, sentences and pronunciation and that made their communicative language ability improved.

Another reason may be due to the nature of activities in listening exercises. Most of the listening exercises in CALL English lessons required students to fill blanks and choose the correct answers, and so on. Moreover, each response would get interactive feedback. So, practice listening this way may help students remember the attended vocabulary, language content, and structures effectively and productively. Ellis (1994) supports that if students actively participate in learning process such as responding to the questions, completing an exercise and receiving corrective feedback, their communicative language ability can be positively affected.

In addition, the listening exercises focused on the dialogues that modeled everyday spoken English between a nurse and a patient at hospital wards. Therefore,

the students may be indirectly motivated. They may find this speaking skill useful to learn and achieve since it is necessary for them in their future profession.

Based on these reasons, in summary, it can be said that CALL English Lessons for Nursing Science Students could motivate nursing students to learn English and can enhance students' language learning achievement in both language and nursing content at the end of the course.

7.2.4 The Discussion on the Findings of the Students' Reactions towards CALL English Lessons for Nursing Science Students

In the present study, the findings of the students' reactions towards CALL English Lessons for Nursing Science Students were from two research instruments which were learning logs and semi-structured interview. Based on the data obtained from both instruments, it was found that the students had positive reactions towards CALL English Lessons. Numerous studies corroborate these data (Torat & Torat, 2002; Potisompapwong, 2002; Chomphuboot, 2005; Soothdhiwanarak, 2005; Wongrak, 2006; Suwannabubpha, 2006; Prempho, 2007, Inthakanok, 2007). This is because the students felt more motivated to learn. It can promote students' independence outside classrooms. They can repeat the CALL English Lessons as often as they want and they can control their own learning. The audios, graphics and pictures in CALL aroused their attention in learning and they feel 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).

Keeping learning logs and semi-structured interview provided students with a chance to reflect on their own learning with CALL English Lessons. The data obtained from the learning logs revealed the students' perceptions of learning benefits of classroom activities with CALL English Lessons for Nursing Science Students, and how they contribute to their learning. A summary of data of the student's perceptions about learning, their preference and satisfaction and their difficulties in learning with CALL were discussed in the following sections.

Students' Reactions in Learning with CALL

Students expressed their reactions on what they learned with CALL English Lessons that the lessons were very useful for their language learning. From the students' logs, the students could recall the language contents and expressions that are normally used to communicate with patients from each lesson. Professionally relevant vocabulary practices and expressions used for a medical treatment helped capture their attention in learning for a longer period of time. Moreover, the language knowledge they gained from repeatable CALL English Lessons assisted them to remember the dialogues between a nurse and a patient in various situations.

The students gained benefits from CALL English Lessons because the lesson contents were interesting to them. According to Richards and Rodgers (2001), students may acquire the language better when the content with a high level of interest is chosen. In selecting content materials for these CALL English Lessons, the researcher asked students to rank from the list of ten topics from the English V syllabus and the four were selected and transformed into CALL English Lessons. Brophy (2004) suggests that knowing the situation in students learning or getting students involved in learning is good and help teachers to create the topic familiar and

relevance to students. This can be resulted in students' learning improvement and remembering of information when they can make more cognitive associations between the new and the already known (Hativa, 2000). It is likely that learning will occur. So, the content which is related to students' background could be interesting to them and facilitate their learning.

Students' Preference and Satisfaction in Learning with CALL

To establish students' views on what they like the most with CALL English Lessons, the logs provided students' feedback of CALL English Lessons. The learning logs demonstrated that students were positive to the use of CALL English Lessons especially in the learning steps and the design of CALL English Lessons. It was because the learning steps were clear, practical and easy to follow, starting from vocabulary, conversation and language focus. This helped them learn from the basic to the complex sentences. In the present study, the task and activities in CALL English Lessons were designed based on task-based language learning principles. The sequence of tasks assisted students in coping with activities, focusing on tasks, and getting understanding of lessons which can be beneficial for students learning (Willis, 1996; Rooney, 2000; Nunan, 2004). Many research studies agreed (Chitthum, 2007; Rattanawong, 2004; Laohametanee, 2003) proposed the same ideas.

For the lesson design in CALL English Lessons such as types of exercises, the screen templates, the sizes, the graphics and audios, were motivating them to study because the pictures were attractive, the audio narrators were clear and they could repeat the lessons as frequent as they wished even outside classes. As the learning steps were easy and convenient for students' use and the design of the

lessons were user-friendly, these could make students enjoyable with learning with CALL English Lessons.

Students' Difficulties in learning with CALL

During the process of learning, the students could have an evaluation of their own learning performance when studying with CALL English Lessons. The learning logs showed some records of their difficulties which are related to their English proficiency in learning vocabulary and phrases in the exercises. The students provided examples of exercises they encountered such as listening and filling in words and phrases which needed their ability in spelling the words correctly and they tried very hard. Mokamoto (2009) asserted that in order to overcome the difficulties in learning, the students needed to acquire and use appropriate strategies to improve their own learning. In this case, the exercises in CALL helped them clarify difficult points they faced and also helped students review them (Al-Jarf, 2005). In other words, students' anxiety was reduced and they could understand the lessons more if they repeated exercises more often. The results found in this study were similar to those of many studies in the fields, e.g., Torat & Torat (2002); Huang & Lui (2000); Kaewpaitoon (2006); Wongrak (2006); Suwannabubpha (2006); and Phongnapharak (2008).

To summarize, the students found learning with CALL English Lessons were beneficial because of the content learning relevant to students' future needs and lessons provided students with the study skills which they could transfer to learning activities. In addition, learning steps in the lessons were well organized and facilitate cognitive process and many research studies (Greese, 2005; Brinton et al., 2003; Mehisto et al., 2008; Anderson, 1990) agreed with the results.

7.3 Pedagogical Implications

The following are four specific implications.

1. CALL content lessons are the content-based English teaching for a specific group of nursing students. The core contents are related to the professional nurses. For the materials selection, i.e., nursing content and language features, it is necessary for the teachers to consider students' background knowledge and their proficiency level. The content is needed to be carefully selective to ensure that it is applicable for real communication at future working settings.
2. CALL English lessons for Content-based Instruction should be appealing, interactive, interesting, and self-contained. The colorful and real-life 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 technical challenges, they should be trained in the following areas: a) CALL principles for foreign language learning; b) how to use some practical authoring software; and c) how to design and develop effective CALL lessons. Without basic knowledge and skills in computer programs, the lessons can be very dry and not attractive enough to attract the students' attention and the production process will be unlikely to succeed.
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. These may help each student achieve

his/her learning at his/her own convenience and learning pace. In this case, some students may require more hours than others. In sum, exercises with various levels of difficulty and number of learning hours should be taken into consideration when designing and implementing the CALL lessons.

7.4 Recommendations for Further Study

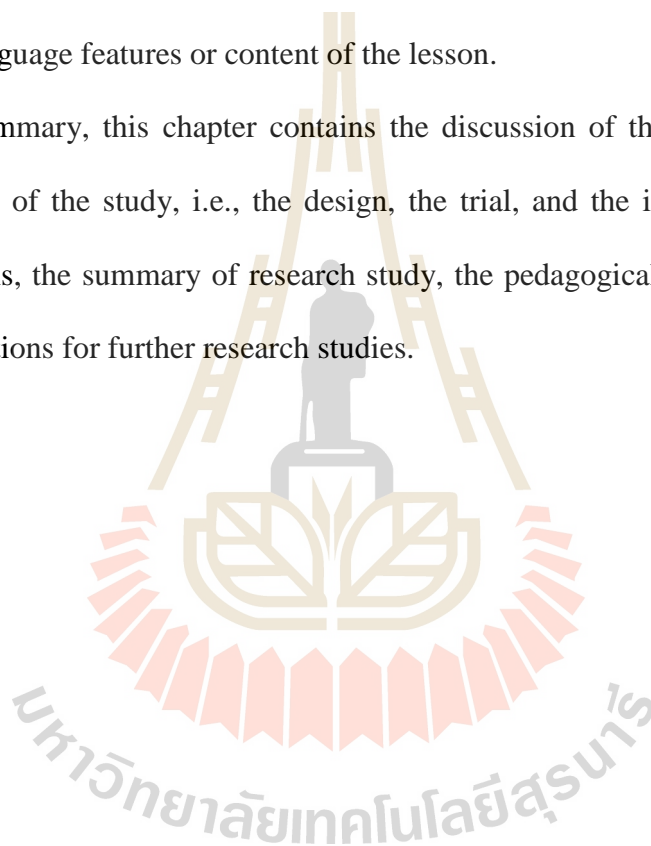
The results and the interpretation of this study lead to many recommendations for further studies as follows:

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 examine 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 have the positive reactions towards CALL English lessons. So, the development of CALL English Lessons for Nursing Science students in other themes and topics should be produced to enhance students' language learning such as administering injections, intravenous therapy, personal care, patient education, and discharge planning.
3. It is recommended that additional studies for content-based language instruction for other disciplines such as Accountancy and Marketing, Hotel and

Tourism Management should be conducted. Implementing the principles of the design and development of CALL and investigating if CALL English lessons can help enhance their command of English communication skills.

4. It is suggested that comparing of CALL learning retention versus traditional teaching methods of language learning retention should be conducted for further study to see whether the CALL has any effect on students' retention of particular language features or content of the lesson.

In summary, this chapter contains the discussion of the results of the three major phases of the study, i.e., the design, the trial, and the implementation of the CALL lessons, the summary of research study, the pedagogical implications and the recommendations for further research studies.



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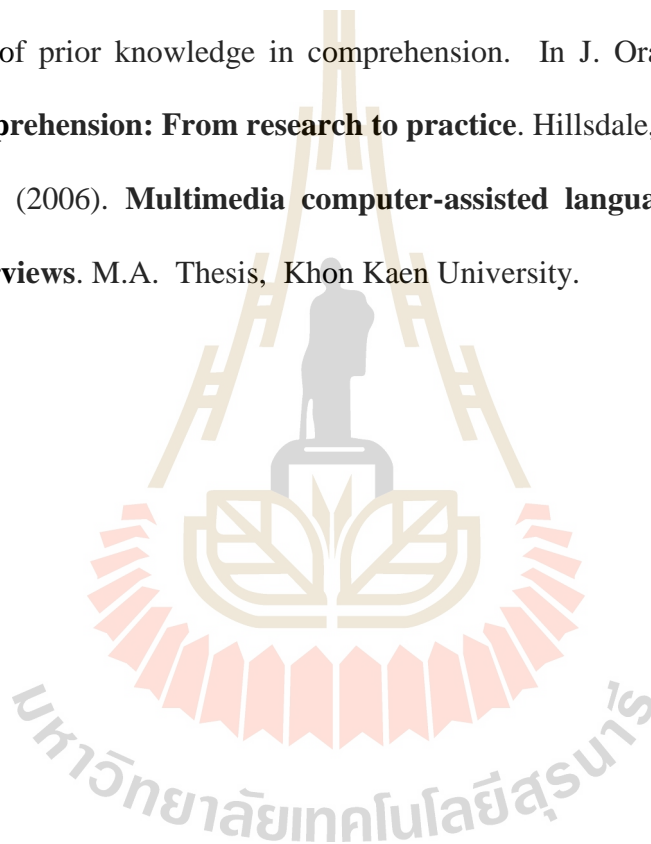
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APPENDIX A

The Effectiveness Evaluation of CALL English Lessons for Nursing

Science Students in Experimental Process

Student Number	Pretest Score (30 points)	Exercise Score (40 points)	Posttest Score (30 points)	E1	E2
1	16	35	25		
2	15	32	26		
3	14	31	23		
4	15	33	25		
5	12	35	22		
6	18	33	25		
7	14	33	25		
8	18	34	25		
9	21	34	26		
10	14	34	25		
11	17	34	26		
12	13	33	22		
13	12	30	24		
14	14	34	25		
15	20	33	28		
16	14	34	25		
17	16	33	24		
18	18	32	23		
19	12	34	26		
20	13	30	25		
21	12	32	24		
22	18	35	27		
23	16	33	26		
24	14	34	26		
25	15	33	24		

Student Number	Pre-test Score (30 points)	Exercise Score (40 points)	Post-test Score (30 points)	E1	E2
26	12	32	26	82.83	82.78
27	14	32	24		
28	14	35	22		
29	13	34	25		
30	18	36	27		
Total Score	452	994	745		
Mean Score	15.07	33.13	24.83		
Percentages	50.22	82.83	82.78		

$$\begin{aligned}
 \bar{X} &= 994/30 \\
 &= 33.13 \\
 \mathbf{E1} &= (33.13/40) \times 100 \\
 &= \mathbf{82.83}
 \end{aligned}$$

