DEVELOPMENT OF A BLENDED ONLINE LEARNING APPROACH MODEL FOR ENGLISH FOR CAREERS IN TECHNOLOGY AT UBON RATCHATHANI RAJABHAT UNIVERSITY

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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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การพัฒนาแบบจำลองวิธีการเรียนออนไลน์แบบผสมผสาน สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี มหาวิทยาลัยราชภัฏอุบลราชธานี

นางนุชประภา กงเพชร เดนนิส

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต
สาขาวิชาภาษาอังกฤษศึกษา
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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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นุชประภา กงเพชร เดนนิส : การพัฒนาแบบจำลองวิธีการเรียนออนไลน์แบบผสมผสานสำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี มหาวิทยาลัยราชภัฏอุบลราชธานี (DEVELOPMENT OF A BLENDED ONLNE LEARNING APPROACH MODEL FOR ENGLISH FOR CAREERS IN TECHNOLOGY AT UBON RATCHATHANI RAJABHAT UNIVERSITY) อาจารย์ที่ปรึกษา : อาจารย์ ดร.สุขสรรพ์ ศุภเศรษฐเสรี, 260 หน้า.

วิจัยครั้งนี้มีวัตถุประสงค์ คือ (1) เพื่อออกแบบและพัฒนาแบบจำลองการเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาโมเดล สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี สำหรับนักศึกษาคณะเทคโนโลยีอุตสาหกรรม มหาวิทยาลัยราชภัฏอุบลราชธานี (2) เพื่อหาประสิทธิภาพชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี ที่พัฒนาขึ้นตามเกณฑ์มาตรฐาน 85/85 (3) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักศึกษาก่อนและหลังการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยีและ (4) เพื่อศึกษาความพึงพอใจของนักศึกษาและอาจารย์สอนภาษาอังกฤษต่อชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

กลุ่มตัวอย่างสำหรับการทดลองคือ นักศึกษาจำนวน 40 คน จากคณะเทคโนโลยีอุตสาหกรรม มหาวิทยาลัยราชภัฏอุบลราชธานี ที่ลงทะเบียนเรียนวิชาภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี ภาคการศึกษาที่ 2 ปีการศึกษา 2554 และอาจารย์ 3 ท่านจากสาขาวิชาภาษาอังกฤษ มหาวิทยาลัยราชภัฏอุบลราชธานี กลุ่มตัวอย่างได้ทำแบบทดสอบก่อนเรียนเพื่อวัดผลสัมฤทธิ์ทางการเรียนรู้ก่อนการทดลอง หลังจากทำการทดลองเรียบร้อยแล้วนักศึกษาได้ทำแบบทดสอบหลังเรียนเพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนรู้ จากนั้นนักศึกษาและอาจารย์ภาษาอังกฤษตอบแบบสอบถามและได้รับการสัมภาษณ์เกี่ยวกับความพึงพอใจต่อชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

ผลการวิจัยพบว่า

1. ผลวิจัยพบว่าแบบจำลองการเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาโมเดล ที่พัฒนาขึ้นได้รับการประเมินจากผู้ทรงคุณวุฒิด้านเทคโนโลยีทางการศึกษาและการสอนภาษาอังกฤษว่าอยู่ในเกณฑ์ “เหมาะสมมาก” ($\overline{X}$ =4.87) สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

2. ชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี ที่พัฒนาขึ้นเป็นไปตามเกณฑ์มาตรฐาน 85/85 ที่ตั้งไว้ โดยมีค่าประสิทธิภาพ 87.85/86.08 (E1/E2)

3. ผลวิจัยพบว่าการวัดผลสัมฤทธิ์ด้วยแบบทดสอบก่อนและหลังเรียนมีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ ระดับ 0.05 สามารถสรุปได้ว่าการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษามีผลการเรียนดีขึ้น

4. ผลวิจัยพบว่านักศึกษามีความพึงพอใจต่อการเรียนรู้ภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี และอาจารย์ภาษาอังกฤษมีความพึงพอใจมากต่อการเรียนภาษาอังกฤษของนักศึกษาด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน : นุชประภาโบลาแพคเกจ สำหรับภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

สาขาวิชาภาษาต่างประเทศ ลายมือชื่อนักศึกษา_____

ปีการศึกษา 2554 ลายมือชื่ออาจารย์ที่ปรึกษา_____

NUTPRAPHA KONGPHET DENNIS : DEVELOPMENT OF BLENDED ONLINE LEARNING APPROACH MODEL FOR ENGLISH FOR CAREERS IN TECHNOLOGY AT UBON RATCHATHANI RAJABHAT UNIVERSITY. THESIS ADVISOR : SUKSAN SUPPASETSEREE, Ph.D., 260 PP.

BLENDED ONLINE LEARNING/ BLENDED LEARNING/E-LEARNING

The purposes of this study were 1) to design and develop a Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model for teaching English for Careers in Technology at Ubon Ratchathani Rajabhat University, 2) to determine the efficiency of the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages used by students based on the 85/85 standard, 3) to compare students' language achievements before and after using the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages, and 4) to explore students' and teachers' satisfaction toward the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning English for Careers in Technology.

The samples of the experiment were forty first year students from Faculty of Industrial Technology who registered for English for Careers in Technology course in the second semester in the academic year 2011. Three English teachers from the English Department, Ubon Ratchathani Rajabhat University, were also the participants of the experiment of the present study. The subjects were measured for their learning proficiency by a pre-test. After the experiment was constructed, a post-test was given to all of the students. The data obtained was analyzed to find out whether the learning achievement contained significant differences. The subjects were

also administered a questionnaire and semi-structured interview. In addition, the subjects who were administered a questionnaire and semi-interview included three teachers' opinions toward students learning English using the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages. The results of the research are shown as follows:

1. The results of the study showed that the Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model constructed by the researcher was rated by experts as "very appropriate" ($\overline{X}$ =4.87) to use for teaching English for Careers in Technology.

2. The Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages were proven to be efficient according to the 85/85 standard. Scores from the learning process and product (E1/E2) were 87.85/86.08.

3. The results of the study showed that students' English proficiency in post-test were significantly higher than the pre-test at $p<0.05$. It can be claimed that the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages encouraged students to learn more effectively.

4. The results of the study showed that the students' satisfaction toward learning English using the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages were "satisfied". In addition, the teachers' satisfaction of students' learning English via the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages were "very satisfied".

School of Foreign Languages Student's Signature _____

Academic Year 2011 Advisor's Signature _____

CHAPTER 1

INTRODUCTION

The study tends to develop and construct an English instruction using blended learning method. The researcher constructs a Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model, which is the framework for integrating technology and traditional classroom teaching. Within the framework Nutprapha BOLA packages are constructed. This chapter presents the background of the study, purposes of the study, research questions, research hypothesis, scope and limitations of the study, definition of key terms and significance of the study.

1.1 Background of the Study

Using technology to teach language skills is not a new concept (Sharma & Barrett, 2007). However, change and acceptance has been slow to catch on in English language classrooms, here in Thailand. In other parts of the world technology has been integrated into language teaching methodology for decades (Dudeney & Hockly, 2007) but has met with resistance in Thai schools. It is not yet widespread. Many teachers are beginning to accept technology as a tool to a better teaching and learning experience (Yutdhana, 2005). Though it is not the norm, there is a noticeable increase which is evidence of growing popularity each year (MOE, 2010).

In support of this growth, the Ministry of Education has developed the National Information and Communication Technology (ICT) for Education Master

Plan (2004-2006) as standards for the start of ICT to education. The government has assigned a highly funded budget for the development of learning quality, educational management and direction, education preparation through application of ICT, teaching and development of ICT-related teachers, and issue of ICT basis for education (ONEC, 2006). Based on the education policy of The Ministry of Education, English language teachers in Thailand have always been concerned with the use of new technology (Somprasong, 2005). However, the technology has evolved over time. Some English teachers found the challenge of managing and finding creative ways to utilize it is much more difficult. Enormous changes in technology in the classroom have been formed in past years (Makkeaw, 2006). The potential uses of the computer in the classroom are requiring teachers to do more than simply learn to operate new software. They require teachers to change the way they think and use information, and also to change the way to communicate (Sands, 2002). To adjust teaching and learning behavior and to get familiar with utilizing technology in an English language classroom is a priority challenge for both teachers and students. Anderton & Nicholson (1995) suggested that teachers must not view technologies as just another tool, but be prepared to modify their practice in order to maximize the advantages of new technologies in the learning process. Different strategies, abilities and approaches are needed to use different technologies effectively.

One effective technology for education these days is Electronic Learning or E-learning, as it has come to be known, makes use of the Internet and digital technologies to deliver instruction synchronously or asynchronously to anyone who has access to a computer with the Internet access (Sriripattanakolkajorn & Nansaarng, 2004, Suppasetseree, 2005, Urdan, 2000, Waterhouse, 2005). The key elements of

E-learning are computer-mediated communication, student-learning interactions, instruction taking place at a distance and synchronous or asynchronous setting (Dracopoulos, 2003). E-learning includes all learning activities based on any electronic format which can be both online and offline.

The English department at UBRU has attempted to construct an E-learning system since 2005. Unfortunately, the E-learning project was not successfully implemented because of various factors (UBRU: Annual Report, 2008). For examples; instructors had limited knowledge on how to use the Internet for education and they lacked the understanding of how to operate E-learning systems. An open-source Learning Management System (LMS) was introduced to English instructors at UBRU English department, as a part of the E-learning project. Most of the instructors appeared to be impressed by the capability of the software. The software used to create this online course is called "Moodle". Moodle is a free online Learning Management System (LMS) which is particularly good for language teaching. It contains many useful and friendly tools to create and operate courses (Cole, 2005). There was a previous study conducted on benefits of Moodle in English classes. The result shows that teachers who use Moodle agreed that an online course helped students to learn at their personal convenience and proficiency level (Suppasetseree & Dennis, 2010).

LMS is an excellent multi-functional teaching tool (Cole, 2005). However, it is not the only technology and E-learning tool that we can use to teach English. There are hundreds of E-learning tools that instructors can apply to their teaching plans and help them to more easily conduct teaching within their chosen methods (Waterhouse, 2005). LMS is a powerful user-friendly E-learning tool and can effectively help

English teachers organize their teaching materials, improve their medium of communication, and retrieve their records of interaction with students when necessary (Clark, 2008). E-learning using CMS has had an interesting impact on the learning environment (Cole, 2005). Although it represents outstanding potential in the way it could revolutionize learning and development, it has rapidly evolved into a concept of integrated learning which blends online learning with more traditional methods of leaning and development (Bonk, 2006). To demonstrate, within the context of Thai higher education, the researcher offers the following relevant example:

The University of the Thai Chamber of Commerce in Bangkok has initiated blended learning instruction (Hybrid Education) in their educational system using CMS under a well written plan of curriculum and policy of balancing traditional approaches and technology since September 2008 (TCU, 2010). The system has been used successfully with students and will be continuously improved.

English classrooms that rely entirely on E-learning, whether campus based or distance learning, remain unusual (Bonn, 2007). They are generally offered only where there are special requirements that reduce any face-to-face teaching (Bonk, 2006). This can lead to the perception that E-learning only works when it is at a distance. There are, however, a number of motives for adopting a wholly E-learning approach. While the opportunities for increasing the amount of E-learning in conventional teaching are expanding, most courses do not fall into any categories to be used by a wholly E-learning approach or cannot be integrated to a wholly online delivery (Sener, 2002 & Becta, 2005).

Therefore, blended learning is the most logical and natural evolution of the researcher learning agenda (Bonk, 2006). It suggests the best solution to the

challenges of tailoring learning and development to the needs of individuals. It represents an opportunity to integrate the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning. It can be supported and enhanced by using the intelligence and face-to-face contact of personal trainers (Thorn, 2003). Bonk & Graham (2006) defined "blended learning" as a language course which combines a face-to-face classroom component with an appropriate use of technology. The term technology in this study covers a wide range of recent technologies, such as the Internet, CD-ROMs and interactive whiteboards such as a Course Management System (CMS) like Blackboard or Moodle. It also includes the use of computers as a means of communication, such as chat and E-mail which enable teachers to enrich their courses. Littlejonh & Pegler (2007) explained that over the past few decades, blended learning has extended learning methodologies, opening up opportunities for open and distance learning as well as challenging more traditional methods. Most recently the term "blend" has been attached to E-learning, and this blending of E-learning with traditional methods is attracting the interest of many teachers in further and higher education (Bonk, 2002).

However, to operate a blended learning classroom without an organized approach can end up with the failure to deliver the related content between the teaching process and online components of the course. On the other hand, with a well-organized blended learning course both teacher and student will earn an enormous benefit by achieving instructional purposes. Therefore, a research on how to develop and construct a suitable blended learning course should be done.

1.2 Statement of the Problem

The instructors at Ubon Ratchathani Rajabhat University (UBRU) had been encouraged to create several kinds of English courses for the beginning of the E-learning project (UBRU: Annual Report, 2006). However, the effective English courses on E-learning system using CMS lasted for only two semesters of an academic year at UBRU (UBRU: Annual Report, 2007). Most instructors who used CMS to create those courses became overwhelmed by the additional work load required for maintaining and updating the course online. Moreover, students did not achieve the learning target as planned and the method used to teach how to use autonomous learning techniques for online English courses was not succeeding (UBRU: Annual Report, 2008).

There were some factors to push instructors away from continuing to make use of CMS. According to the prior observation, those instructors had issues with assessing and monitoring. The main problem areas were students' learning process and the product of their own learning outcomes (UBRU: Annual Report, 2007). The instructors also had a minor challenge managing assignment of students to work on the system individually or in groups. There are possibilities for instructors to adapt the learning procedures to connect students' need and purposes of language learning through the E-learning system (UBRU: Annual Report 2008). This will help students to be more aware, active and responsible for their own learning style.

However, teachers cannot solely use CMS to teach English to UBRU students for the entire course, due to the problems mentioned earlier. The solution can be to use technology in classroom blending CMS with conventional classroom technique

and mix it with the other kinds of online instructional application to create a teaching plan called "Blended Learning Instruction" (Suppasetseree & Dennis, 2010).

The purpose of the current study is to develop and construct an instructional model for teaching English for Careers in Technology. The instructional model is based on blended learning method. The instruction is called Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model. It is a tool for content delivery in learning English for Careers in Technology of students at Faculty of Industrial Technology, UBRU. It is intended to improve the students' basic English skills for their career fields.

1.3 Purposes of the Study

1.3.1 To design and develop a Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model for teaching English for Careers in Technology at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University.

1.3.2 To determine the efficiency of Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages used by students at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University based on the 85/85 standard.

1.3.3 To compare students' language achievements before and after using Blended Online Learning Approach (BOLA) packages: Nutprapa BOLA packages for learning English for Careers in Technology.

1.3.4 To assess students and teachers' satisfaction toward the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning and teaching English for Careers in Technology.

1.4 Research Questions

1.4.1 What are the components and logical steps of developing Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model for teaching English for Careers in Technology?

1.4.2 Are Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages efficient based on the 85/85 standard?

1.4.3 What are the differences of students' language achievements before and after using Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning English for Careers in Technology?

1.4.4 What are students and teachers' satisfaction toward using Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning and teaching English for Careers in Technology?

1.5 Research Hypothesis

1.5.1 A Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model for teaching English for Careers in Technology at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University developed by the researcher is rated as "appropriate" by experts in the Educational Technology and English language teaching field.

1.5.2 The efficiency of Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for teaching English for Careers in Technology at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University meets the 85/85 standard.

1.5.3 Students' language achievement after using Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages shows a significant difference according to their proficiency pre-test and post-test score constructed by the researcher.

1.5.4 The students and teachers are satisfied with learning and teaching English for Careers in Technology via Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages.

1.6 Scope and Limitations of the Study

The main concern of this study aims to develop a Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model for teaching English for Careers in Technology to students at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University, and to determine the efficiency of the Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages. Therefore, the subjects of this study were not be representative of students at Faculty of Industrial Technology at the other universities since the students may have different English learning background and skill level of technological knowledge. The findings used to describe only the subject of this study, that is, first year students from Faculty of Industrial Technology who study English for Careers in Technology at Ubon Ratchathani Rajabhat University.

1.7 The Definitions of Key Terms

1.7.1 Blended Learning refers to a mix of different learning environment, to blend different technologies in the classroom, and/or to blend technology and

different approaches in the learning process. It is the blend of technologies which can be include almost anything; books, classroom instruction, video-audio conferencing, online chatting, podcasting, web 2.0, etc.

1.7.2 Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model is an instructional system designed by the researcher using blended learning principles used to teach English for Careers in Technology for students at Ubon Ratchathani Rajabhat Universtiy (UBRU).

1.7.3 Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages are learning applications which blends different kinds of content delivery tools; such as Web 2.0; Moodle (CMS), Facebook (Social Network) and WikiSpaces. The package also includes learning resources such as exercises, audio and video related to the lessons that the students can download from the platform prepared by the researcher. It is used to teach English for Careers in Technology for students at Ubon Ratchathani Rajabhat University (UBRU).

1.7.4 English for Careers in Technology refers to the course, English for Careers in Technology (1553609). It is a basic English course for first year students at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University. The purpose of the course is to provide equal practice in four basic language skills, namely: listening, speaking, reading and writing and to equip students with the grammatical background knowledge necessary to enhance their classroom participation without the anxiety of making mistakes. This course is also intended to provide a foundation that enables students to take the more difficult courses which will follow the next semester in English for Specific Purposes.

1.7.5 85/85 standard is a media efficiency calculating method used to determine the efficiency of teaching media created by the researcher. It is a method which is supported by mastery learning theory. In this study, 85/85 standard is used to measure Nutprapha BOLA packages efficiency. The first 85 refers to the efficiency of process, the second 85 refers to the efficiency of the outcomes (Brahmawong,1978).

1.7.6 Satisfaction is defined as the opinion of the teachers and students, using Nutprapha BOLA packages, that is the benefits of the experience exceeded expectations, such as, it was easier to use than expected or it was more conductive to learning than expected.

1.8 Significance of the Study

Bielawsk and Metcalf (2003) mentioned that the primary formats of E-learning, Blended Learning and Blended E-learning are live, online or synchronous instruction for many participants in a virtual classroom environment and asynchronous self paced training for individualized instruction.

Using Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model to teach English for Careers in Technology can enhance conventional classroom methodologies that include face-to-face activities in regular classroom. It can help establishing an interactive English learning environment for students. It can also motivate students to learn English more both inside and outside the classroom with the instructor's assistance.

The most important significance of the study is to develop and construct an English instructional model using blended learning method. The findings from this study will be directly beneficial to other instructors aiming to develop an instructional

model for English language teaching field. This study is essential to English for Careers in Technology for its practical significance. It contributes to instructors' improvement of the understanding how to use E-learning and blended learning to practice English learning skills. It will also assist instructors to identify a more effective technique for teaching English using several technologies, such as computer and the Internet.

This study is a useful research on the shift from traditional classroom instructional technique which still remains in Thai classroom to blend learning where educational technology will be the main part which is the new trends in English language teaching in Thailand nowadays.

This chapter gives an overview of the background of the study. It presents the purposes of the study, research questions and research hypothesis. It also explains the scope and limitations of the study, defines key terms used in the study and comprises the significance of the study. The following chapter will review the related theories, as well as previous studies on E-learning, blended learning, blended online learning and previous related studies in both Thailand and abroad.

CHAPTER 2

LITERATURE REVIEW

The intent of the research is to develop a Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model in the context of English as a foreign language. The focus of the following discussion will be about the background of English as a foreign language in regards to teaching English for Careers in Technology. The discussion will also cover the principle of Instructional System Design (ISD) to construct Nutprapha BOLA model. The related literature which is a key to the development of Nutprapha BOLA model and Nutprapha BOLA packages for teaching English for Careers in Technology will be explained. The chapter will be divided into seven parts; First, Teaching English as a foreign language; Second, English for Careers in Technology in Tertiary Level; Third, Technology in the English Classroom; Forth, E-learning; Fifth, Blended Learning; Sixth, Instructional System Design (ISD); Last, the discussion will cover previous research studies which will also be displayed.

2.1 Teaching English as a Foreign Language

The role of English within a nation's daily life is influenced by geographical, historical, cultural and political factors. Presently, we are living in an information age with knowledge-base playing a major role in educational systems. To be successful humanity is dependent on a rapid exchange of information. The international language

of this planet we live on is English, thus it is central to global communication and connections (Broughton, 1980). Therefore, even though English is treated as a foreign language for Thai students, they still must complete compulsory classes at every level of education. As of this point in time, in Thailand, English is still considered a foreign language as opposed to being a second language, as is the case in many countries whose native tongue is not English. This means it is taught in schools as a minor foreign language requirement but still doesn't play an essential role in our daily national or social life.

According to research related to English language teaching in the present, it has been recognized that many students need language skills only as they relate to their course of study (MOE, 2005). This discovery has led to the creation of specialty English programs for teaching English for Specific Purpose (ESP). In the case of several universities in Thailand, the problem is that a new curriculum is being used. Information Technology English as part of the ESP program has been announced as required classes for a new group of students majoring in Information Technology. A new syllabus for teaching Information Technology English has been planned and written. The courses were designed to target students who are a product of the digital age. Traditional classroom methods are perceived by this group as both boring and ineffective (MOE, 2010). Since Information Technology, by nature, is related to technology, it seems appropriate that an alternative instructional approach be used implementing the tools and resources of Information Technology and the digital age. The details about Information Technology English in Thailand will be discussed in the next section.