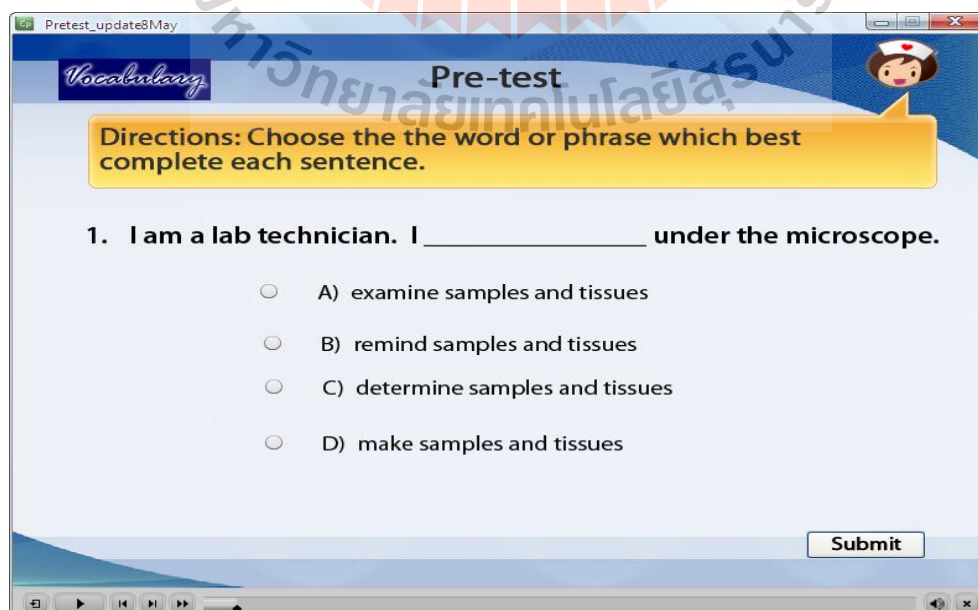
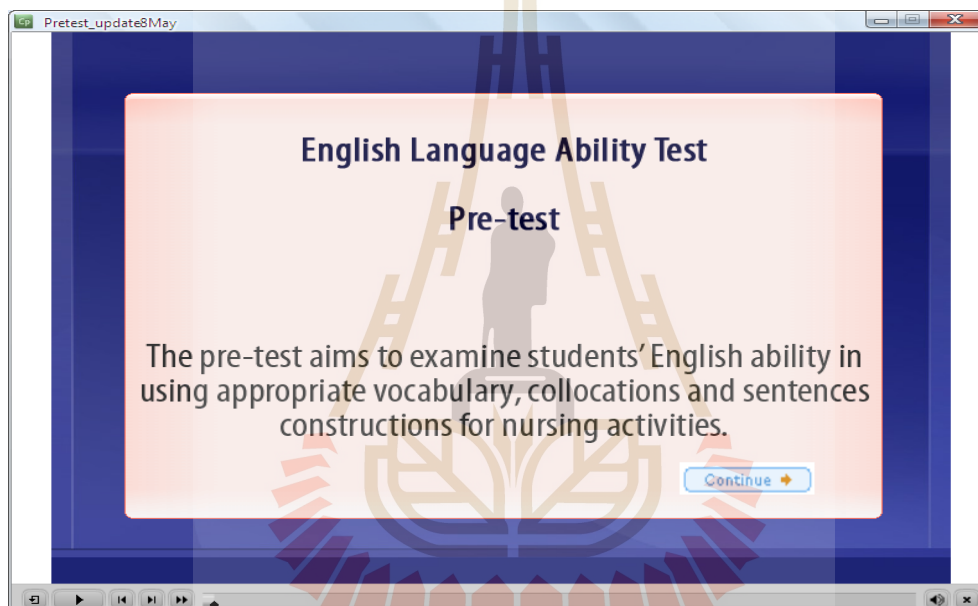
$$\begin{aligned}
 \bar{X} &= 745/30 \\
 &= 24.83 \\
 \mathbf{E2} &= (24.83/30) \times 100 \\
 &= \mathbf{82.78}
 \end{aligned}$$

มหาวิทยาลัยเทคโนโลยีสุรนารี

APPENDIX B

Pre-test of CALL English Lessons for Nursing Science Students

Part I



Pretest_update8May

Vocabulary

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

2. Nurse: I am going to _____.
Patient: Sure.

- ☐ A) take your weight
- ☐ B) find your weight
- ☐ C) check your weight
- ☐ D) gain your weight

Submit

Pretest_update8May

Vocabulary

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

3. Mr. Thomas is on antibiotics for _____.

- ☐ A) his skin infection
- ☐ B) his skin injection
- ☐ C) his skin inspiration
- ☐ D) his skin injurious

Submit

Pretest_update8May

Vocabulary

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

4. Mr.Wayne _____ of an antihistamine every eight hours-10 milligrams of Dimotane each time.

- ☐ A) gives an injection
- ☒ B) holds an injection
- ☐ C) excepts an injection
- ☐ D) receives an injection

Submit

Pretest_update8May

Vocabulary

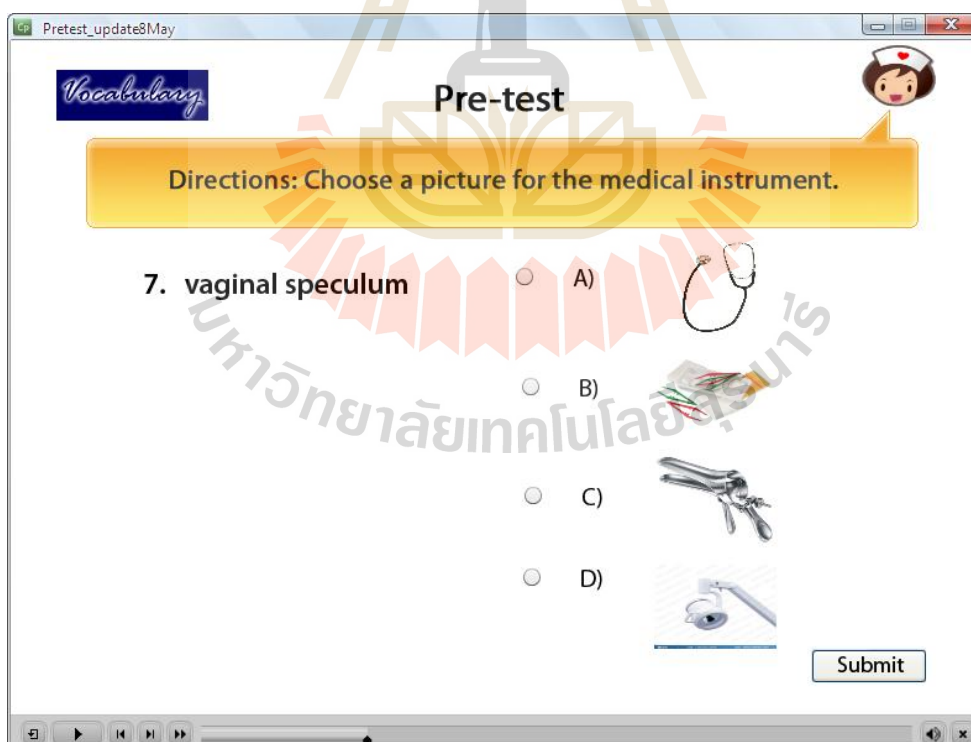
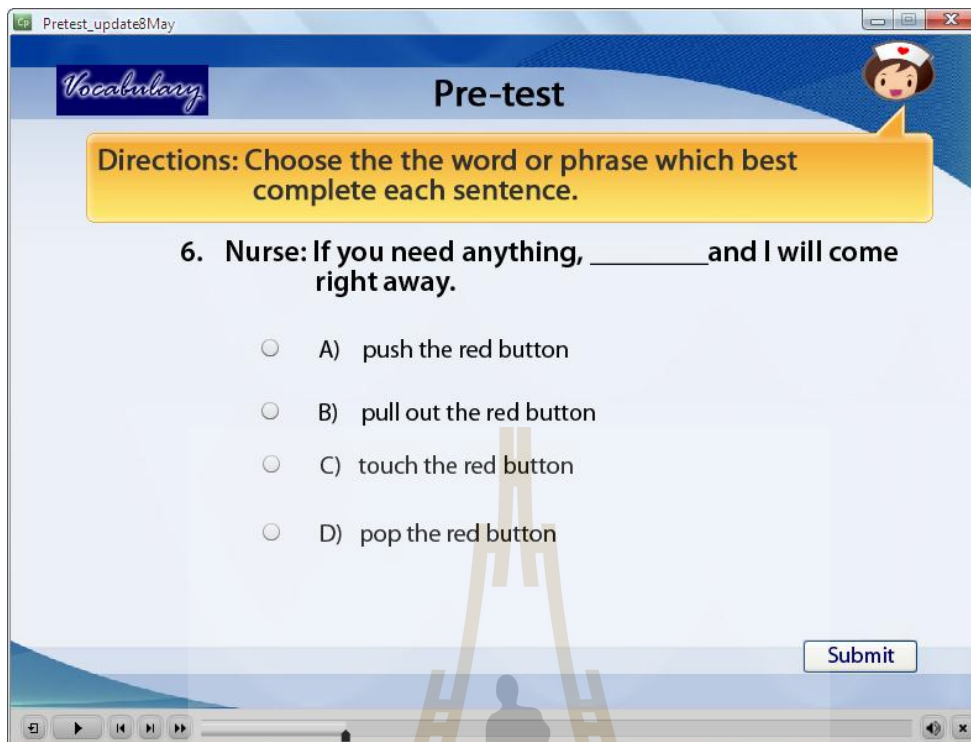
Pre-test

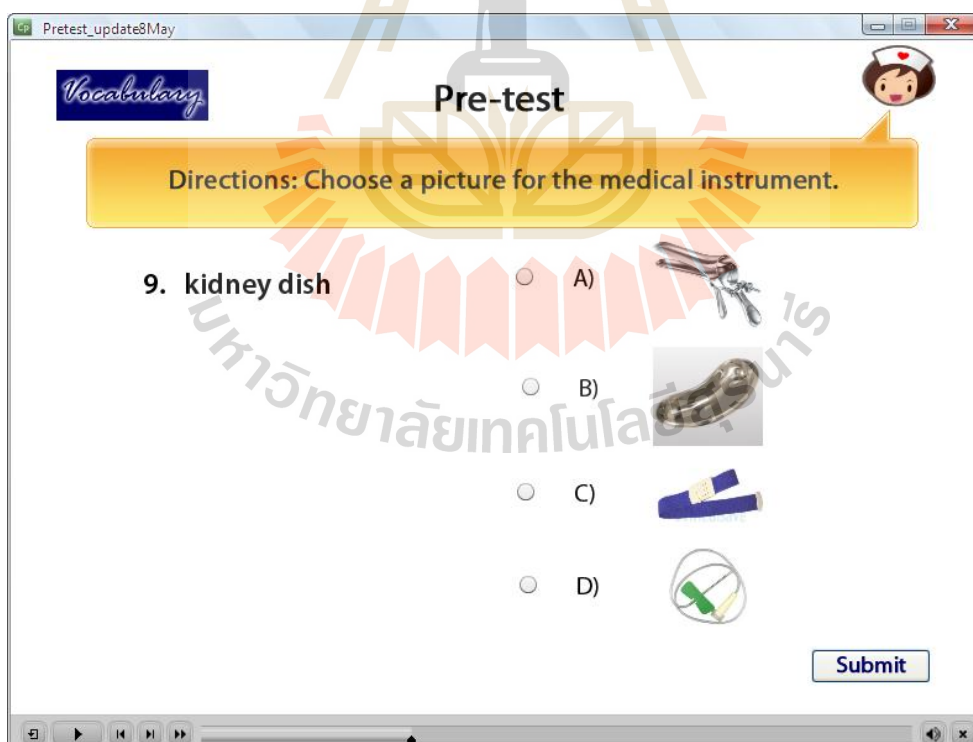
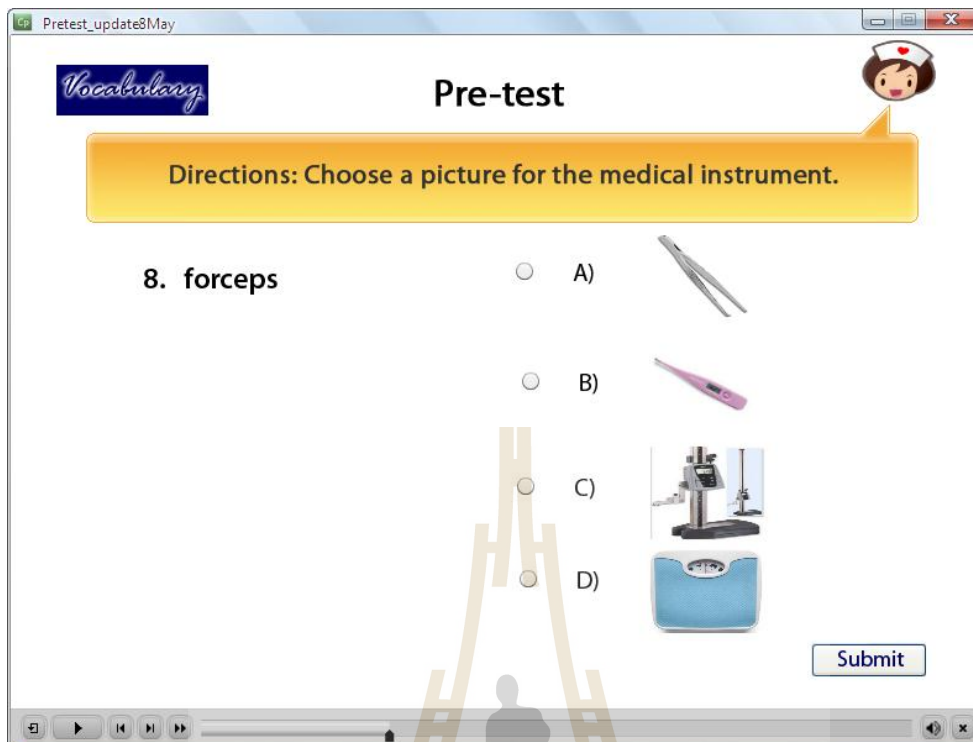
Directions: Choose the the word or phrase which best complete each sentence.