2.2 English for Careers in Technology in Tertiary Level

This section will discuss about English for Careers in Technology at the tertiary level in Thailand. The detail of the course and technology in English classroom will be reviewed.

National education syllabus written by the Office of the Higher Education Commission at Ministry of Education, Thailand (MOE, 2010) explained that English for Careers in Technology course is one of English for Specific Purposes. It is an English course for students who study at Faculty of Industrial Technology or working in the related sector. The general purpose of the course is to enhance learners' English skills; reading, listening, speaking and writing. The course description and the purposes of the course are explained as follows (MOE, 2005).

Reading: the course focuses on developing reading skills for information from a wide variety of authentic texts. It includes specialist reading text to provide challenging reading for students who are already proficient in computing in their own language. Listening: the course focuses on developing students' ability to understand native speakers with a variety of accents talking about careers in technology. Listening for specific information and the skill of listening for the main points in a description, explaining and argumentation are developed. Speaking: the course focuses on developing students' ability to participate in exchanges of information and opinions in the context of careers in technology, to provide explanations of features of computing and to give advice on careers in technology problems; to develop strategies for coping with not understanding and not being understood. Writing: the course focuses on how to write instructions, descriptions and explanations about topics in careers in technology.

2.3 Technology in the English Classroom

Technology has increasingly become important in the educational arena. The technology is seen as an important resource for instruction in foreign language teaching. The benefits from technology also help students in their learning. There is a wide use of its ability to create online environments in which students can take the benefits from them. Many English language teachers have been searching for effective instruction to motivate students to learn English so that the students achieve better academic performances. Possibly, they employ numerous forms of E-learning to achieve their goals such as webpage, wiki, blog, and so on. There is an increasing use of technology in educational fields.

Computers and the Internet are used as tools to enhance the teaching and learning process. It is said that the multimedia capabilities and the hypertext navigational tools of the World Wide Web not only provide access to multiple perspectives on a certain subject matter but also provide some degree of control to learners as they try to make sense of the content (Morrison, 2003). For example, teachers may use video clips and background music to help ESL or EFL students to create the visual imagery or sounds to memorize practical information. Computers also are useful in delivering drills for practice, whether in grammar, vocabulary, pronunciation, or listening, as they are tireless in their delivery (Felix, 2003). Therefore, ESL students can learn at their own pace while choosing any topic they like and not have to worry about the competition in the classroom. To get benefits from E-learning, an individual should engage in joint attention with other people so that interaction and cooperation increase their learning. Thus there should be a community of interaction and learning through access to students and teachers widely.

The use of modern technology in teaching languages has been dramatically increasing worldwide over the past decade. With the creation of the World Wide Web, it has become possible and feasible for language teachers to make effective use of instructional materials, especially in teaching language. Computer-assisted language learning (CALL) programs provide multimedia with video, sound, graphics, and text, which allow learners to be exposed to the target language and the culture. One benefit of using Internet resources is that teachers can easily retrieve the most recent and pertinent information for their students (Bach, Haynes & Smith, 2007).

Internet-based education is one technology that is used as a tool for transferring language teaching and learning. The computer has a significant role in teaching and learning language. The use of internet and computer is increasingly becoming more popular in EFL environments. Many institutions create the need for developing effective methods in language pedagogy. Coming up with one solution to students for language education today, E-learning is being increasingly looked to bridge the resource gap many institutions are experiencing. Support of E-learning can be transformed to teaching and learning and to reach and motivate learners with special needs. The aspect of E-learning is especially important for students living in remote areas in non-urban contexts and who may lack authentic materials and contact with the target language and culture. E-learning theories and principles will be discussed in the next section.

2.4 E-learning

E-learning involves improving teaching and learning using instructional strategies enhanced by technology. The focus of any E-learning effort should be based

on pedagogical principles. Pedagogy must drive technology. It is pedagogy that will result in enhancements - not technology alone. E-learning can enhance traditional instruction and distance learning and can be customized accordingly. In this section, an overview of E-learning concept, E-learning definition and E-learning's potential to improve teaching and learning will be discussed.

2.4.1 Overview of E-learning Concept

The literature on the use of technology in education generally has established a list of possibilities for computer, multimedia and technology-based educational systems. In cases of presentation, multimedia combines text, audio, visual, graphics, and dynamic elements, such as animation and video. Therefore it offers more ways of representing knowledge than simple written text or lectures

Educational technology allows access to a massive amount of information, offers the possibility for in-depth, on-demand exploration of information for users through hyperlinks and connections to other pages (Collier, 1987), captures users' attention, and displays knowledge in forms which are similar to those in the human mind (Delany & Gilbert, 1991).

Dryden (1994) stated that the use of technology in education increases learner's intellectual skills, including problem-solving, decision-making and collaborative-learning. Technology also has the potential to facilitate greater accessibility and flexibility of the learning process. It is also increasingly acknowledged that the use of multimedia technologies has the effect of transforming the structure of traditional classrooms, resulting in the possibility of reaching new knowledge. The scholar explained that e-learning provides several options that support a learner's desire. Learners can access their class at anytime from anywhere

they want. The possibility for learners is to have instructions repeated as many times as they need to review the contents. They may also benefit from one-to-one instruction and individualized support by an instructor through E-mail correspondence and chat sessions. Moreover, online courses provide learners with the opportunity to expand their knowledge and skills by interacting with other learners and being exposed to different contexts and experiences.

Comerchero (2006) explained that E-learning is a flexible term used to describe a means of teaching and learning through technology which is not limited to web-based materials. It can be achieved by utilizing any form of technology using several kinds of educational media. It was discussed that the more advanced the technology becomes, the more options there are to extend the benefits of E-learning. DelVecchio & Loughney (2006) supported that flexibility is a major benefit of E-learning. E-learning has the advantage of taking class anytime anywhere. Education is available whenever and wherever it is needed. E-learning is beneficial to education and all types of learners. It is an affordable learning tool, saves time, and produces measurable learning results. Riley (2006) concluded that E-learning will continue to become more completely integrated into the current and future educational system. It will enable schools to offer more classes to their students to meet individual needs.

In summary, E-learning as an educational tool in this digital age is becoming increasingly well-known in tertiary education. There are universities that are increasing online courses and more students signing up. It is changing teaching techniques of teachers and learning styles of students. In the next section, the definition of E-learning will be reviewed.

2.4.2 E-learning Definition

As educational systems become increasingly more globalized, the requirement for teachers and student communication through technology increases. Universities and colleges offer several options to encourage students' enrollment and access to learning resources and lesson participation. Students request outside-class access to university courses because of different reasons, such as geographical, familial, and financial issues to the more traditional classrooms.

E-learning, also known as online learning or web-based instructions, provides a way to connect the gap between the student's changing generations and prepare the need for higher education in the global education.

Cysewski (1997) defined E-learning as use of the Internet to teach and learn. It includes interaction between teacher-student and student-student or teacher-teacher, students' submission of assignments. Moreover, it delivers and enriches learning content. Additionally, students can use the Internet as a research and publishing tool.

Hall (1997) agreed that web-based instruction is delivered over the Internet or over the school's intranet. The scholar also defined E-learning as a process of learning through computers over the Internet which meet three criteria: a geographical distance separates communication between teachers and students, the learning communication is two-way and interactive, and different technology is used to facilitate the students learning process.

Urdan & Weggen (2000) related that E-learning covers several types of applications and processes, including computer-based learning, web-based learning, virtual classrooms and collaborations. The educators explained E-learning as a subset of distance learning, online learning as a subset of E-learning and computer-based

learning as a subset of online learning. It is also mentioned that E-learning not only provides value through planned learning but also recognizes the value of unplanned learning and the self-directness of the learner to increase learning experiences to improve learning achievement.

E-learning is the continuous integration of knowledge and skills by students activated by synchronous and asynchronous learning events. The results are determined using Knowledge Management (KM) output which are created, delivered, employed, supported and managed using Internet technologies (Morrison, 2003).

Lain & Aston (2004) defined the term "E-learning" as "E" stands for electronic. Electronic Learning can take several forms. The scholars stated that E-learning delivers and administrates learning opportunities and support through computer networks and web-based technology to assist individual learning performance and achievement. As the definition discussed, E-learning includes the use of the Internet, intranets, CD-ROM, video conferencing, satellite-delivered lecturing and virtual education network. Pollard & Hillage (2001) contended that E-learning focuses on "connectivity" which excludes "stand alone" systems, such as CD-ROMs and intranets. It was an arbitrary distinction. Clark (2005) delivered a basic definition of E-learning. The scholars mentioned that E-learning is content and instructional methods transfer on a computer, CD-ROMs, the Internet or an intranet. It is designed to build knowledge and skills relevant to individual or school policy. It was also explained that there are three important elements of an E-lesson on E-learning course: the instructional method, the instructional media and media element. Instructional method means how to use techniques to help learner processing new information in ways that lead to learning. Instructional media refers to the

delivery tools that contain content and teaching methods including computer, workbooks and instructors. Media element refers to text, graphic and audio used to present content and instructional methods.

E-learning in tertiary education, OECD (2005) defined E-learning as the use of Information and Communications Technology (ICT) to enhance learning in tertiary education. It refers to a wide range of learning arrangements, such as students using E-mail and accessing lessons online while participating in the traditional classroom on campus.

It was also explained that E-learning can be divided into three different types, they are; 1) Web-supplemented courses focus on classroom-based teaching but include online activities such as putting a course outline and lecture notes online, use of E-mail and links to online resources. 2) Web-dependent courses require students to use the Internet for key elements of the program such as online discussions, assessment, or online project / collaborative work, but without significant reduction in classroom time. 3) Mixed mode courses or the E-learning element begins to replace classroom time. Online discussions, assessment, or project/collaborative work replace some face-to-face teaching and learning. But significant campus attendance remains part of the mix.

Clark & Mayer (2008) defined E-learning as instruction delivered on a computer by way of CD-ROM, the Internet or an intranet with these features; content relevant to the learning objective, instructional methods such as examples and practice to help learning, media elements such as words and pictures to deliver the content and methods, instructor-led (synchronous) or self-paced individual study (asynchronous), build new knowledge and skills connected to individual learning targets or improve

learning achievement. The definition has various components concerning the what, how and why of E-learning; “what”: E-learning courses include both content and instructional methods that help learners to learn the content, “how”: E-learning courses are delivered via computer with different formats of resources such as text, graphic, video, etc., “why”: E-learning courses are intended to help learners achieve learning goals.

In summary, E-learning is using technology as an instructional tool. It delivers and supports students' learning experiences via computers over the Internet connections, or an intranet. On the other hand, learners can access E-learning courses both online and offline. E-learning offers related content that of learners need anywhere anytime. Teachers can design an appropriate E-learning course for the student entire school year to fill the gaps between teachers and students communication using Internet technology. E-learning theories for education and training will be discussed in the next section.

2.4.3. E-learning's Potential to Improve Teaching and Learning

1. Facilitates learner-centered learning.

Kalmon (2003) described that e-learning facilitates learner-centered learning. As in learner-centered learning, students take on a more active role in learning, while the instructor assumes the role of a facilitator.

2. Facilitates anytime-anywhere learning.

The author suggested that e-learning facilitates anytime-anywhere learning. Students benefit as they can choose the pace at which they learn and from where they want to learn. Instructors benefit as they can add or modify elements of the course anytime, anyplace. Adult learners can continue to work while they learn.

3. Facilitates student interaction with course content.

Waterhouse (2005) mentioned that e-learning facilitates the students interaction with course content. Students can access web material, perform experiments, take an online field trip or even listen to their favorite authors talk about their books.

4. Facilitates and promotes communication and collaboration.

Hetrick & Twigg (2003) described that e-learning facilitates and promotes communication and collaboration. Online discussion promotes instructor-student and student-student interaction, especially in distance learning courses. Online collaborations can open new avenues for sharing ideas and materials. For example, at the World Lecture Hall, sponsored by the University of Texas at Austin, instructors worldwide can browse through the collection to locate and access materials appropriate for the courses they teach.

5. Makes course administration easier.

The scholars also suggested that e-learning makes course administrating easier. Course resources can be modified more easily. Timely feedback can be provided through email, virtual office hours and online tutoring. The grading and evaluation process also becomes increasingly efficient.

6. Helps track students' time on task.

The time students spend on each activity can be tracked. This information can be used to determine resources that students are accessing more frequently (NSSE, 2003).

7. Adds a Worldwide Dimension to Courses.

Hermida (2003) pointed out that there are no limits on expertise and resources. Experts worldwide can be networked. For example, the MIT (Massachusetts Institute

of Technology) OpenCourseWare Project provides students and instructors access to course materials used at MIT.

8. Can reduce the cost of course delivery.

This is achieved in various ways by Twigg (2000) such as in:

- K-12: Through the provision of large-scale student-parent interaction as well as in-service workshops for teachers.

- The Corporate Environment: Through just-in time and anytime, anywhere training.

The present study aims to develop a blended learning application to teach English course which E-learning system will be the main part of teaching strategy. Therefore, next section will discuss about how to integrate E-learning with traditional classroom.

2.5 Blended Learning

In this section an overview of blended learning concepts and principles will be explained. Definition, current trends, future directions, traditional classrooms versus blended classrooms, transitioning from traditional to blended and online learning, designing of blended learning for EFL context and reasons to use blended learning systems in the English language classroom will be also discussed.

2.5.1 Introduction to Blended Learning

Technology and computers have become important roles in our personal and professional lives. They have also been playing powerful roles in the classroom. In recent years, most teachers have broadcasted new language learning technology. They have also mentioned about a richness of materials on the Internet that help to enhance students' language learning experiences. (Sharma & Barrett, 2007)

According to Claypole (2003), blended learning refers to an integration of a face-to-face classroom section with an appropriate use of technology. The term "technology" covers recent technologies, such as the Internet, CD-ROMs and interactive whiteboards. It also includes the use of computers to communicate, such as chat, E-mail, blog and wikis.

The term "blended learning" has been used in the business world for a long time. It refers to a situation where an employee can continue working full time and simultaneously take a training course which uses a web-based platform. (Sharma, 2007)

Claypole also mentioned that there were many business companies attracted by the benefits of blended learning because it is a way of saving costs. Employees do not need to take time out of work to attend a training, they can work on their course at their own convenience. Business companies around the world have changed their in-house training to e-learning systems. They also use complex tools such as Learning-Management Systems (LMS) in order to organize the course content.

Sharma & Barrett mentioned that using technology in language teaching can motivate students to learn more, students gain benefits from interactivity exercises and they can redo the exercises as many times as they like until they are satisfied by the results. The scholars also explained that the use of technology outside the language classroom can make learners more autonomous. As learners become used to evaluating and selecting materials, they are able to plan out their own use of web-based materials in their own time. This helps them to become independent learners.

Moreover, the use of technology can be time saving. Creating course materials online for students to access can save the teacher the time and expense of photocopying. A teacher who prepares and saves a lesson in an interactive whiteboard can recycle the lesson with the next group (Frendo, 2005). The author argued that a number of important factors exist which will influence the use of technology in language courses. These include attitude, level, the volume and type of teacher training organized, teacher's and students' access to these resources, and cost.

A concept of blended learning has become more and more important in second language classrooms (MacDonald, 2008; Thorne, 2003). Sharma and Barrett indicated that the key element in blended learning is an appropriate balance of face-to-face teaching and technology use.

2.5.2 Definition, Current Trends and Future Directions of Blended Learning Instruction

Blended Learning refers to a language course which combines a face-to-face (F2F) classroom component with an appropriate use of technology. The term "technology" covers a wide range of recent technologies, such as the Internet, CD-ROMs and interactive whiteboards. It also includes the use of computers as a means of communication, such as chat and email, and a number of environments which enable teachers to enrich their courses, such as VLEs (virtual learning environments), blog and wikis. (Sharma & Barrett, 2007)

The scholars also mentioned that the term "blended learning" can be used for a very broad angle of teaching and learning situations. It is commonly applied to a class where all learners meet with the teacher in a face-to-face situation, but include self-study methods such as a CD-ROM or access to web-based materials. It is

becoming more frequent that technology is always available in the classroom and used when it is appropriate.

According to Bonk (2002), they stated that there are many reasons why English teachers pick blended learning instruction for their courses. There are six reasons; 1) pedagogical richness, 2) access to knowledge, 3) social interaction, 4) personal agency, 5) cost effectiveness, and 6) ease of revision.

There are many issues related to support and training in blended environments including; 1) increased demand on instructor time, 2) providing learners with technological skills to succeed in both face-to-face and computer-mediate environment and 3) changing organizational culture to accept blended approaches. There is also a requirement to provide professional development for instructors that will be teaching online and face-to-face (Hartman, 1999).

Bonk & Graham (2006) made the statement that future learning systems will be differentiated not based on whether they blend but rather by how they blend. This question of how to blend face-to-face and computer-mediated instruction effectively is the most important issue that we can consider as we move into the future. The designers of blended learning systems should be looking for the best practice for how to combine instructional strategies in face-to-face and computer-mediated environments that take advantage of the strengths of each environment and avoid their weaknesses.

2.5.3 Traditional Classrooms VS Blended Classrooms

The following will show the process and result of an experiment research, teaching in blended classrooms compared with traditional classrooms, had done by Okolo & Naidoo (2005).

In traditional classrooms, lecturing is the main form of learning. One characteristic of traditional learning is that the students are forced to be at a designated place and time day in and day out. However, students have the advantage of having face-to-face interaction with the teacher which enhances their classroom experience. Teachers feel that they can assess their students better through weekly interaction in the classroom.

The blended classroom includes characteristics from both the traditional and the online classroom. Okolo & Naidoo mentioned that blended courses offer educators the best of both worlds, both online and traditional classrooms.

Blended classrooms are able to have access to the Internet in order to enhance the learning process. Students have the benefit of having both face-to-face interactions along with having assignments available to them online at anytime. For example, students may meet in class only one day a week along with meeting in an online chat room for the other two days of the class. The blended classroom is a new approach to teaching the English language.

According to Spark (2004), students receive the benefit of face-to-face interaction with faculty and students while at the same time being exposed to web-based learning paradigms such as virtual real-time information maps, pictures, streaming video and audio clips. Many teachers see the faults in both traditional and blended classrooms. However, more advantages seem to emerge from the blended types of classrooms as opposed to the traditional type. Black also referred that blended is simply necessary. In language departments, it can be quite successful to combine face-to-face with online delivery, to practice conversation in a more authentic way.

Okolo & Naidoo concluded that the results of the study have shown that the environments of the teachers and students did not seem to alter their perspectives of the blended and the traditional classroom. After analyzing the results, the accessibility of computers did not greatly affect the influence of technology in the life of the students and teachers teaching methods.

The scholars mentioned that, according to teachers' experiences, it is believe that blended classroom carries more advantages as opposed to the traditional classroom. However, it cannot say that the blended method will always lead to stronger learning, but it seems certain that the blended method will take over in the future. However, if blended classroom are found to be a hinderer learning method in the future, then we must take another look at our choice and conduct a more thorough investigation in what we are advocating.

2.5.4 Transitioning from Traditional to Blended and Online Learning

The concept of transferring the traditional classroom to an online instruction intimidates many English teachers who are accustomed to the face-to-face interaction of the traditional classroom. Online teaching offers new, exciting opportunities to expand the learning environment. It is not meant to completely replace face-to-face classrooms. (Bonn, 2007)

Online teaching is a growing trend in the world of language teaching. It is recommended that teachers should be well-trained in online education before starting the course. It is believed that being well-educated in online teaching will assure teachers will gain more confidence and be able to focus more on their teaching content than on technology.

It is important to realize that face-to-face instruction is not becoming extinct. There should be no fear that it will be completely replaced by online instruction. There is space in language teaching for many kinds of teaching methods whether they are traditional, blended or online instruction. There will be some students who feel that interaction in the traditional classroom is the key to education. But the teachers should challenge themselves in their own teaching by looking for ways to create blended learning instruction as well as online classrooms to keep up with new trends in English language teaching.

2.5.5 Designing of Blended Learning for EFL Context

MacDonal (2008) & Thorne (2003) defined blended learning as a concept that has become more and more permanent in second language classrooms. Sharma & Barrett (2007) mentioned that the important element in blended learning is an appropriate balance of traditional instruction and technology use. Computers and the Internet do not replace instructors. They are supplements to teacher-developed teaching plans, but technology can provide numerous benefits, including the development of independent learners, a source of instant feedback, and motivation to learners.

Technology should be used to enhance instructors' lesson plans and create interactive and motivating lessons for both teachers and students (Thorn, 2003). The scholar also suggest that many second language learners have come to expect technology in the classroom because they see themselves as part of the "Net Generation"

2.5.5.1 Using Authentic Materials from the Internet

Websites on the Internet consists of an enormous network of electronic "pages" which contain information in the form of audio, video, text and pictures. (Sharma & Barrett, 2007)

Dudeney & Hockly (2007) indicated that the web is a source of content which can be used to get through the extensive world outside the classroom. It is a readily available collection of authentic teaching material. They also pointed out that using websites from the Internet is one of the easiest and least stressful ways of getting started with technology in the classroom.