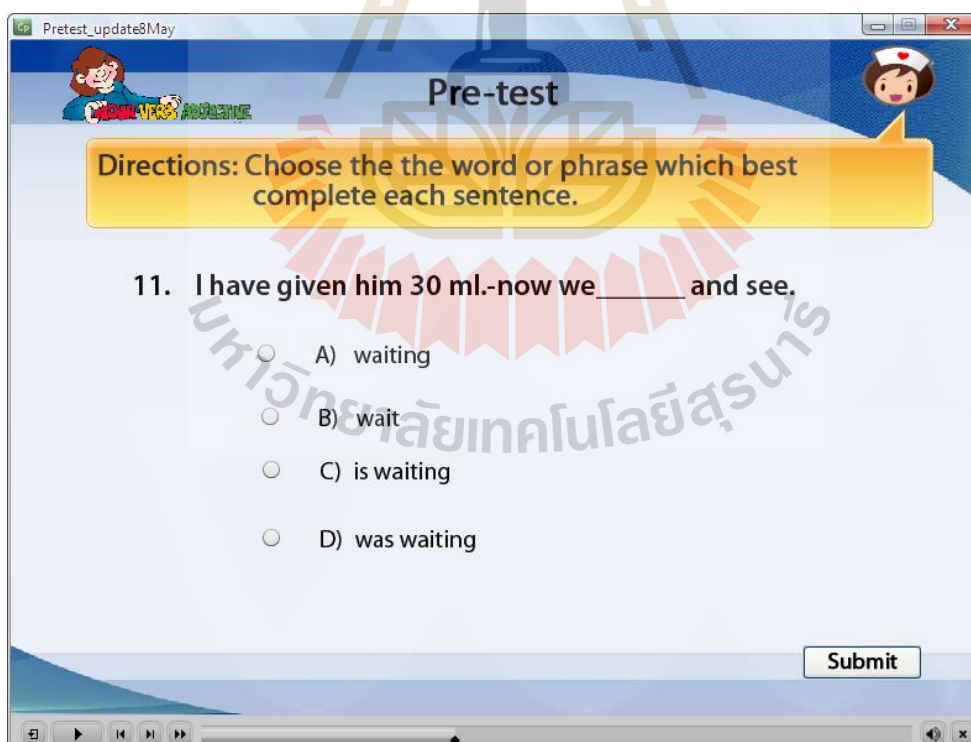
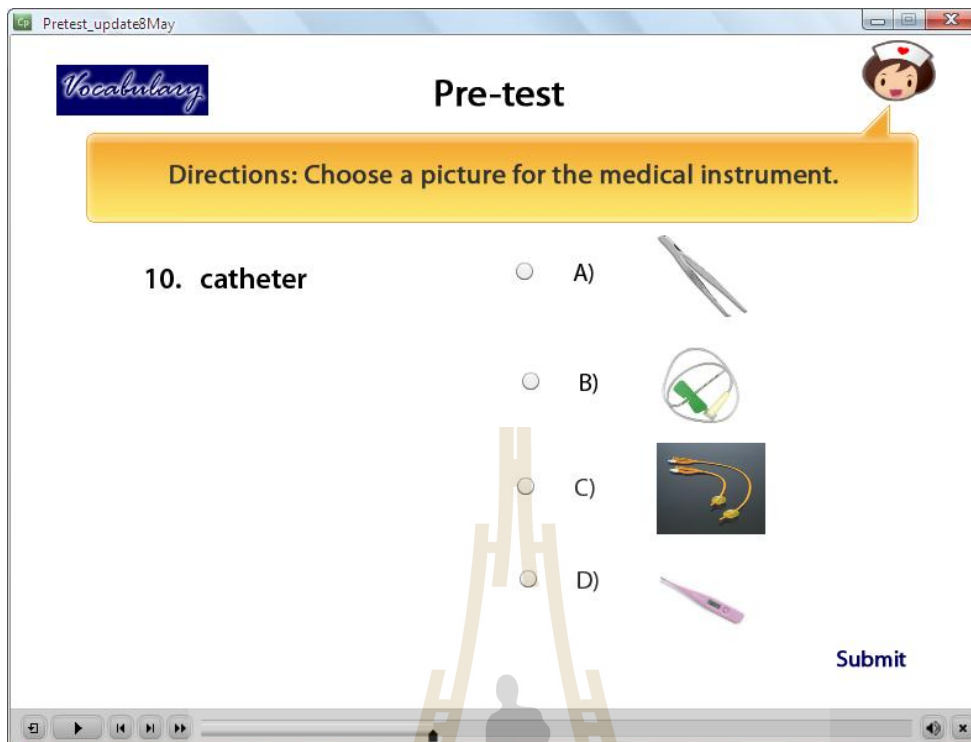
5. Nurse: I will _____ in the back of your hand. Are you left or right handed?

- ☐ A) hold intravenous needle
- ☐ B) keep intravenous needle
- ☒ C) put intravenous needle
- ☐ D) tight intravenous needle

Submit







Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

12. The doctors _____ happy if you start smoking again, Mr.Singh.

☐ A) not going to be

☐ B) are not going to be

☐ C) is not going to be

☐ D) going to be not

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

13. She cut her finger when she _____ food..

☐ A) prepares

☐ B) was preparing

☐ C) was prepared

☐ D) preparing

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

14. I _____ in the park and the man _____ me.

- ☐ A) was running, punched
- ☐ B) was running, punching
- ☐ C) running, punching
- ☐ D) ran, punches

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

15. We can change the medication, but I am sure it _____.

- ☐ A) shouldn't work
- ☐ B) won't work
- ☐ C) might not drink
- ☐ D) doesn't have to work

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

16. People with high blood pressure _____ too much salt on their food.

- ☐ A) shouldn't have
- ☐ B) don't have to
- ☐ C) might not drink
- ☐ D) doesn't have to work

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

17. Visitor : Excuse me, do you know where the General Ward Male is ?
Nurse : Sure
Visitor : Go _____ the door, turn left along the corridor, and general ward male is _____ you.

- ☐ A) along, in the back
- ☐ B) through, in front of
- ☐ C) into, at the corner
- ☐ D) straight, on the right

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

18. Patient: Are there any side effects I should know about?
Nurse: Yes, you _____ headaches, dryness in nose and throat.

- ☐ A) have to have
- ☐ B) need to have
- ☐ C) should have
- ☐ D) may have

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

19. A sedative _____ you relaxed and sleepy.

- ☐ A) making
- ☐ B) made
- ☐ C) makes
- ☐ D) make

Submit

Pretest_update8May

Pre-test

Directions: Choose the the word or phrase which best complete each sentence.

20. You _____ gloves when handling body fluids.

☐ A) will wear

☐ B) may need to wear

☐ C) must wear

☐ D) might wear

Submit

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.

A Patient Record Form

21. Nurse: Jensen, isn't it?



Patient: Yes, that's right.

Nurse : So, _____

Patient: I was working on a ladder. It was raining heavily and I slipped and fell.

Submit

Pretest_update8May

 **Pre-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



A Patient Record Form

22. Nurse: I see. You may have concussion. First, I will take down your details and fill in this form.

So,

Patient: It's River.

Pretest_update8May

 **Pre-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.

A Patient Record Form

23. Patient: Yes.

Nurse:

Patient: twenty a day.

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.

Setting up IV therapy

24. Nurse: I will put this needles
of your hand.

Patient: O.K

Submit

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.



Setting up IV therapy

25. Patient: Is this going to hurt?

Nurse: Just a small pin prick. Please keep your hand still.
That's it. I'll put this tape
to keep it in place. Is that comfortable?

Submit

Pretest_update8May

 **Pre-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



Patient Medication

26. Nurse: Here's your medication for your Conjunctivitis

Patient:

Nurse: It's Chloroph.

Pretest_update8May

 **Pre-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.

Taking blood pressure

27. Nurse:

Patient: Sure

Nurse: Please roll up your left sleeve and rest your arm on the table.

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.

Asking for the directions

28. Visitor:

Nurse : Sure

First, take the lift to the third floor. When you come out of the lift, turn left and walk straight ahead to the end of the corridor. Cabin 4 is on the left, next to VIP suite2.

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.

Taking a vital sign

29. Nurse: your mouth, please?

I will the thermometer your tongue. Please keep your mouth for about 3 minutes.

Pretest_update8May

Pre-test

Directions: Choose words or phrases from the boxes to complete the conversation.

Check the balance

30. Nurse:

Patient: O.K.

Nurse: Please step on the scales. Thank you.

Submit

Pretest_update8May

Pre-test Result

Your Score:	0
Questions Correct:	0
Number of Questions:	30
Number of Quiz Attempts:	1
Accuracy:	0%
Max Score:	30

Post Result

Continue

Pre-test of English Lessons for Nursing Science Students

Part II

English Oral Communicative Test 50 points

- Directions:**
1. Student will select a scenario at random.
 2. One student will role play the nurse and another student will role play the patient.
 3. Student will be assessed using the below criteria. Total points 20

Scenarios

1. Miss Sophie Brown has to be admitted to the hospital due **bee sting allergies and fever.**
2. Mr. Adam Bells has to be admitted to the hospital due **acute pneumonia.**
3. Mr. Greg Johnson has to be admitted to the hospital due severe **vomiting and diarrhea.**
4. Mrs. Katie White has to be admitted to the hospital due **high fever and dry cough.**

Do the following:

- Admit the patient to the hospital.
- Take the patient's Vital Signs
 - Explain to the patient what you are going to do and your reason(s) for doing it.
- Take a thorough Nursing History
- Give the ordered medications
 - Explain to the patient what the medication is for, what side effects to watch out, and how will the medication be given.

Criteria for the Communicative Language Ability Test

1. Accuracy of Information

Correct information (4)	Less than 3 major errors in information (3)	Many errors in information (2)	Incorrect information (1)	Total

2. Pronunciation

Nearly flawless pronunciation (4)	Easily understood (3)	A number of mispronunciations but understandable (2)	Mispronunciation (1)	Total

3. Word Choice

Excellent / advanced choices (4)	Standard word choices (3)	A number of incorrect word choices (2)	Hard to find words, go to Thai (1)	Total

4. Grammatical Accuracy

Correct sentence structure (4)	1 or 2 grammatical errors (3)	A number of grammatical errors but understandable (2)	Use of poor grammar thus affecting communication (1)	Total

5. Overall fluency

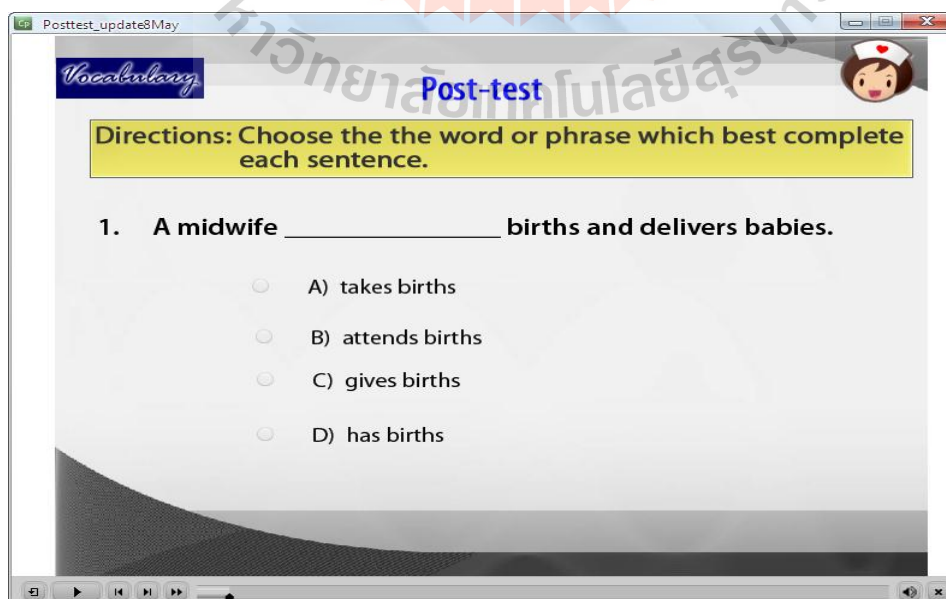
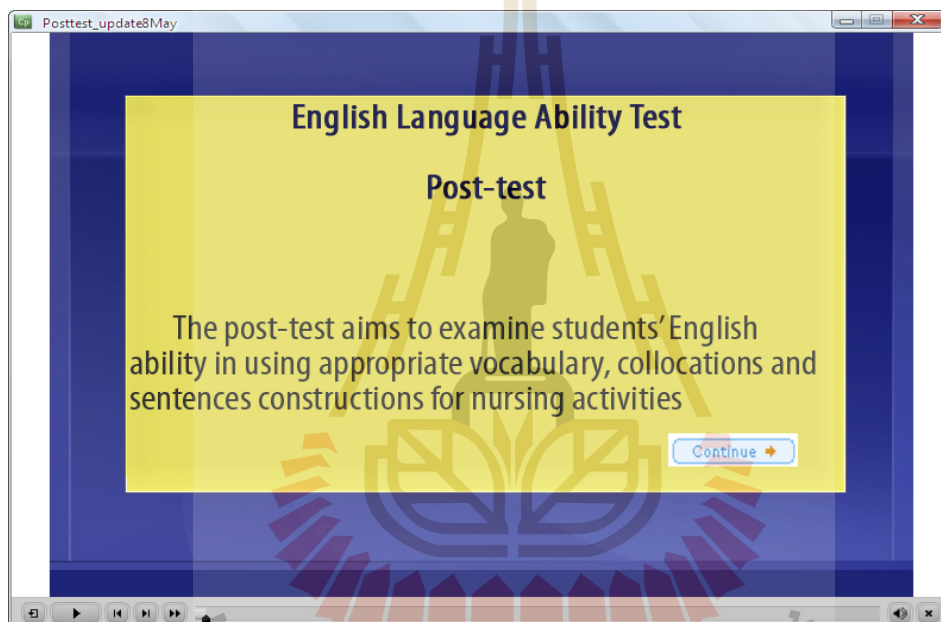
Speaks fluently with expression (4)	Generally speaks with fluency (3)	Difficult to understand (2)	Fragmented (1)	Total

Overall scores _____ Instructor _____

APPENDIX C

Post-test of CALL English Lessons for Nursing Science Students

Part I



Posttest_update8May


Vocabulary

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

2. Nurse: The doctor wants to see you again next month. You need to _____.

- ☐ A) take an appointment
- ☐ B) make an appointment
- ☐ C) give an appointment
- ☐ D) do an appointment



Posttest_update8May


Vocabulary

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

3. Nurse: Open your mouth, please. I will ___ under your tongue.

- ☐ A) put the thermometer
- ☐ B) check the thermometer
- ☐ C) move the thermometer
- ☐ D) keep the thermometer



Posttest_update8May

Vocabulary

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

4. Mrs. Wang _____ of an antihistamine every eight hours-10 milligrams of Dimotane each time.

- ☐ A) excepts an injection
- ☐ B) receives an injection
- ☐ C) gives an injection
- ☐ D) holds an injection