Sharma & Barrett (2007) briefed that an instructor can use blogs, podcasts, email newsletters and RSS feeds to locate the authentic information for the classroom. The instructor also helps students differentiate between reliable and unreliable Internet sources through WebQuests. (Dodge, 1995)

2.5.5.2 Combination of Technology and Textbook Support

Sharma & Barrett described that recently, the textbook is only a component in a set of materials which may include both CD-ROMs and online exercises. To select the best combination of teaching materials for a class is an increasingly important part of the teacher's role these days. Online and CD-ROM dictionaries create independent learning by allowing students to practice outside of class. Portable dictionaries provide the just-in-time learning for learners in an authentic setting. However, many teachers noticed themselves that some students become over-reliant on electronic dictionaries, thus not developing learner autonomy (Reinking, McKenna, Labbo & Kieffer, 1998). For the successful combination of the CD-ROM and textbook user, one of the activities requires students to choose a word and create a "word map" including the word's collocations, parts of speech, and pronunciation. Instead of being an isolated activity, adding the utilizing activity of a reading or listening lesson plan makes it more authentic (Dodge, 1995).

2.5.5.3 Using Office Software

Sharma & Barrett (2007) suggested a basic usage of Microsoft Office to integrate in language teaching. The scholars explained that office software includes emails, word processors, databases, spreadsheets and presentation programs. A combination of these programs will be installed on most computers in institutions. Because of their affordability and availability, they are sometimes overlooked as teaching and learning tools. Word-processing and presentation software such as Power Point can be integrated into a language course. This integration can be smooth and feasible because the use of such programs can enable teachers to deliver blended-learning courses, with learners and teachers using these programs inside and outside the classroom. The scholars added that some benefits of word processing software for teachers are the simplicity of correction of student written work, and provides ease in saving lesson plans and adapt them for other classes. They suggested practical activities, for example, an activity requires students to create a group business presentation using Power Point which is helpful for beginner users.

Dudeney & Hockly (2007) agreed that word processors are not only capable of enhancing writing skill, but can also be excellent tools for introducing or practicing language. Also, specific pieces of assignments can easily be transferred from word processing format to a presentation format like Power Point for class presentations, or added as files to students' web pages or blogs.

2.5.5.4 Using Interactive Whiteboards

An Interactive Whiteboard (IWB) is a technology which essentially requires three things; a computer, an electronic projector and the interactive whiteboard itself. However, IWB is a fairly new and expensive technological addition

to many of today's classrooms. William & Easingwood (2007) defined that, *"to use interactive whiteboard is that the teacher can stand at the front of the class and can demonstrate a concept or idea harnessing the full power of a computer but without having to actually stand next to it"*.

Advantage of interactive whiteboard is that, it is engaging and arouses students' curiosity and participation in the lesson when the teachers used it properly and creatively. It provides an opportunity for just-in-time learning in the classroom and also promotes group communication among students (Reinking et al., 1980)

Sharma & Barette (2007) advised readers that a motivation on the part of instructors and administrators to combine interactive whiteboard to enhance students' in-class experiences is needed. For example, the author proposed a case study, "an interactive whiteboard introduced in a language classroom, demonstrating that many second language learners today expect sophisticated technology in their schools but also that many teachers are wary of such advanced pieces of equipment".

2.5.5.5 Using Portable Devices

A portable device is anything students and teachers can carry around and can run on a battery. This includes personal digital music players, mobile phones, Personal Digital Assistants or PDA (small handheld or palm computers), laptops, digital audio recorders and Dictaphones, digital cameras and digital camcorders (Sharma & Barrett, 2007). These devices can be used either to play digital media-photographs, audio or video - or to create it. Used appropriately, they can provide learners with opportunities for further language practice outside the classroom. The authors suggested that students and teachers' familiarity and accessibility make these devices practical and user-friendly in the language learning classroom. Most of the

problems that occur with these devices have to do with the lack of sufficient memory or quality of recordings. Sharma & Barrett suggested having students use digital audio recorders to record a draft of a presentation for class and then email it to the teacher for feedback.

Another suggested activity is "*using a digital video camera to record presentations and then having the students watch the video and read written feedback at the same time*". The educators mentioned about the experiment in a summer school program that involved creating a video "yearbook" for the students to take home with them. "Teachers assigned students on each field trip that different students video-taped each other and were then responsible for editing the footage. Even the most reticent students became involved in class out of interest in using the technology" (Sharma, 2007). This case study is an example of how using portable devices can get students engaged in the classroom but probably not a concrete example of how the technology can be useful in language instruction.

2.5.5.6 Using Computer-Mediated Communication

Computer-mediated Communication or CMC refers to some older teaching tools that most learners are now familiar with such as Email, Chat rooms, online forums, bulletin boards, audio and video conferencing, and virtual learning environments which are known as Learning Management Systems or Course Management Systems such as Blackboard and Moodle.

Sharma & Barrett (2007) characterized between synchronous and asynchronous communication which contain both positive and negative aspects of each of those forms of communication. For example, to communicate synchronously helps to develop fluency because communication that happens in real time is a

positive element. However, during synchronous learning, a teacher should be present in order to prevent students from continually making the same language errors.

2.5.5.7 Creating and Using your own Resources

A teacher should focus on how to implement blended learning by creating their own resources in several ways. Sharma & Barrette (2007) suggested that the techniques in question are blogs, podcasts, wikis and websites. Each application can be used often for free or with minimum expense. The materials can be created to communicate with their learners. The degree of knowledge required varies, but all of these need teachers to invest time in both familiarizing themselves with the technology and then putting it to good use inside and outside of the classroom.

2.5.6 Reasons to Use Blended Learning System in the English Language Classroom

Blended learning is necessary because face-to-face learning and online learning each have their shortcomings. The deficiencies of face-to-face learning include the need for teachers and students to meet at the same time. This mode of learning has lower flexibility and leads to inconsistent learning progress of students. Online learning also carries the defect that students might be lost in their cyberspace (Mansour & Mupinga, 2007).

Teeley (2007) agreed that blended course design provides flexibility for institutions to engage in face-to-face classroom and online learning by providing students with relevant meaningful content while maintaining student-teacher relationships. The strength of a blended course is to increase student performance and retention, giving them more time flexibility, the availability of multiple modes of learning, deeper sense of community and greater interaction (Brunner, 2007). The

author suggested that the online environment can provide online projects, online work in groups, small group discussion in synchronous sessions, and virtual field trips and videos. However, most teachers got frustrated in designing online courses because they feel their role is being replaced. The teachers' role has been changed to facilitator of learning rather than knowledge transferring in blended learning.

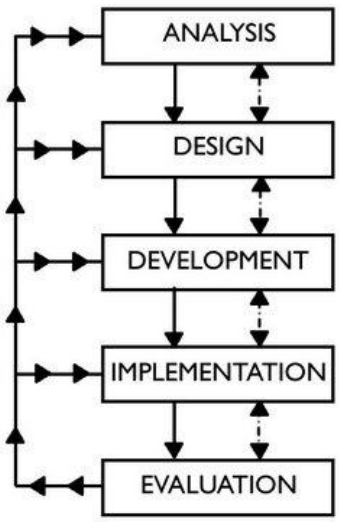
The literature reflects that each mode of learning have their own advantages and disadvantages. A blended learning approach by using both modes of learning together could take the advantages over others and reduce the effect of the disadvantages.

However, there are few studies in recommending the factors in designing a course by using a blended learning approach. It leads to an important issue to reveal the essential elements required in designing a blended course, especially the relevant core activities required in face-to-face and online modes, and their common relationship. Next, the several versions of Instructional System Design (ISD) models that have been developed for education, such as Morrison, Ross and Kemp Model, Seels and Glassgow Model, and Dick and Carey Systems Approach Model will be reviewed.

2.6 Instructional System Design (ISD)

Instructional Systems Design (ISD) is a problem-solving process that has been applied to the creation of learning since the 1940's (Kruse, 2004). During the last 10 years more than 100 instructional design models have emerged based on one or more learning theories. Hodell (1997) mentioned that each instructional design model is rooted in what is called the ADDIE model. This fundamental model consists of the five steps found in almost all ISD models: analysis, design, development,

implementation, and evaluation. To deliver current training required in a rapidly changing educational environment, Internet technology has become the common delivery platform creating a need to identify effective ISD approaches appropriate to the technology (Hannafin, 1992).



Taken from http://4.bp.blogspot.com/_N3eiTSkdOJE/SCGQnnf2wKI/AAAAAAAAAK4/CrPmjOFgcPQ/s400/addie_model.jpg

Figure 2.1 ADDIE Model

An instructional design model is a representation of a view on how people learn. It is also the guideline by which an instructional designer creates instruction. The model will help the instructors conceptualize a process or system. They simplify the complexities of real situations into sets of generic steps that can be applied in many contexts (Bustafson & Branch, 2002). Many instructional design models, when diagrammed, appear to be linear and rigid. In practice, most are “iterative, moving backwards and forwards between the activities” (Moore, Bates 7 Grundling, 2002). Most are also flexible; leaving it to the experienced designer to decide how much detail is required at each step.

The development of learning instruction in this present study is adapted from several versions of Instructional System Design (ISD) models that have been developed for education, such as Morrison, Ross and Kemp Model; Classroom-oriented, Seels and Glassgow Model; Product-oriented, and Dick and Carey Systems Approach Model; Systems-oriented.

The Morrison, Ross and Kemp Model is classroom-oriented and describes a holistic approach to instructional design that considers all factors in the environment. This model prescribes a process that is interactive and subject to constant revision. This flexible model is designed to focus on content and appeal to teachers (Prestera, 2002).

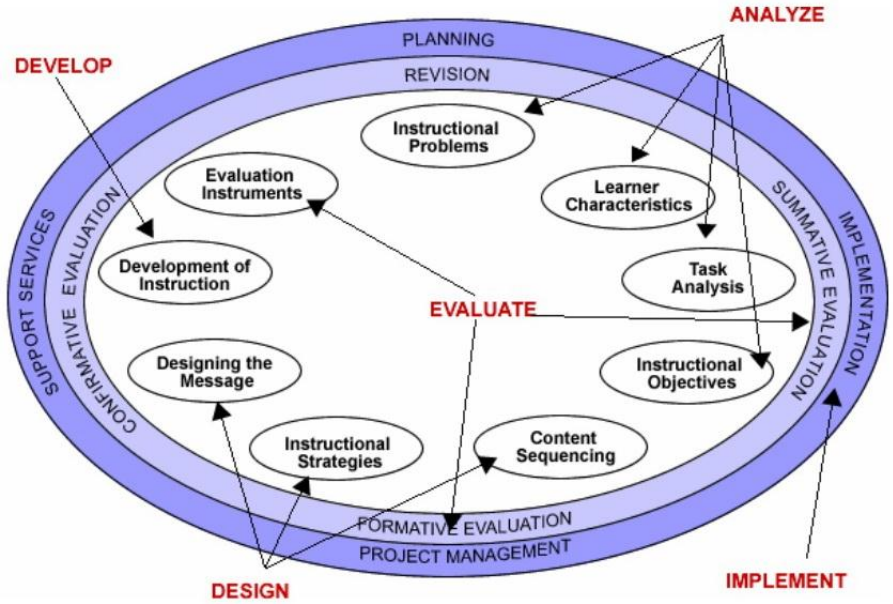
There are three elements of the Morrison, Ross and Kemp model. It differentiates from some other models which are : 1) the instruction considered from the perspective of the learning 2) the model takes a general systems view towards development (model components are independent of each other) with instructional design being presented as a continuous cycle and 3) the model emphasizes management of the instructional design process (Morrison, 2003).

To use this model, the instructional designer starts with asking five questions related to 1) required level of learner readiness 2) instructional strategies and media that are be most appropriate for the content and the target population 3) level of learner support required 4) measurement of achievement and 5) strategies for formative and summative evaluation (Morrison, Ross, & Kemp, 2001).

After that, the designer addresses the nine elements of the model. These elements are independent of each other in that they do not need to be considered to start with a particular element. The nine elements are 1) identify instructional problem

and specify goals for designing and instructional program 2) example learner characteristics that will influence your instructional decisions 3) identify subject content and analyze task components related to stated goals and purposes 4) specify the instructional objectives 5) sequence content within each instructional unit for logical learning 6) design instructional strategies so that each learner can master the objectives 7) plan the instructional message and develop the instruction 8) develop evaluation instruments to assess objectives and 9) select resources to support instruction and learning activities (Morrison, Ross, & Kepm, 2001)

The model recognizes that not all nine elements are required for all projects because of the lack of connectivity between elements and the ability to start at any place within the model. An ISD designer can examine the entire scope of a project or the minutia just as effectively. Therefore, using this classroom-oriented model, an individual with little instructional design skill could perform minimal front end analysis and develop a piece of instruction using few or no additional resources. The ISD designer should select from existing instructional materials suited to a technically simple and non-distributed delivery media. They would perform little or no formative evaluation on the final materials. A more experienced ISD designer could also use this model in the design of a complex and widely distributed program (Gustafson & Branch, 2001)



Taken from http://michaelhanley.ie/elearningcurve/wp-content/uploads/2009/06/kemp-model.jpg

Figure 2.2 Morrison, Ross and Kemp Model; Classroom-oriented

The Seels and Glasgow Model is a 3-phase model: needs analysis, instructional design, and implementation and evaluation. These three steps allow a project to be planned, resourced, and managed as three phases. Presetera (2002) explained that "the model leads to efficiency in project planning, resource allocation, and the control of the product development cycle while recognizing that instructional designers are often asked to either manage a project or work within an established project management framework". The following is explanation of each phase.

Phase 1 : needs analysis

Needs analysis at the phase includes the establishment of the instructional goals, requirements, and context.

Phase 2 : instructional design

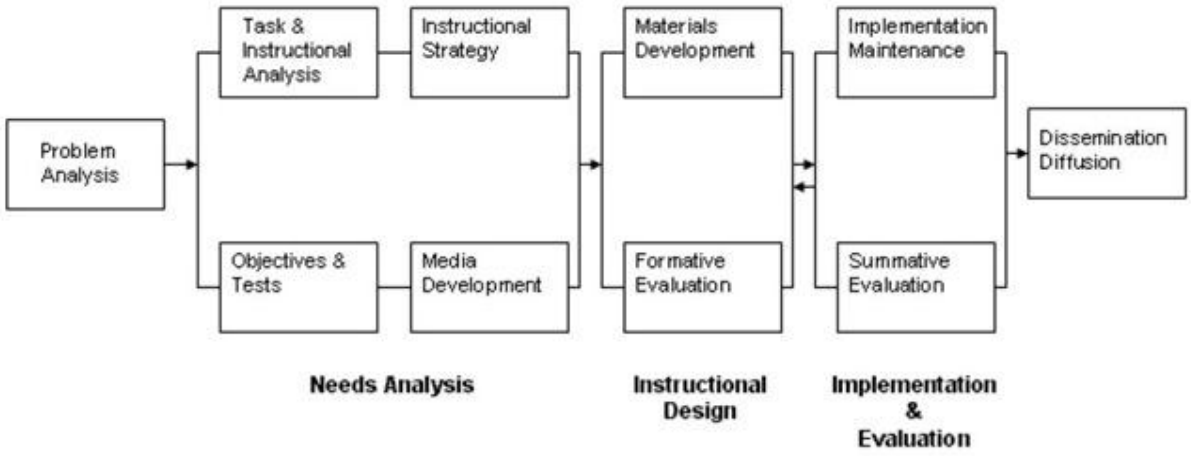
This phase begins after phase one is completed and is made up of six steps 1) task analysis, 2) instructional analysis, 3) objectives and tests, 4) formative evaluation, 5) materials development and 6) instructional strategy and delivery systems all of which are joined by feedback and interaction.

Phase 3 : implementation and evaluation

This phase includes the development and production of materials, delivery of the training, and summative evaluation.

The steps and phases in this model can be applied in a linear system. However, they are often applied iteratively. In particular, "the steps in the instructional design phase are interdependent and concurrent and may involve iterative cycling" (Gustafson & Branch, 2001)

The Seels and Glasgow model is a product-oriented model. It is normally used to produce an instructional package. Product production requires a team and significant resource commitment and so calls for strong project management to stay within time and budget. A team would include an experienced instructional designer to perform some front-end analysis, develop the materials, and perform a significant amount of formative evaluation. The end product is likely to be widely distributed using a moderately to highly technical delivery media (Gustafson & Branch, 2001).



Taken from http://michaelhanley.ie/elearningcurve/seels-and-glasgow-model

Figure 2.3 Seels and Glassgow Model; Product-oriented

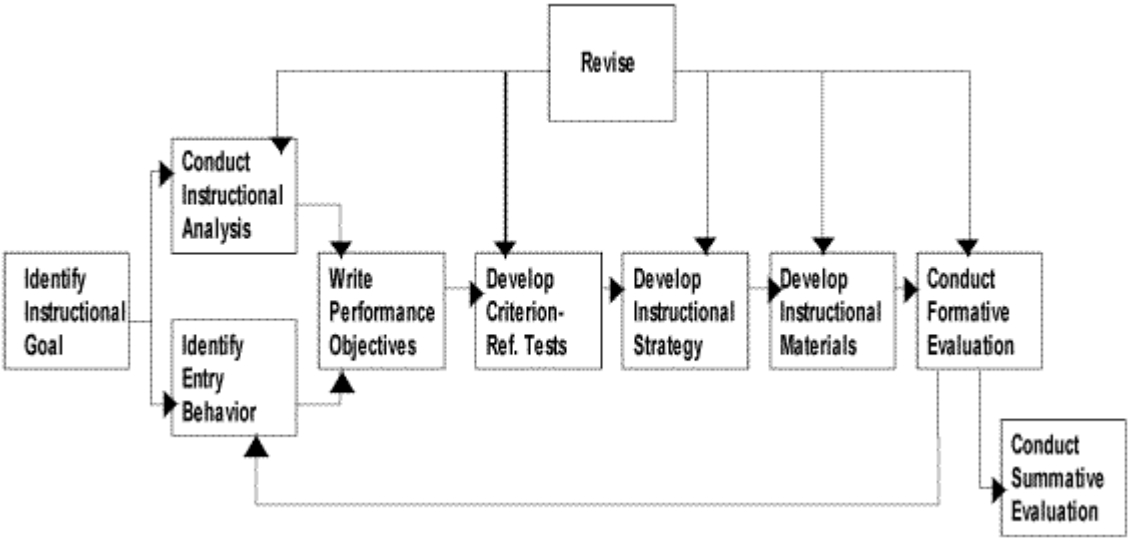
The Dick and Carey Systems Approach Model is a systems-oriented model. This model is based on an instructional theory that says, "There is a predictable and reliable link between instructional materials and the response that it produces in a learner" (McGriff, 2001). Gustafson and Branch (2002) confirmed that this model "reflects the fundamental design process used in many business, industry, government, and military training settings, as well as the influence of performance technology and the application of computers to instruction".

The model views instruction as "a systematic process in which every component; teacher, students, materials, and learning environment, is crucial to successful learning". A system is technically a set of interrelated parts, all of which work together toward a defined goal. The parts of the system depend on each other for input and output, and the entire system uses feedback to determine if its desired goal has been reached (Dick & Carey, 1990). Andrew & Goodson (1980) explained that each model component of Dick and Carey systems approach model is critical. None

of the components can be skipped. Some steps can be completed concurrently but all must be completed because of its systematic and sequenced nature. This model allows for the standardization of project design efforts making them task specific. It also implies a project management framework to allow for planning of required resources. One criticism of this model is that it presumes that "learning is based on mastering a set of behaviors which are predictable and therefore reliable". Behavior is not predictable (McGriff, 2001). Despite this criticism the Dick and Carey model is widely respected and applied.

The output of this systems-oriented model is often an entire course or curriculum. To create this large and complex product a team and a high level of resource commitment is required. The team will include an instructional design expert able to perform the extensive front-end analysis and formative evaluation required. Most if not all of the materials will be developed rather than selected and these materials will be widely distributed (Gustafson & Branch, 2001).

In determining whether the model is applicable to E-learning, the ISD designer should consider Dick and Carey's response to the application of their model to various media. They state that while the model is most directly applicable to developing print-based instruction it is also able to meet the needs and conditions of any selected medium of instruction. Dick and Carey (1990) stress that to use their Systems Approach model the designer is guided to complete their analysis and decide what needs to be taught to whom and how before selecting a medium.



Taken from http://uwf.edu/krasmuss/studentprojects/lgreer/fig2.gif

Figure 2.4 Dick and Carey Systems Approach Model; Systems-oriented

The following section will review previous research studies in E-learning related in EFL context and previous research studies in blended learning instruction related in EFL context.

Makkeaw (2006) conducted a research to study attitudes of students for using E-learning systems in instruction at King Mongkut's Institute of Technology. To serve the policy of KMITNB, which is expected to be completed in 2012, the institute should be the leader in E-learning system instruction. There were four different groups of the subjects participated in the study. They were bachelor, master, doctorate students and faculty who had course teaching at the Bangkok campus with a total of 593 participants. The results of the research showed that the doctorate students had the most need to use E-learning systems. The research was conducted with quantitative methods. The researcher based the study on attitude and did not address whether students actually learned better.

Another previous study in Thailand conducted by Muangsamai (2004) at Kasetsart University suggested that E-learning systems were an additional channel to enhance English language learning through written class assignments. There were 65 first-year students that participated in this "Integration of Online Learning Management System into English course" research.