Posttest_update8May

Posttest_update8May

Vocabulary

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

5. Nurse: If you need anything, _____ and I will come right away.

- ☐ A) push the red button
- ☐ B) pull out the red button
- ☐ C) touch the red button
- ☐ D) pop the red button

Posttest_update8May

Posttest_update8May

Vocabulary

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

6. Nurse: I will _____ in the back of your hand.
Are you left or right handed?

- ☐ A) hold intravenous needle
- ☐ B) keep intravenous needle
- ☐ C) put intravenous needle
- ☐ D) tight intravenous needle





Posttest_update8May

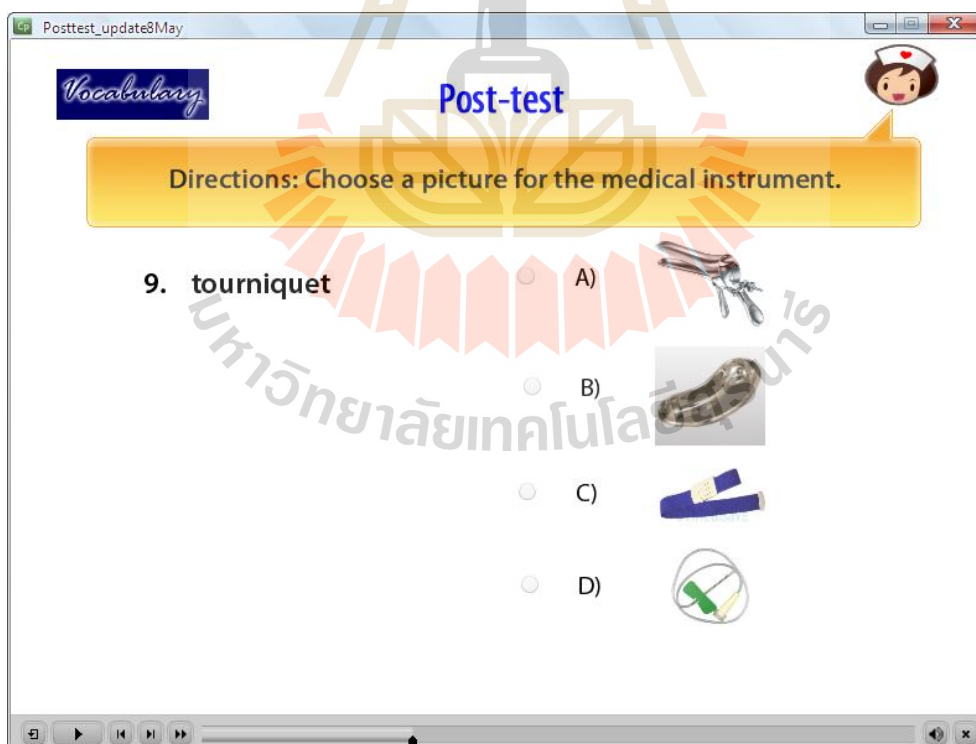
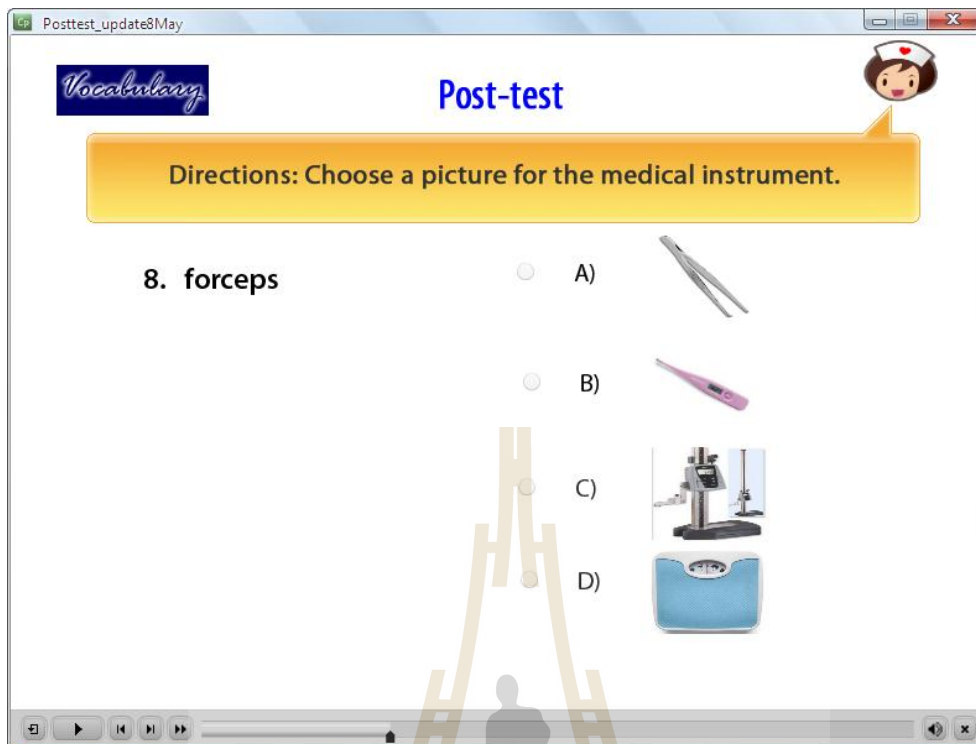
Vocabulary

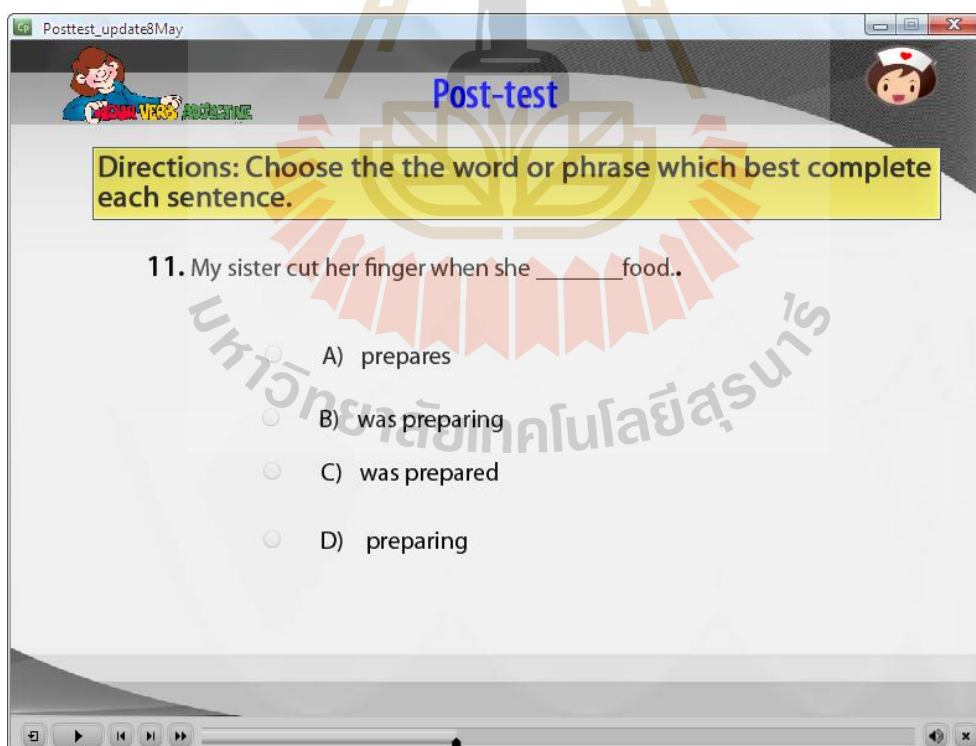
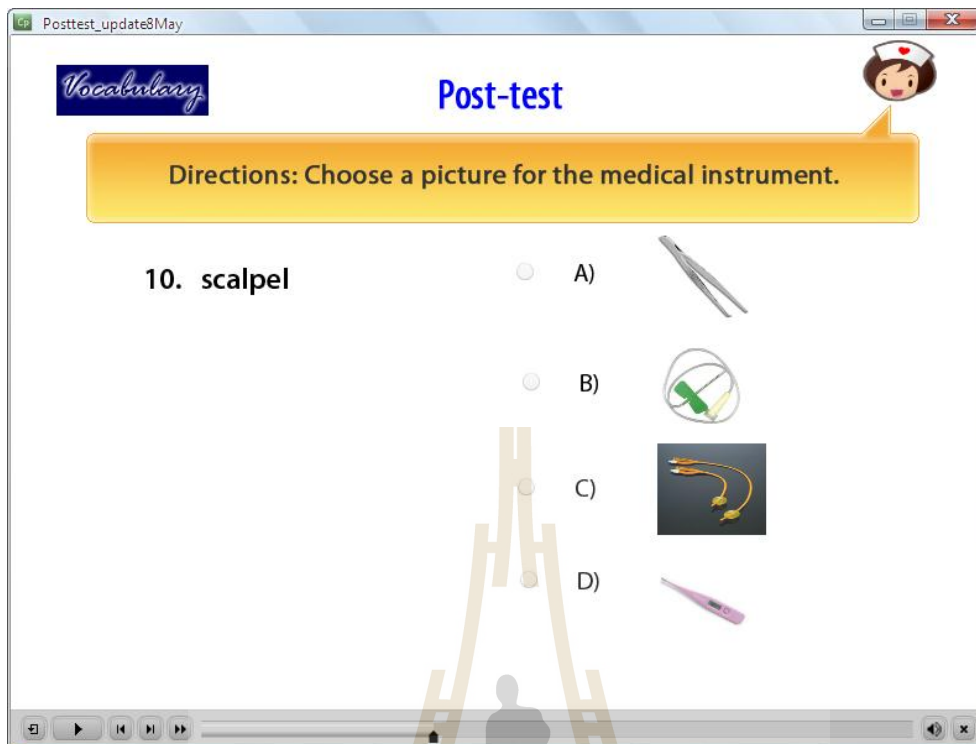
Post-test

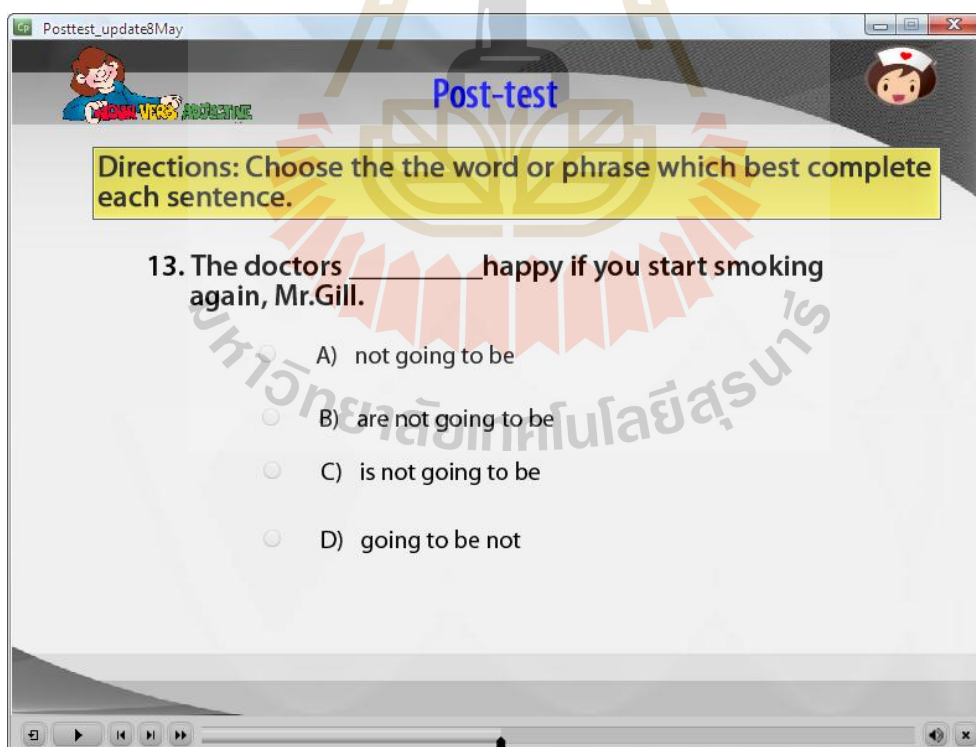
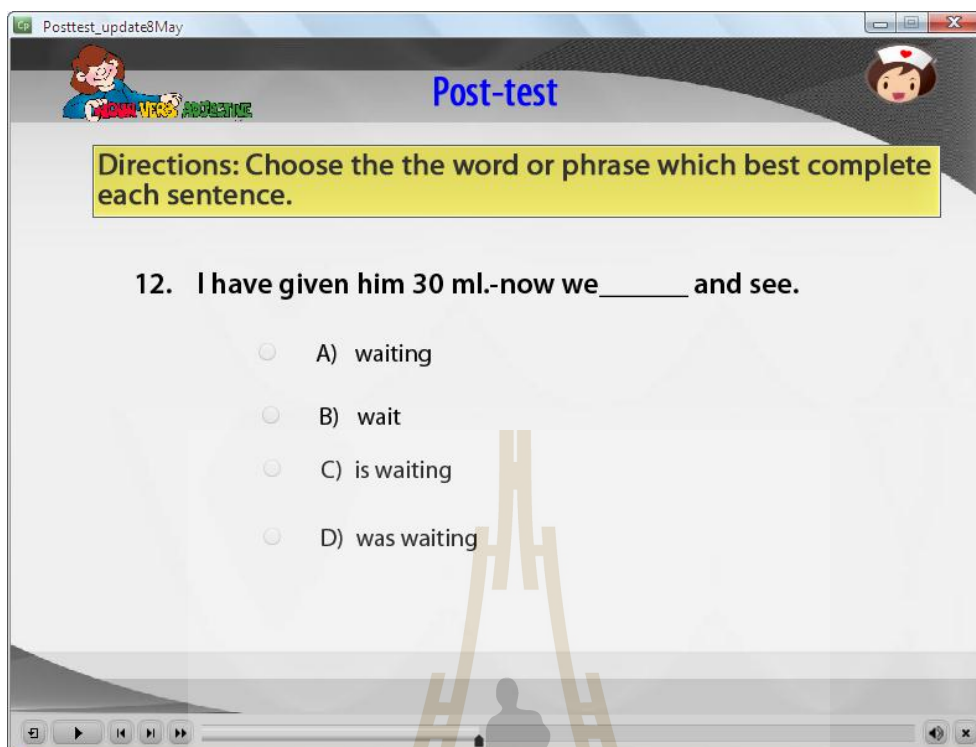
Directions: Choose a picture for the medical instrument.