A study of the development of software in E-learning systems had also been conducted by Somprasong (2005). There were fifteen Pratomsuksa six students of Patai Udomsuksa School, Bangkok that responded to the questionnaire after viewing the software media in promoting E-learning. The researcher got the software as E-learning in the form of a CD-ROM. The teachers identified that the software media was appropriate to the students' level. The results of the study showed that students used the software on the website and respectively used it outside of the classroom, in the classroom and in the library. The researcher revealed that there were more than 80 percent of students that had a positive attitude toward using the software.

Another development of the instructional model using the instructional system design of the Internet-based instruction system for teaching remedial English to first-year university students conducted by Suppasetseree (2005). The model has been showed in this paper earlier and revealed interesting results of the study. The research was conducted with 60 first year engineering students of Suranaree University of Technology who had low English proficiency. The students were divided into two separate groups: the experimental group received tutoring with the Internet-based instruction entitled "Suppasetseree's Remedial English Online" (SREO), see Figure 2.5, the control group was tutored using the face-to-face method. The results of the study show that there was a significant higher level of the efficiency of the Remedial

English lessons tutored on the Internet. There was a significant difference of English learning achievement of students who received tutoring through the Internet and those who received tutoring by face-to-face methods. The research results also showed that students had very good attitudes toward learning Remedial English via the Internet.

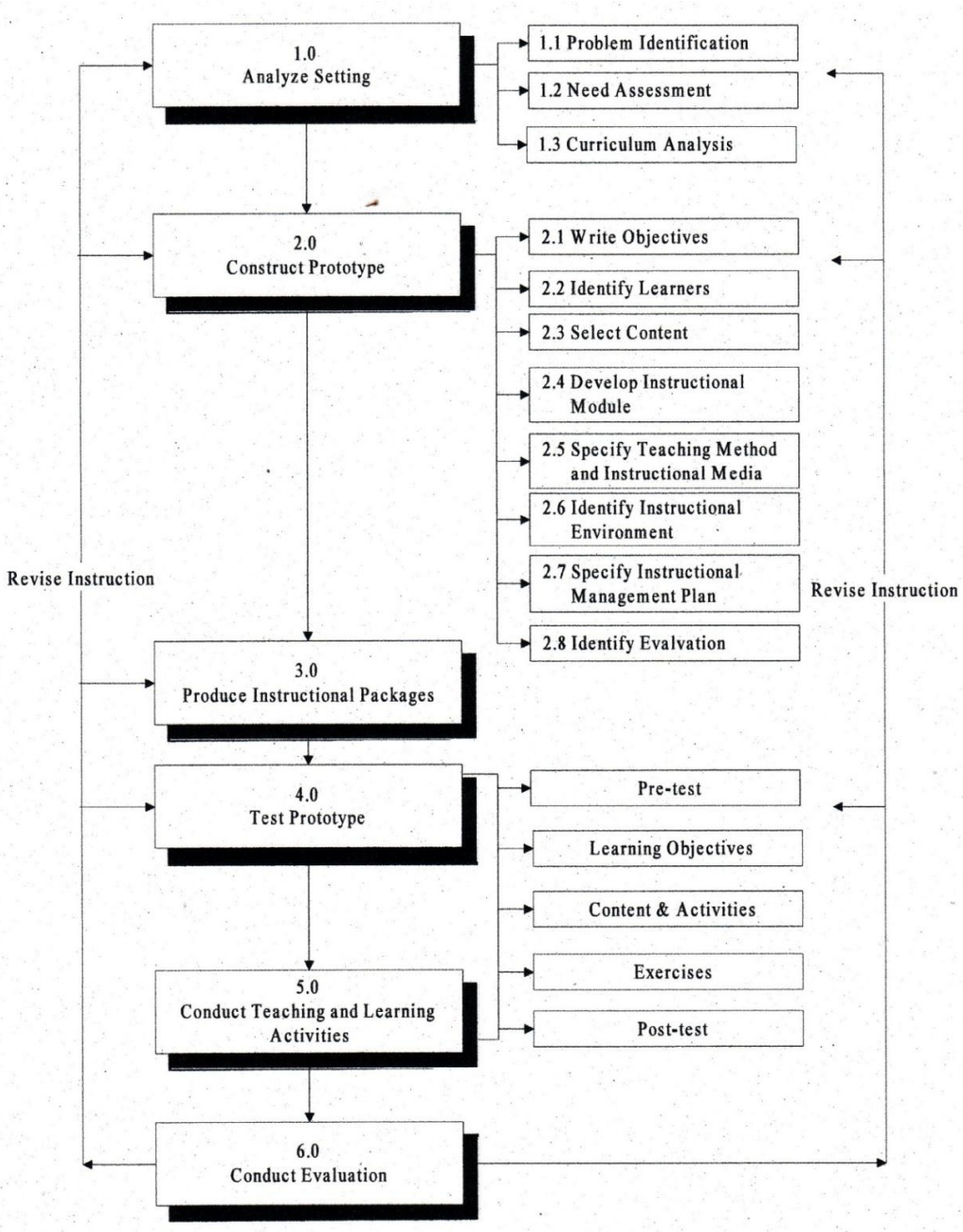


Figure 2.5 Suppasetseree's Remedial English Online (SREO) Plan, by Suppasetseree (2005)

Yutdhana (2005) also designed a model of instruction to develop a teacher-training to use the Internet for teaching English as a Foreign Language, see Figure 2.6. The purpose of the research was to study the context of the teacher's use of the Internet for their classroom, to design and develop a teacher-training model to enhance an instructor's use of the Internet in TEFL, to implement the teacher-training model to enhance an instructor's use of the Internet in TEFL, and to evaluate the teacher-training model to enhance an instructor's use of the Internet for TEFL. The participants in the study were; 100 EFL secondary school teachers from large-size schools in the provincial cities with at least one university, 16 EFL teachers from Chalermkwanstree School in Phitsanulok, and 9 experts in teacher-training in technology, instructional design and TEFL. There were five research instruments to collect the data. They were; a pre-design questionnaire, a model evaluation form, a pre-implementation questionnaire, a post-implementation questionnaire, and an output evaluation form. Both quantitative and qualitative methods were used in the study. The interesting results showed that Thai EFL teachers seldom used the Internet. However, they had positive opinions towards using technology. After the implementation, the model affected the teachers' use of the Internet in various aspects. Moreover, the expert evaluated that the model worked effectively with all essential training factors clearly identified.

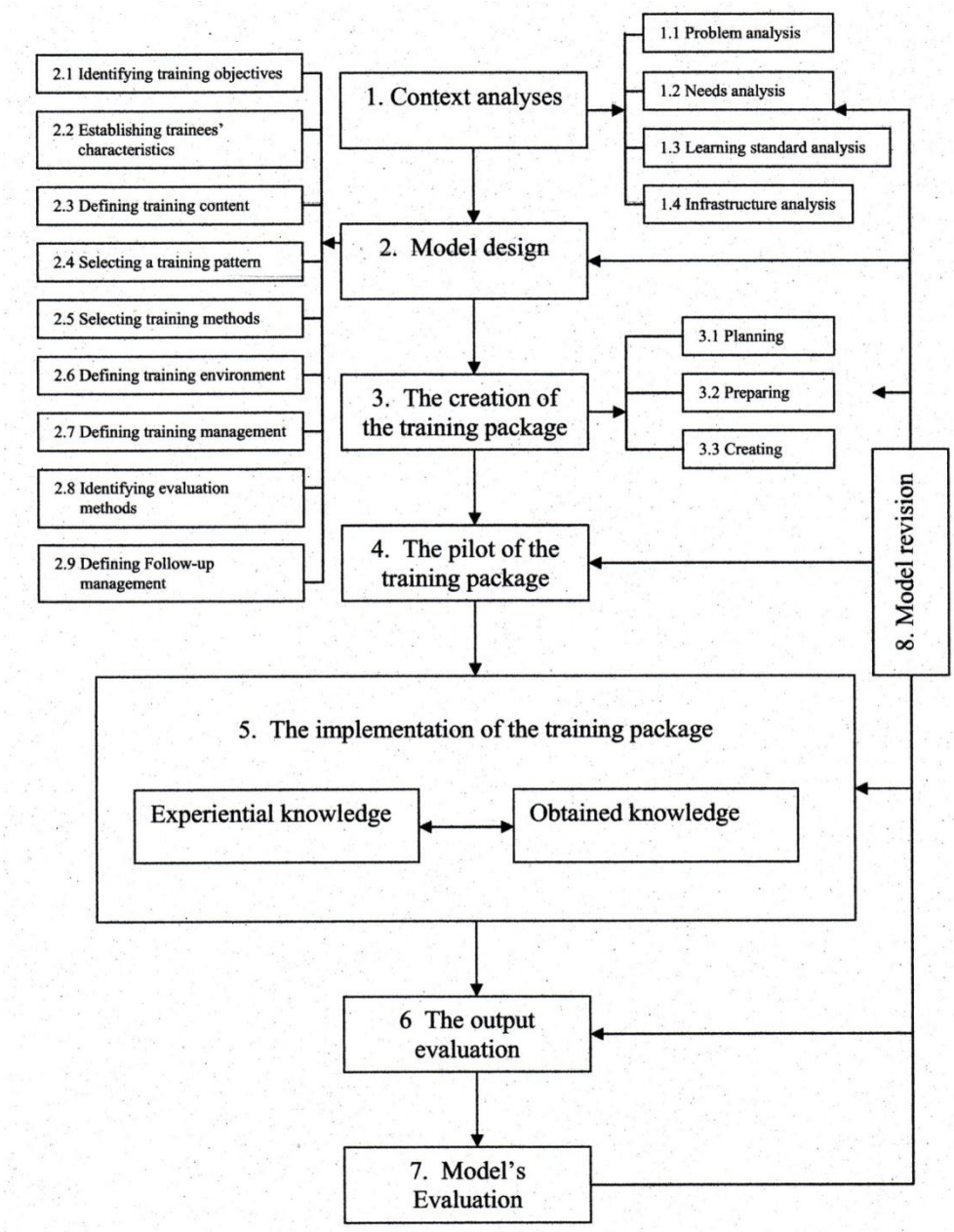


Figure 2.6 The Teacher-Training Model in Using the Internet for TEFL, by Yutdhana (2005)

Sriripattanakolkajorn & Nansaarng (2004) conducted a research to study about the problems and requirements of learning and teaching by E-learning of lectures who teach high vocational level at Rajamongala Institute of Technology. The results of the

study showed that there was no difference found among all the subjects in carrying out E-learning. The aspect causing problems most was budget, followed by that of application, network systems, personnel, and teaching materials respectively. For demand for E-learning, the highest problem was in the aspect of training needed, followed by management of teaching materials and budget. The results of this study concerned the authors since the plan to improve and solve the problem had been discussed.