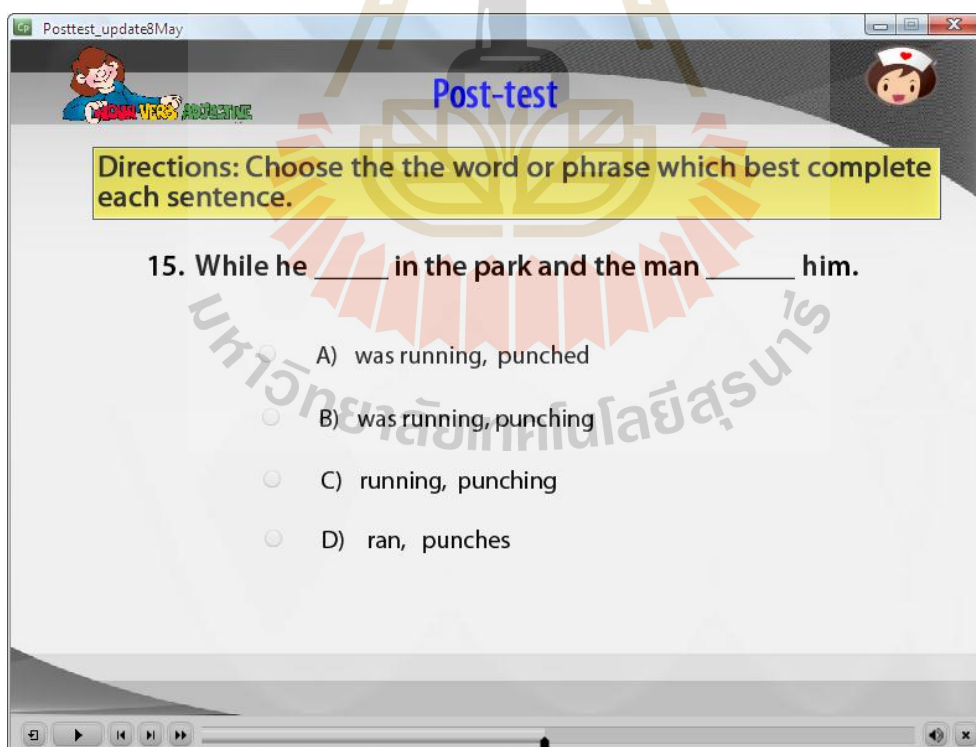
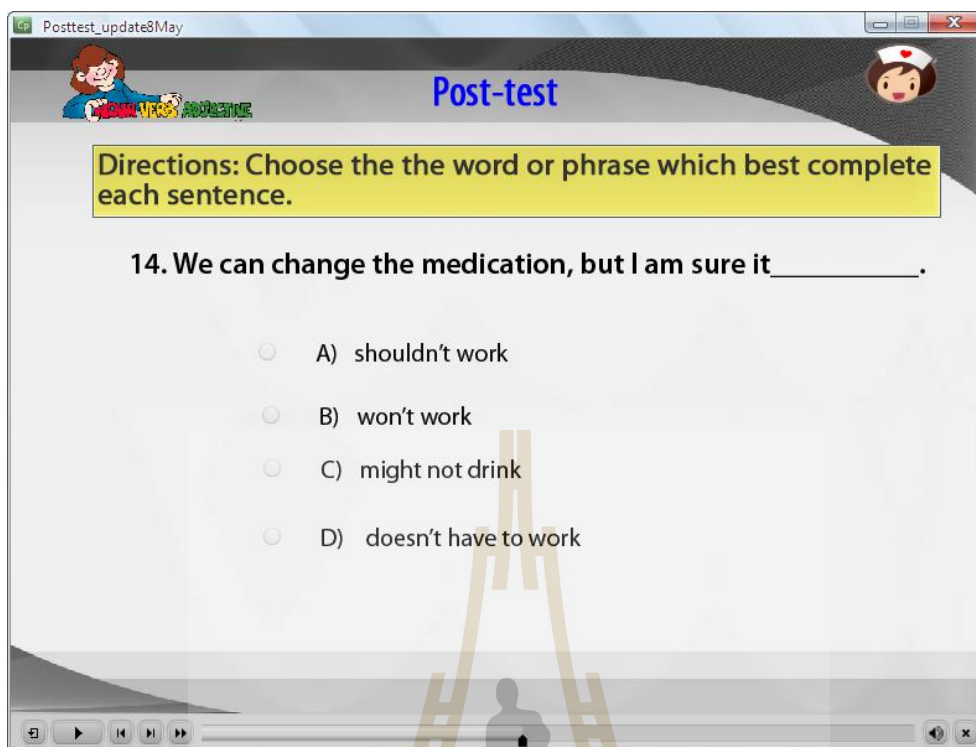
7. dressing pack

- ☐ A) 
- ☐ B) 
- ☐ C) 
- ☐ D) 









Posttest_update8May

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

16. Visitor : Excuse me, do you know where the General Ward Male is ?
Nurse : Sure
Visitor : Go _____ the door, turn left along the corridor, and general ward male is _____ you.

- ☐ A) along, in the back
- ☐ B) through, in front of
- ☐ C) into, at the corner
- ☐ D) straight, on the right

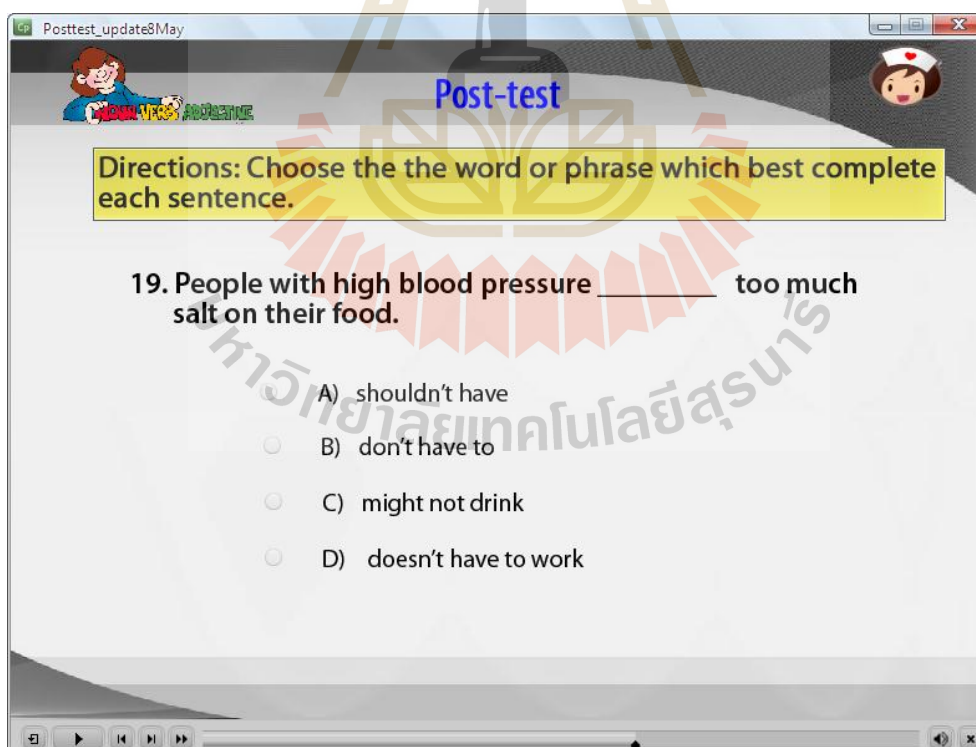
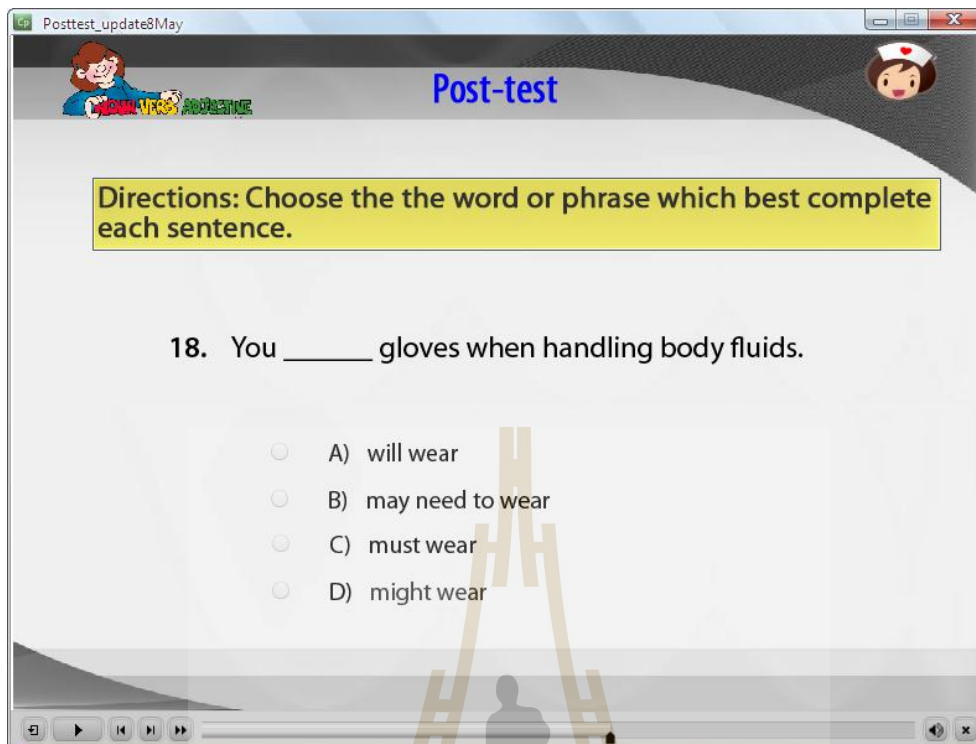
Posttest_update8May

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

17. Patient: Are there any side effects I should know about?
Nurse: Yes, you _____ headaches, dryness in nose and throat.

- ☐ A) have to have
- ☐ B) need to have
- ☐ C) should have
- ☐ D) may have



Posttest_update8May

Post-test

Directions: Choose the the word or phrase which best complete each sentence.

20. A sedative _____ you relaxed and sleepy.

- ☐ A) making
- ☐ B) made
- ☐ C) makes
- ☐ D) make



Posttest_update8May

Post-test

Directions: Choose words or phrases from the boxes to complete the conversation.

21. Nurse: your mouth, please?
 I will the thermometer your
 tongue. Please keep your mouth
 for about 3 minutes.

Posttest_update8May

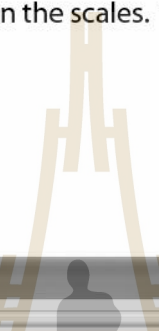
 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



22. Nurse:

Patient: O.K.

Nurse: Please step on the scales. Thank you.



Posttest_update8May

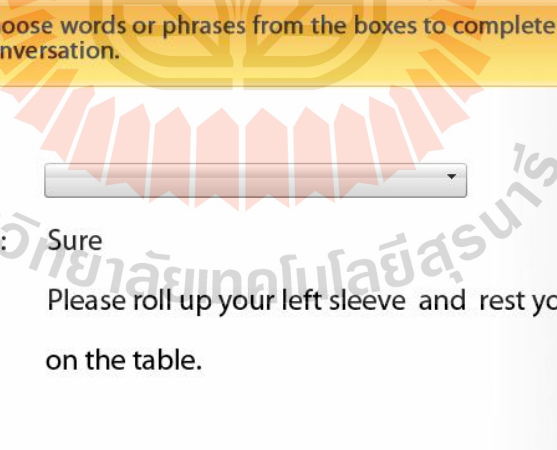
 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



23. Nurse:

Patient: Sure

Nurse: Please roll up your left sleeve and rest your arm on the table.



Posttest_update8May

 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.


A Patient Record Form

24. Nurse: Jensen, isn't it?



Patient: Yes, that's right.

Nurse : So,

Patient: I was working on a ladder. It was raining heavily and I slipped and fell.



Posttest_update8May

 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



A Patient Record Form

25. Nurse: I see. You may have concussion. First, I will take down your details and fill in this form.

So,

Patient: It's River.

Posttest_update8May

 **Post-test** 


Directions: Choose words or phrases from the boxes to complete the conversation.

A Patient Record Form



26. Patient: Yes.

Nurse:

Patient: twenty a day.



Posttest_update8May

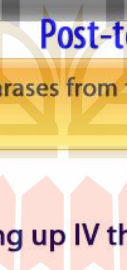
 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.



Setting up IV therapy

27. Nurse: I will put this needles of your hand.

Patient: O.K



Posttest_update8May

 **Post-test** 

Directions: Choose words or phrases from the boxes to complete the conversation.

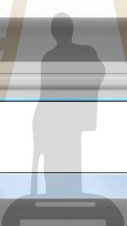
Setting up IV therapy

28. Patient: Is this going to hurt?



Nurse: Just a small pin prick. Please keep your hand still.

That's it. I'll put this tape

to keep it in place. Is that comfortable?



Posttest_update8May

 **Post-test** 


Directions: Choose words or phrases from the boxes to complete the conversation.

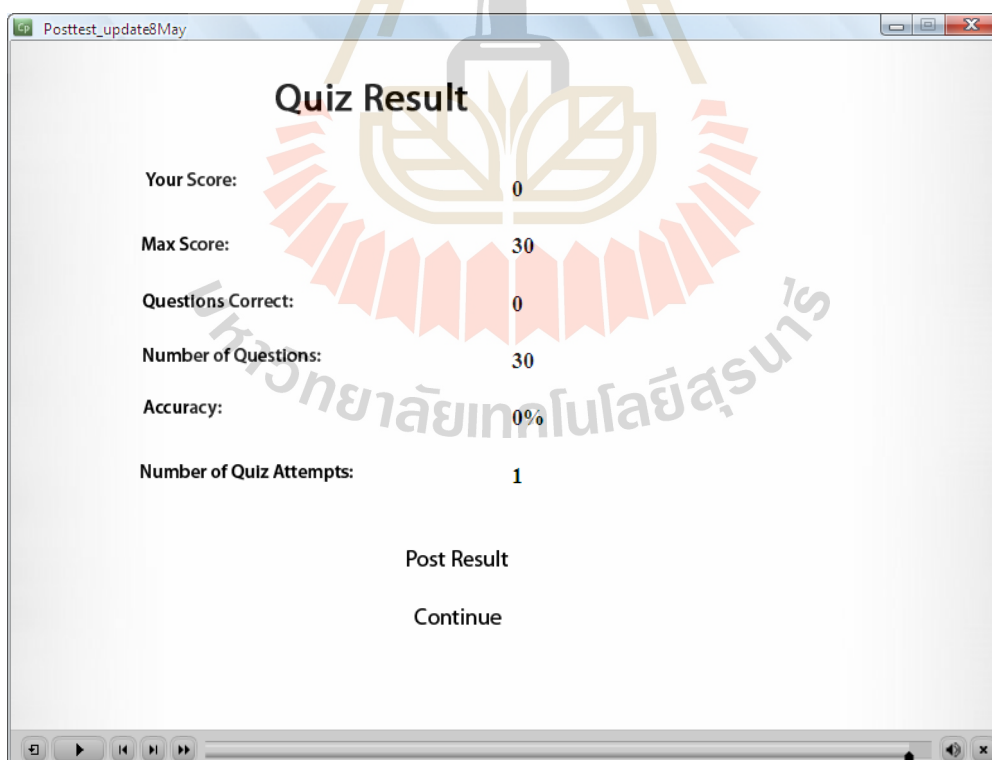
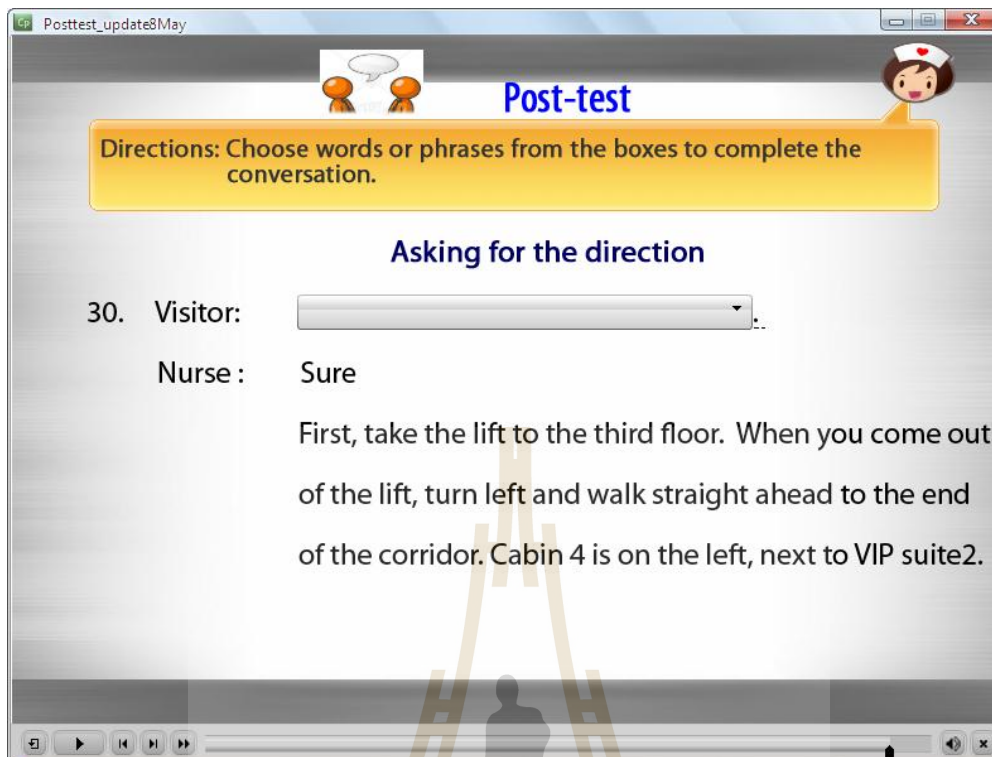
Setting up IV therapy

29. Nurse: Here's your medication for your Conjunctivitis

Patient:

Nurse: It's Chloroph.





Post-test of English Lessons for Nursing Science Students

Part II

English Oral Communicative Test 50 points

- Directions:**
1. Student will select a scenario at random.
 2. One student will role play the nurse and another student will role play the patient.
 3. Student will be assessed using the below criteria. Total points 20

Scenarios

1. Mrs. Linda Smiths has to be admitted to the hospital due **bee sting allergies and fever.**
2. Mr. Michael Brown has to be admitted to the hospital due **acute pneumonia.**
3. Mr. George Johnson has to be admitted to the hospital due **severe vomiting and diarrhea.**
4. Mrs. Kylie Peterson has to be admitted to the hospital due **high fever and dry cough.**

Do the following:

- Admit the patient to the hospital.
- Take the patient's Vital Signs
 - Explain to the patient what you are going to do and your reason(s) for doing it.
- Take a thorough Nursing History
- Give the ordered medications
 - Explain to the patient what the medication is for, what side effects to watch out, and how will the medication be given.

Criteria for the Communicative Language Ability Test

1. Accuracy of Information

Correct information (4)	Less than 3 major errors in information (3)	Many errors in information (2)	Incorrect information (1)	Total

2. Pronunciation

Nearly flawless pronunciation (4)	Easily understood (3)	A number of mispronunciations but understandable (2)	Mispronunciation (1)	Total

3. Word Choice

Excellent / advanced choices (4)	Standard word choices (3)	A number of incorrect word choices (2)	Hard to find words, go to Thai (1)	Total

4. Grammatical Accuracy

Correct sentence structure (4)	1 or 2 grammatical errors (3)	A number of grammatical errors but understandable (2)	Use of poor grammar thus affecting communication (1)	Total

5. Overall fluency

Speaks fluently with expression (4)	Generally speaks with fluency (3)	Difficult to understand (2)	Fragmented (1)	Total

Overall scores _____ Instructor _____

APPENDIX D

Item Analysis

I. Item Analysis for Pretest of CALL English Lessons for Nursing Science Students (30 items)

The results of item analysis for pretest show the level of difficulty (p),
discrimination index @, and reliability (rtt by KR-20).

Items	Item Level of Difficulty (p)	Discrimination Index (r)	Reliability (rtt by KR-20)
1	0.58	0.68	0.96
2	0.50	0.53	
3	0.54	0.75	
4	0.58	0.68	
5	0.54	0.75	
6	0.38	0.75	
7	0.42	0.83	
8	0.46	0.91	
9	0.46	0.91	
10	0.46	0.60	
11	0.42	0.83	
12	0.35	0.68	
13	0.46	0.60	
14	0.35	0.68	

Items	Item Level of Difficulty (p)	Discrimination Index (r)	Reliability (rtt by KR-20)
15	0.42	0.83	
16	0.38	0.75	
17	0.46	0.75	
18	0.46	0.91	
19	0.38	0.75	
20	0.42	0.83	
21	0.50	0.83	
22	0.50	0.83	
23	0.46	0.91	
24	0.46	0.75	
25	0.46	0.91	
26	0.46	0.75	
27	0.46	0.75	
28	0.38	0.60	
29	0.54	0.75	
30	0.27	0.53	

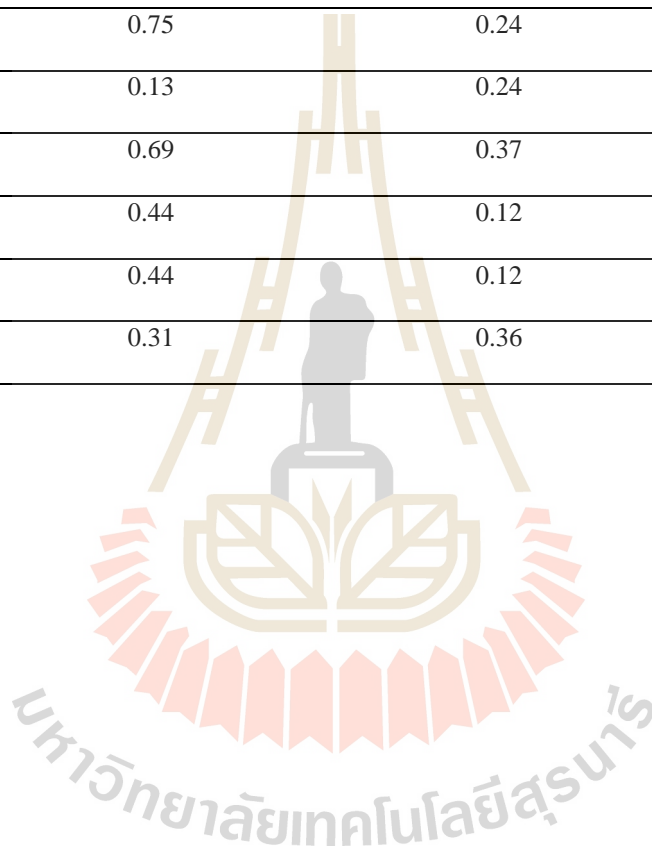
II. Item Analysis for Posttest of CALL English Lessons for Nursing

Science Students (30 items)

The results of item analysis for post-test show the level of difficulty (p), discrimination index (r), and reliability (rtt by KR-20).

Items	Item Level of Difficulty (p)	Discrimination Index (r)	Reliability (rtt by KR-20)
1	0.38	0.48	0.82
2	0.50	0.24	
3	0.81	0.36	
4	0.44	0.85	
5	0.81	0.36	
6	0.81	0.36	
7	0.69	0.36	
8	0.44	0.12	
9	0.81	0.36	
10	0.44	0.36	
11	0.44	0.36	
12	0.38	0.42	
13	0.19	0.36	
14	0.50	0.24	
15	0.88	0.24	
16	0.56	0.36	
17	0.44	0.36	
18	0.81	0.36	
19	0.88	0.24	

Items	Item Level of Difficulty (p)	Discrimination Index (r)	Reliability (rtt by KR-20)
20	0.75	0.48	
21	0.25	0.48	
22	0.75	0.48	
23	0.75	0.48	
24	0.31	0.61	
25	0.75	0.24	
26	0.13	0.24	
27	0.69	0.37	
28	0.44	0.12	
29	0.44	0.12	
30	0.31	0.36	



APPENDIX E

The Results of the Students' Pre-test and Posttest Scores

A. The Results of the Students' Pre-test and Posttest Scores

Student Number	Pre-test Score (30 points)	Post-test Score (30 points)
1	16	25
2	15	26
3	14	23
4	15	25
5	12	22
6	18	26
7	14	24
8	18	25
9	21	26
10	14	25
11	17	26
12	13	22
13	12	24
14	14	25
15	20	28
16	14	25

Student Number	Pre-test Score (30 points)	Post-test Score (30 points)
17	16	24
18	18	23
19	12	26
20	13	25
21	12	24
22	18	27
23	16	26
24	14	26
25	15	24
26	12	26
27	14	24
28	14	22
29	13	25
30	18	27
TOTAL	452	745
MEAN	15.07	24.83

APPENDIX F

Students' Learning Logs Forms

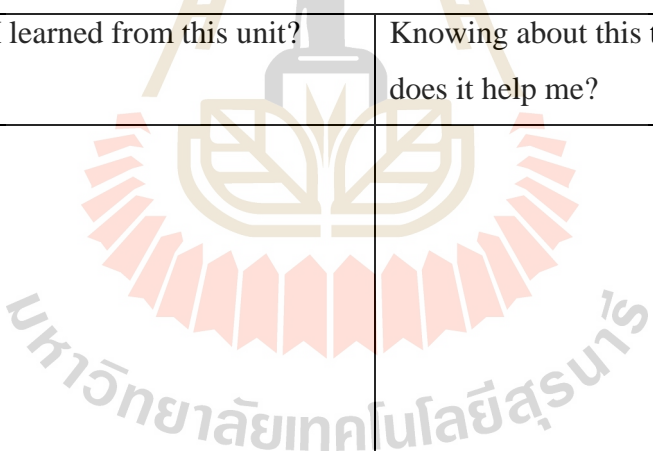
Name _____

Student ID _____

CALL Lessons' today: Unit _____

Student Learning Logs

Instructions: Use this form to keep track of what is being taught in this class and whether you have learned with CALL English lessons for Nursing Science students

1.What have I learned from this unit?	Knowing about this topic, in which ways does it help me?
	
What part do I like the most and why?	What part do I find most difficult and why?

APPENDIX G

Researcher's Journal Form

Date_____

Participants_____

Phases /Stages	Steps	Details/ Problems/Solutions / Notes
(Example) 1. Material Selection	1.Identifying Objectives	

APPENDIX H

Semi-Structured Interview Guided Questions

1. Do you like to learn English with CALL English Lessons for Nursing Science Students? Why? Or Why not?
2. What do you like most in CALL English Lessons for Nursing Science Students?
3. What do you dislike most in CALL English Lessons for Nursing Science Students?
4. Is It Convenient for you to Learn English with CALL Lessons for Nursing Science Students?
5. Are CALL English Lessons for Nursing Science Students interesting?
6. Do CALL English Lessons for Nursing Science Students arouse your attention in learning English?
7. Do CALL English Lessons for Nursing Science Students help you develop your knowledge of English vocabulary and conversation related to a nursing career?
8. Do you consider the training hours with CALL English lessons for Nursing Science Students helpful?

APPENDIX I

The Examples of CALL English Lessons for Nursing Science Students



unit1 Registering a Patient

Unit 1


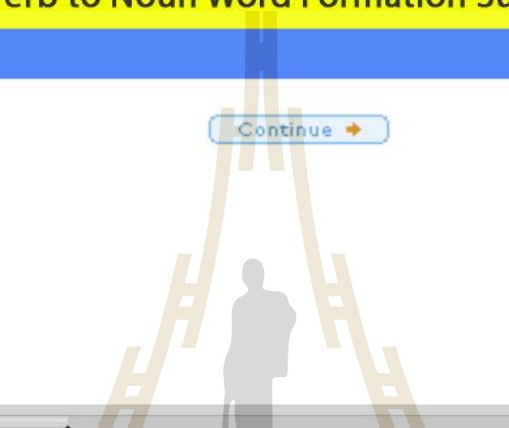
Registering a Patient

Vocabulary

I. Verb to Noun Word Formation Suffixes.

Continue ➔

Forward

unit1 Registering a Patient

Unit 1


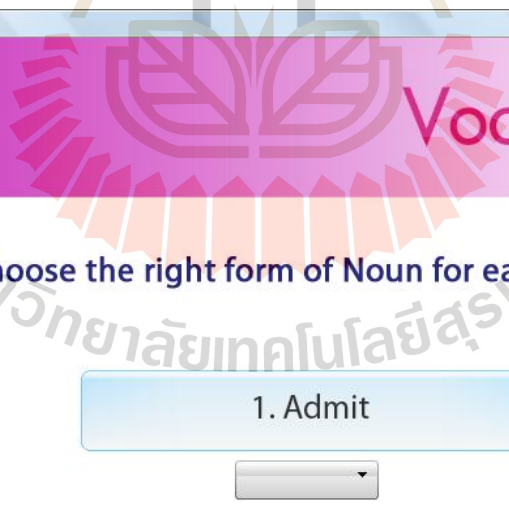
Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

1. Admit

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

2. Assess

Submit

?

This screenshot shows a software window titled 'unit1 Registering a Patient'. The header has a purple gradient with 'Unit 1' in large white font and 'Registering a Patient' in smaller white font. To the right, 'Vocabulary' is written in a pink script font. The main area is white with the instruction 'Choose the right form of Noun for each verb.' in blue. Below this, a light blue box contains the text '2. Assess'. Underneath is a small grey dropdown menu. To the right is a 'Submit' button. At the bottom right, there is a large red question mark icon. The bottom of the window features a yellow and blue horizontal bar and a media player control bar with play, pause, and volume icons.

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

3. Discharge

Submit

?

Forward

This screenshot shows the same software window as above, but at a different point in the exercise. The header and instruction are identical. The light blue box now contains '3. Discharge', and the dropdown menu below it is empty. The 'Submit' button and the large red question mark icon are still present. The bottom of the window features the same yellow and blue horizontal bar, but the media player control bar now includes a 'Forward' button and a progress slider.

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

4. Operate

Submit

?

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

5. Refer

Submit

?


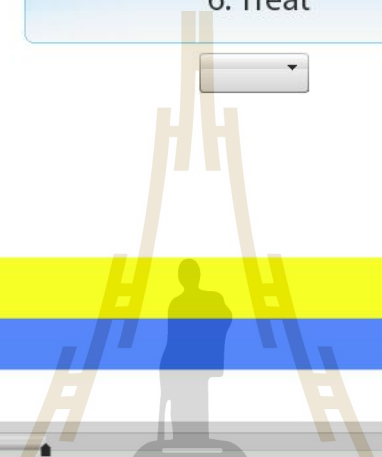
Unit 1
Registering a Patient

Vocabulary

Choose the right form of Noun for each verb.

6. Treat

Submit



Unit 1
Registering a Patient

Vocabulary

มหาวิทยาลัยเทคโนโลยีสุรนารี

II. Word Combination.

Continue

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the letter A, B, C, D, or E on the right column to make the word combination.

1. acutely

- A) unit
- B) letter
- C) list
- D) duty
- E) ill

Submit

Back

unit1 Registering a Patient

Unit 1

Registering a Patient

Vocabulary

Choose the letter A, B, C, D, or E on the right column to make the word combination.

2. assessment

- A) unit
- B) letter
- C) list
- D) duty
- E) ill

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient


Vocabulary

Choose the letter A, B, C, D, or E on the right column to make the word combination.

3. on

- A) unit
- B) letter
- C) list
- D) duty
- E) ill

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient


Vocabulary

Choose the letter A, B, C, D, or E on the right column to make the word combination.

4. referral

- A) unit
- B) letter
- C) list
- D) duty
- E) ill

Submit



unit1 Registering a Patient

Unit 1


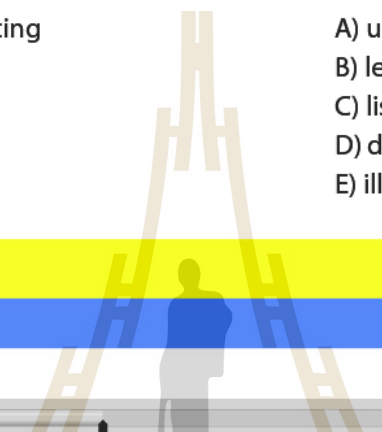
Registering a Patient

Vocabulary

Choose the letter A, B, C, D, or E on the right column to make the word combination.

5. waiting

- A) unit
- B) letter
- C) list
- D) duty
- E) ill

unit1 Registering a Patient



Unit 1

Registering a Patient

Review Expansion

มหาวิทยาลัยเทคโนโลยีสุรนารี

This is the end of Voacbualry Exercises.

unit1 Registering a Patient

Unit 1

Registering a Patient

main menu

Registering a Patient

- Vocabulary
- Conversation
- Language Focus
- Review

Hospital Admission



unit1 Registering a Patient

Unit 1



Registering a Patient

Conversation

มหาวิทยาลัยราชภัฏวไลยอลงกรณ์

I. Listen to the patient describe their problem and write number 1 to 4 for picture A to D.

Continue ➔

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Choose letter a, b, c or d for each problem.

Mouse over to Listen here

☐ A) 

☐ B) 

☐ C) 

☐ D) 

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Choose letter a, b, c or d for each problem.

Mouse over to Listen here

☐ A) 

☐ B) 

☐ C) 

☐ D) 

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Choose letter a, b, c or d for each problem.

Mouse over to Listen here

☐ A) ☐ B) ☐ C) ☐ D)



Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Choose letter a, b, c or d for each problem.

Mouse over to Listen here

☐ A) ☐ B) ☐ C) ☐ D)



Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

II. Listen to the nurse get personal details from a patient. Choose the words from the list to complete the form.

Continue ➔





unit1 Registering a Patient

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Listen to the introduction of the Conversation 4 and fill up the patient's form. Click GO! to the next page.

Mouse over to Listen here




Continue ➔

unit1 Registering a Patient

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation



Mouse over to Listen here

Patient Record



1. First name


Progress bar and navigation controls at the bottom.

unit1 Registering a Patient

Unit 1


Registering a Patient

Conversation



Mouse over to Listen here

Patient Record



2. Last name

Progress bar and navigation controls at the bottom.

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation



Mouse over to Listen here

Patient Record



3. Gender


?

unit1 Registering a Patient

Unit 1


Registering a Patient

Conversation



Mouse over to Listen here

Patient Record



4. Occupation

?

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

Patient Record



5. DOB

?

unit1 Registering a Patient


Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

Patient Record



6. Place of birth

?

unit1 Registering a Patient


Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

Patient Record



7. Marital Status

Submit

?

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

Patient Record



8. Next of kin

Submit

?

unit1 Registering a Patient


Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

Patient Record



9. contact no.

Submit

?

unit1 Registering a Patient


Unit 1

Registering a Patient

Conversation

Mouse over to Listen here

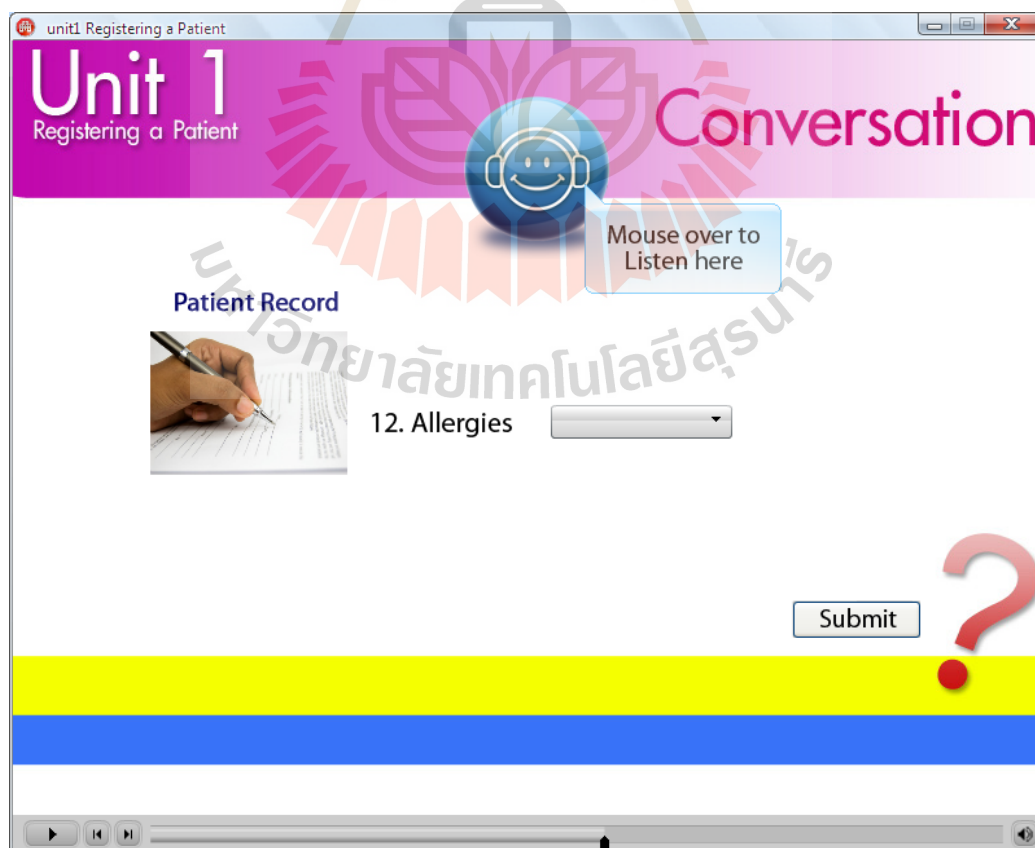
Patient Record



10. Smoking intake

Submit

?



unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation



Mouse over to Listen here

Patient Record



13. Family history

Submit


?

unit1 Registering a Patient

Unit 1

Registering a Patient

Conversation



Mouse over to Listen here

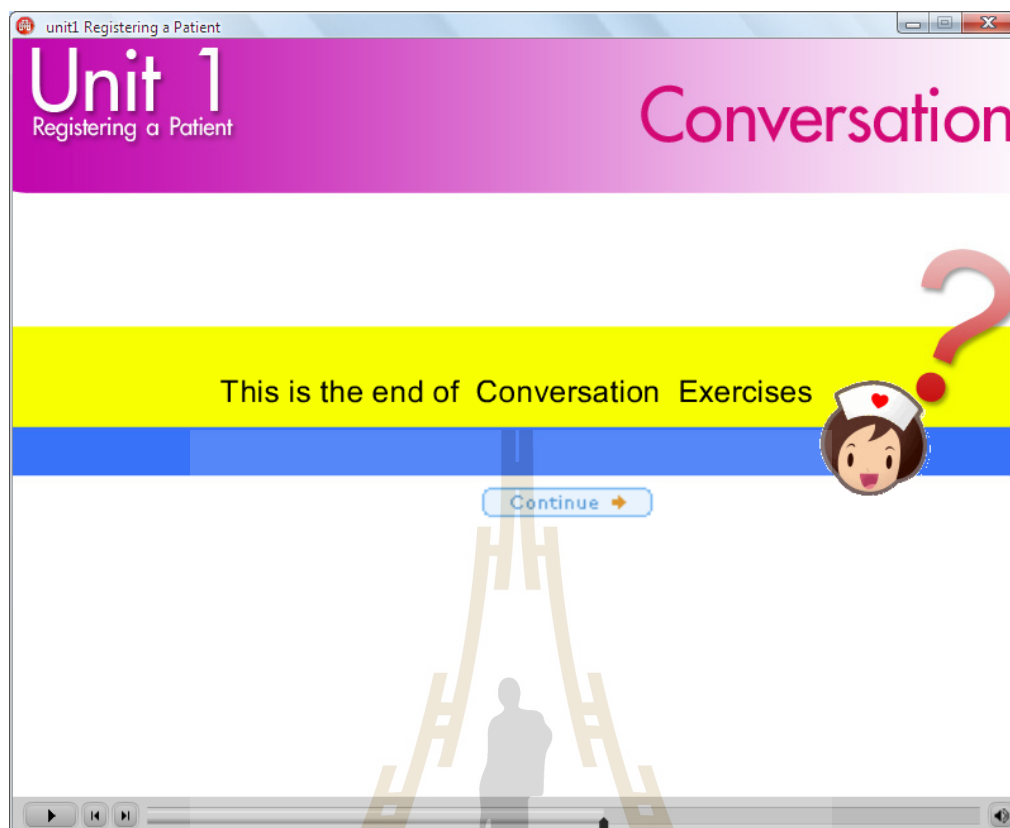
Patient Record



14. Reason for admission

Submit

?



unit1 Registering a Patient


Unit 1

Registering a Patient

Language Focus

Patient Registration

Questions
 Using What, When, Where and Who to ask for a patient record
 Notice in a conversation you may not use a complete sentence.
 For Examples: And your name, please?




Unit 1 Registering a Patient

unit1 Registering a Patient

Unit 1

Registering a Patient

Language Focus

Patient Registration

Questions
 Using What, When, Where and Who to ask for a patient record
 Notice in a conversation you may not use a complete sentence.
 For Examples: And your name, please?

Asking for the title:
 And is that Mrs, Miss or Ms?


Asking for Occupation:
 What work do you do?
 What do you do?
 What's your job?
 What's your occupation?

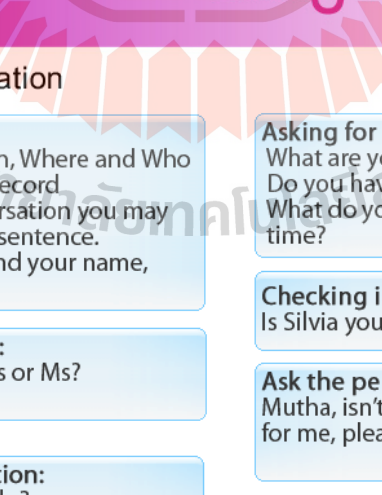
Asking for interests and hobbies
 What are your hobbies?
 Do you have any hobbies?
 What do you like to do in your free time?

Checking information
 Is Silvia your first name?

Ask the person to spell it
 Mutha, isn't it? Would you spell that for me, please?

[Next >>](#)





Unit 1 Registering a Patient

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

I. Match the questions with their answers.

Continue

Unit 1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

1. Can you tell me your full name, please?

answer

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

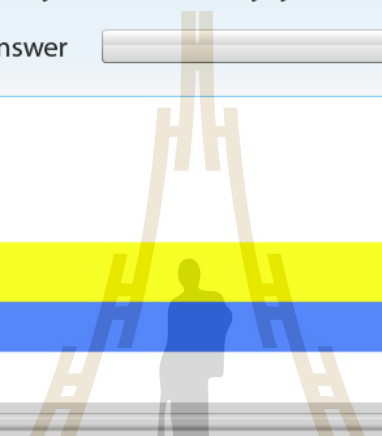

Let's Practice

Complete the sentence below by filling in the blanks.

2. Can you tell me why you're here today?

answer

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

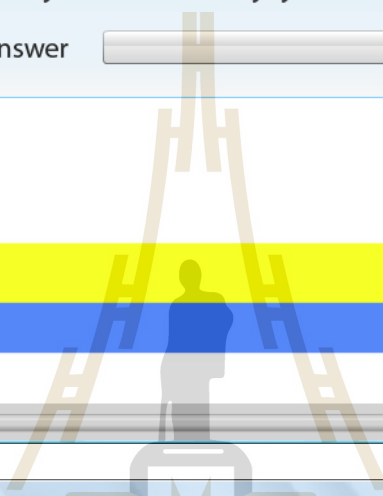

Let's Practice

Complete the sentences below by filling in the blanks.

3. Have you ever had any operations?

answer

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

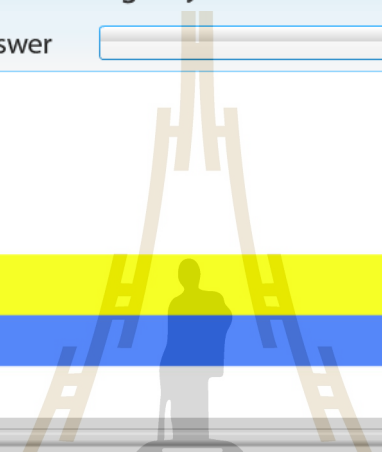
Let's Practice

Complete the sentence below by filling in the blanks.

4. Are you taking any medications at the moment?

answer

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient


Let's Practice

Complete the sentences below by filling in the blanks.

5. Do you have any allergies to any medications?

answer

Submit



Question 34 of 63

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

5. Do you have any allergies to any medications?

answer

Submit

Question 34 of 63

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

6. Can you tell me the name of your next of kin?

answer

Submit

unit1 Registering a Patient




Unit 1

Registering a Patient

Let's Practice

II. Choose the words, phrases or sentences to complete the conversation.

Continue ➔

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

Nurse: Good morning.

Patient: Yes, good morning. I'd like to see a doctor.

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

Nurse: Have you been here before?

Patient:

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.

Nurse: O.K. I need to fill out this form, first.

please?

Patient: Joanne

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient


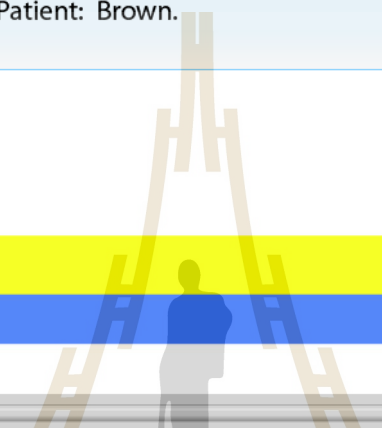
Let's Practice

Complete the sentences below by filling in the blanks.

Nurse: And is..?

Patient: Brown.

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.


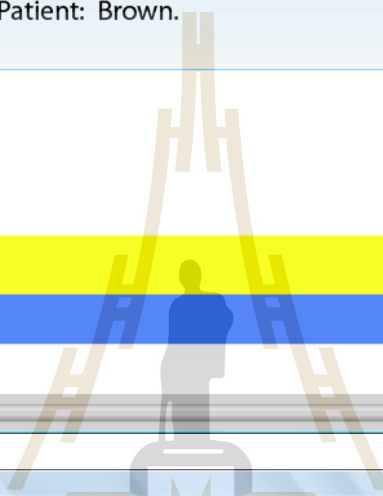
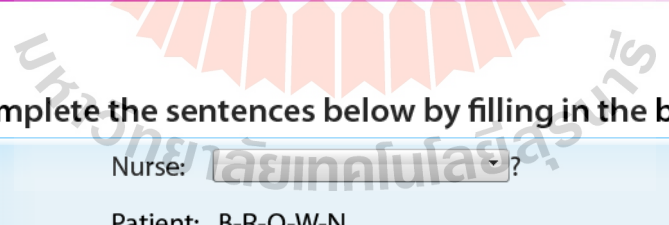
Nurse: ?

Patient: B-R-O-W-N

Nurse: And is that Miss, Mrs or Mr. ?

Patient: Miss

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentences below by filling in the blanks.


Nurse: And ?

Patient: 10th February 1957

Nurse: That means you are 53 years old, is that right?

Patient: Yes.

Submit



unit1 Registering a Patient


Unit 1

Registering a Patient

Let's Practice

This is the end of Let's Practice Exercise II

Continue ➔



unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

III. Choose the words, phrases or sentences to complete the conversation.

Continue →





unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.


Nurse: And ?

Patient: I live at 30 Maroona St Sunnybank 4180

Nurse: Postcode 4180, right?

Patient: Yes

Submit



unit1 Registering a Patient

Unit 1


Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

Nurse: And your , please?

Patient: 020 334 555



unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

Nurse: OK, And ?

Patient: Australian



unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

Nurse: Right. Can you tell me your , please?

Patient: Teacher

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

Nurse: Right and ?

Patient: I have had very bad ear ache since yesterday evening.
I've had a cold for a week.

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Using Past Tenses

Past Simple and Past Continuous

We use past simple to talk about things which happened in the past.

I **felt** terrible when I got home last night.
I **slipped** on ice and hurt my knee.

NEXT ►►






unit1 Registering a Patient

Unit 1

Registering a Patient



Let's Practice

Using Past Tenses

When we are telling a story, We often use a verb in the past continuous to give a background to what happened.

I **was working** on a ladder. It **was raining** and I slipped and fell.
She cut her finger when she **was preparing** food.

NEXT ►►



unit1 Registering a Patient



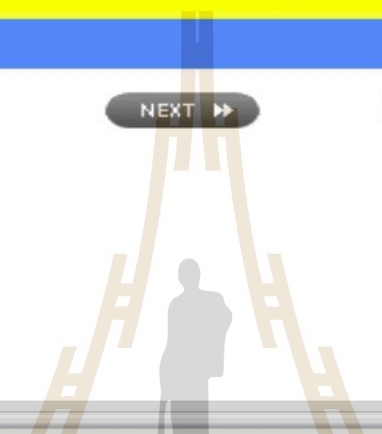
Unit 1

Registering a Patient

Let's Practice

VI. Complete the sentences using the correct verb forms.

NEXT

unit1 Registering a Patient

Unit 1

Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

1. He the street and a car him.

Submit



unit1 Registering a Patient

Unit 1


Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

2. I in the park, and a man me.

Submit



unit1 Registering a Patient

Unit 1


Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

3. He in a lot of pain before the operation.

Submit



unit1 Registering a Patient

Unit 1


Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

4. I the house when the phone

Submit



unit1 Registering a Patient

Unit 1


Registering a Patient

Let's Practice

Complete the sentence below by filling in the blanks.

5. She a normal life until the accident.

Submit





unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

I. Listen to the admissions procedure. Choose the description to the right number.

NEXT




Unit 1 Registering a Patient

unit1 Registering a Patient


Unit 1

Registering a Patient

Let's Practice

Listen to the Admission Procedure and rearrange the statements

Mouse over to Listen here



a

A nurse will get personal details from you and fill in a hospital registration form.

b

The doctor will decide on the treatment.

c

Take a seat in a waiting room.

d

This nurse will make an initial assessment of your problem.

Submit

Unit 1 Registering a Patient

unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

II. Read the passage and complete the information.

NEXT ►►

unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

When you arrive at the , please tell the receptionist who will welcome you, check your details, and direct you to waiting area.

Submit

unit1 Registering a Patient

Unit 1


Registering a Patient

Review Expansion

The length of your visit will depend on the

you are going to have.

Submit



unit1 Registering a Patient


Unit 1

Registering a Patient

Review Expansion

You may need to have some such as an X-ray which could mean going to another department.

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

Or you may be to other professionals, such as a physiotherapist or dietician.

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

You may need to revisit the clinic. If you need to be to hospital for more treatment, either as an inpatient or for day surgery.

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

You will be told when this is likely to happen.

If you do not need further treatment you will be

to your GP's care.

Submit



unit1 Registering a Patient

Unit 1

Registering a Patient

Review Expansion

III. Choose the most appropriate hospital departments for each of the following patients.

NEXT >>



unit1 Registering a Patient

Unit 1

Registering a Patient

Which hospital departments would be most appropriate to the following patients?

Choose the letter A, B, C, D, or E on the right column to match to the patient's case.

A woman in diabetic coma.

A) Gynecology
B) Intensive Unit Care (ICU)
C) High Dependany (HDU)
D) Day Surgery Unit
E) Accident & Emergency

Submit

unit1 Registering a Patient

Unit 1

Registering a Patient

Which hospital departments would be most appropriate to the following patients?

Choose the letter A, B, C, D, or E on the right column to match to the patient's case.

A patient who has just had a radical prostatectomy.

A) Gynecology
B) Intensive Unit Care (ICU)
C) High Dependany (HDU)
D) Day Surgery Unit
E) Accident & Emergency

Submit

Unit 1
Registering a Patient

Review Expansion

Which hospital departments would be most appropriate to the following patients?

Choose the letter A, B, C, D, or E on the right column to match to the patient's case.

A man with foreign body in his eye.

A) Gynecology
B) Intensive Unit Care (ICU)
C) High Dependency (HDU)
D) Day Surgery Unit
E) Accident & Emergency

Submit

Unit 1
Registering a Patient

Review Expansion

Which hospital departments would be most appropriate to the following patients?

Choose the letter A, B, C, D, or E on the right column to match to the patient's case.

A woman with threatened abortion.

A) Gynecology
B) Intensive Unit Care (ICU)
C) High Dependency (HDU)
D) Day Surgery Unit
E) Accident & Emergency

Submit



APPENDIX J

List of Experts

Name	Position	Review
1.Prof. Dr. Leslie Barratt	Professor, Department Chair, Department of Languages, Literatures, and Linguistics, Indiana State University, USA.	- English language contents and materials -CALL English Lessons -Tests -Interview form -Learning logs -Researcher's journal form
2.Prof. Dr. Betsy Frank	Professor, Graduate Faculty, Department of Baccalaureate Nursing Completion, Indiana State University, USA.	- Nursing science Contents and Materials -CALL English Lessons -Tests -Interview form -Learning logs -Researcher's journal form

Name	Position	Review
3. Prof. Dr.Brian T. Kilp	Professor, School of Music, Indiana State University, USA.	- English language -Script Readers -CALL English lessons -Tests
4. Jennifer D. Walrod	Instructor, Director of Global Education, Harker School, California, USA.	- English language and content-based materials.
5. Asst. Prof. Sukosol Wanotayapitak	Instructor, College of Information Technology, Siam University, Bangkok.	-CALL Software -Design of CALL -CALL Lessons
6. Asst.Prof. Somkid Amornsamankul	Assistant Dean of Department of Development of System and Technology Mahidol University, Salaya, Bangkok.	-CALL Software -Design of CALL -CALL Lessons
7. Assoc. Dr.Lucksana Inkrab	Dean College of Nursing, College of Nursing, Christian University, Nakhonpathom.	- Nursing science Contents and Materials
8. Dr. Phathanaphonk Wanchanthuek	Instructor, Faculty of Informatics, Maharakram University. Maharakram.	-CALL software -Design of CALL -CALL Lessons

CURRICULUM VITAE

Suphatra Sucharitrak works as an English instructor at Department of English, International College at Christian University of Thailand. She received B.Ed (Educational Administration) from Phetchaburi Rajabhat University, Thailand in 1992, Certificate in Teaching Methodology for Oversea Teacher at Milner International College of English, Perth Australia in 1997 and M.Ed (TEFL) from Silpakorn University, Thailand in 2005. She was invited to be a Visiting Scholar at Department of Languages, Literatures and Linguistics at Indiana State University, Indiana, USA in 2009. Her research interest includes EFL teaching and learning, material design and development, bilingual education, Content and Language Integrated Learning and Computer-Assisted Language learning.

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