According to the instructional model mentioned earlier, each model contains a different orientation. They are robust, complete and clear. Each model includes: analysis to establish what strategies would best suit the content, the context, and the learners; the establishment of instructional or performance objectives; the identification of the most appropriate media; the development of instructional strategies; formative and summative evaluation; and strong project management.

Instructional System Design (ISD) is an educational problem-solving process with the intent of creating a strategy for learning which makes passing and acquiring knowledge and skills more efficient, effective, and attractive. There are many schools of thought regarding ISD models but many are consistently based on the ADDIE model with the 5 phases: 1) analysis 2) design 3) development 4) implementation and 5) evaluation. The growth of instructional design has been influenced by cognitive and behavioral psychology, and more recently by constructivism. The ISD concept has been around since the 1940’s but has experienced rapid growth in the last ten years due to the increase in computer and the Internet technology. An instructional design is an overview representation of the human learning process. It is also a guide to assist instructors when creating instruction. On the surface, an ISD model might

appear linear and rigid, but in practice it is a living document which provides flexibility. The model breaks down the large project of creating instruction to small manageable steps and the process flows from one step to the next. An ISD is a living document that the instructor can constantly make adjustments to, based on the situation.

There are many factors that influence a student's ability to acquire knowledge and skills. Some of these factors are: environment, education, geography, languages economics, motivation and ability. What works in Europe or USA might not work in Ubon Ratchathani, Thailand. The above mentioned factors dictated that a unique instructional system was required for students at Ubon Ratchathani Rajabhat University which is the reason for the development Blended Online Learning Approach (BOLA) model: Nutprapha BOLA model which using several ISD model as guidelines.

After reviewing several aspects from the previous studies on E-learning, the author will move on to some previous studies on blended learning as described by the following.

2.7 Previous Research Studies

Welker & Berardino (2006) studied the perception of instructors from 22 departments and 38 students referring to blended learning classes at the State University of New York Institute of Technology. The scholars found that the instructors appreciated the facilitation of the use, accessibility and quality of the online components of the course delivered. The instructors believed that they were able to track students' progress and connect with students more easily. The online

elements allowed instructors to make more efficient use of face-to-face classroom time. The instructors also commented on the consistency of course delivery and ease of course management. Students revealed these advantages and mentioned its flexibility and independence to learn. Instructors and students also mentioned disadvantages to blended learning. These included increased workload, inconsistencies in classroom activity, reduced teacher to student and student to student interactions because of the optional attendance policies, confusion over unclear instructions, and a shortage of current asynchronous discussion forums.

El Mansour & Mupinga (2007) studied a comparable topic. They supported both the advantages and disadvantages Welker & Berardino described. The author surveyed 41 students from Indiana State University. Students could take the course as either blended or fully online. They did not mention the advantages of course delivery. They also suggested that students chose the course based on their individual learning styles. The unclear issue in this study was the shortage of the relationship between blended learning and fully traditional classrooms.

Hughes (2007) & Lee, Yeh, Kung & Hsu (2007) studied the advantage of tracking students' progress more easily. Hughes evaluated assignment submission rates, fail rates, and retention rates for blended learning and traditional instruction for a course taught at a university in the UK. The researcher focused on students who receive early intervention in a blended learning environment against the other group of students who did not. The researcher also compared an individual student who received more continuing learning processes of blended learning then face-to-face instruction. Finally, Hughes collected students' feedback to gain further perception. The improvement of motivation and retention were provided by well designed courses

of the blended learning environment. Lee at al (2007) also studied the influence of implementing a blended approach in a mathematics course for 48 junior high school students. Students were pre-tested and post-tested. The authors mentioned significant improvements in student learning. They ascribe improvements to online testing, number of hours spent online, and student's attitudes toward learning. They conclude that a blended approach may allow teachers to recognize when interventions are necessary more quickly.

Condie & Livingston (2007) used qualitative and quantitative methods to collect the data from 875 students and 234 instructors that use the SCHOLAR program. "The SCHOLAR program was a learning management system made available to local school authorities across Scotland". The scholars explained that students who applied the program appeared to have a greater level of achievement on standardized testing. They also revealed that the instructors were mostly unenthusiastic to use the program. In fact, most instructors were unaware that students accessed the program. The researchers shared that the instructors' unwillingness arose from concerns about loss of professional status, not understanding how to use the program, and most of them were concerned more about time commitments. This last point is in agreement to the disadvantages suggested by Welker and Berardino (2006). However, Hughes (2007) found that the instructors schedule did not change significantly, though it required instructors to adjust their methods. The researcher mentioned that instructor training was the option for success.

Condie & Livingston (2007) also pointed out the value of student controlled video and animation within a learning management system as an effective use of technology. Some educators reinforced this point. The educators used a questionnaire

to look at the impact of a learning management system that incorporated video clips with online self-marking practice quizzes on the analytical and observational skills of 88 physiotherapy students at the University of Birmingham. The course included an online final exam. Students' opinions suggested that the technology enhanced the learning process. However, students believe that the learning management system enhanced students learning (Davies, Ramsay, Linfield & Couperthwaite, 2005).

Aspden & Helm (2004) also found that a blended environment may increase students' intelligence in connection to their learning institution. The researchers collected diary entries from nine students involved in blended courses at Sheffield-Hallam University to determine if a blend of virtual and physical spaces could enhance students learning achievements. Their principle is that an enhanced experience should increase students' intelligence of connection, eventually resulting in greater student success. Students responded positively and expressed an appreciation for the way the virtual supported the physical and vice-versa. Small sample sizes, which limited the ability of the authors to generalize to a larger population was the issue of this study. As with several other researches, a shortage of quantitative data and controls leave many unanswered questions.

Another related study conducted by Schweizer, Paechter & Weidenmann (2003) showed the comparison of student performances on collaborative tasks in a completely online environment and blended environment. The students were from the University of the Federal Armed Forces in Munich. The researchers divided 96 students into 24 groups of 4. Each group received a series of identical collaborative tasks as part of their course work. However, each group received different methods for learning. Methods included synchronous online chat rooms, asynchronous

discussions, videoconferences, and face-to-face classrooms. All groups received detailed instruction in all communication technologies prior to the beginning of the study. The researchers found that students using synchronous settings, especially face-to-face and videoconferencing performed significantly better on collaborative tasks, especially if the task required students to share knowledge that was different for each group member. Scheweizer at al (2003) concluded that instructors should not overlook the importance of visual indications and other forms of extensive communication when designing for instruction.

This review indicates that there are several areas for further researches. Many of the previous studies rely on perception and attitudes. Only few showed students were improving in achievement and understanding of learning outcomes. Therefore, more studies need to focus on measuring improvements in learning. Additional studies should also focus to clarify best practices to integrating technology into classrooms. Finally, the best practices to training instructors require researching and integration. The next chapter will show research methodology including population and samples, research design, variables in the study, research instruments, data collection and data analysis methods.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this chapter is to describe how the study is carried out. It explains the research methodology, population, samples and research design of the study. This is followed by a description of variables and instruments. The construction and efficiency of research instruments are also presented. The last part of this chapter shows how the data is obtained with data analysis and interpretation.

3.1 Research Methodology

This study is an experimental research with both quantitative and qualitative data analysis. The researcher develops a Blended Online Learning Approach (BOLA): Nutprapha BOLA model, which is the framework for integrating technology and traditional classroom teaching. Within the framework, Nutprapha BOLA packages are constructed. The purpose of Nutprapha BOLA packages is to compare the students' achievement before and after using the package to study English for Careers in Technology. The subjects are measured for their learning achievement before the experiment by a pre-test. After the experiment is constructed, a post-test is given to all subjects. Then, the data obtained is analyzed to find out whether the learning achievement contains significant differences. The subjects are also administered a questionnaire and a semi-structured interview.

3.2 Population and Samples

The population and samples in this study were divided into two main groups namely; population and samples for the try-out steps to evaluate the effectiveness of Nutprapha BOLA packages and population and samples for the experiment.

3.2.1 Population and Samples for the Try-out Steps to Evaluate the Effectiveness of Nutprapha BOLA Packages.

The population of the study in this step was eighty second year students from Faculty of Industrial Technology who study English for Careers in Technology course in the first semester in the academic year 2011 at Ubon Ratchathani Rajabhat University.

The samples for stage one: Individual Testing was tried out with three students who have different levels of proficiencies; one with high proficiency, one with average proficiency and one with a low level of proficiency.

The samples for stage two: Small Group Testing was tried out with nine students who have different levels of proficiency: three with high proficiency, three with average proficiency and three with low proficiency.

The sample for stage three: Field Study Testing was tried out with thirty students who have different levels of proficiency, ten with high proficiency, ten with average proficiency and ten with low proficiency.

The criteria for distinguishing the samples into different levels of English learning proficiency were:

a. The students rated as high proficiency were those who received grade of "A" in the English course of the previous semester.

b. The students rated as average proficiency were those who received grade of "B+, B, C+, and C" in the English course of the previous semester.

c. The students rated as low proficiency were those who received grade of "D+, D" or lower in the English course of the previous semester.

A total of forty-two students were samples for try-out steps to evaluate the effectiveness of Nutprapha BOLA packages. After each stage of the try-out steps was done, the samples was also administered a questionnaire and semi-structured interview. The questionnaire and semi-structured interview were evaluated for the validity using the samples' responses.

3.2.2 Population and Samples for the Experiment

The population of the study was eighty first year students from Faculty of Industrial Technology who study English for Careers in Technology course in the second semester in the academic year of 2011 at Ubon Ratchathani Rajabhat University.

Most of the students in this study were from several districts of the Ubon Ratchathani province. They have been studying English as an elective course for 6-12 pre-university academic years. Despite the number of years studying English, the students were still displaying a low proficiency level. This is confirmed by their low grades taken from the English course from the past semester.

A total of forty first year students from Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University were the samples in the present study. The study was constructed by the researcher in the second semester of the academic year 2011.

3.3 Research Design

The study was constructed by the researcher in the second semester of the academic year 2011. The researcher constructed Nutprapha BOLA model. Then, Nutprapha BOLA packages, as designed from the model, was used to compare the students' achievement before and after using the package for learning English for Careers in Technology. The subjects were measured for their learning proficiency by a pre-test. After the experiment was constructed, a post-test was given to all of the students. The data obtained was analyzed to find out whether the learning achievement contains significant differences. The subjects were also administered a questionnaire and semi-structured interview.

The study was a Pre-Experimental research using One-Group Pre-test-Post-test design as the diagram below.

Group A O1 ----- X ----- O2

X = an experimental variable, the effects of which are to be measured.

O = the measurement recorded from pre-test and post-test.

This research design includes a pre-test measure followed by a treatment and a posttest for a single group (Creswell, 2003).

The research design can be illustrated as follows:

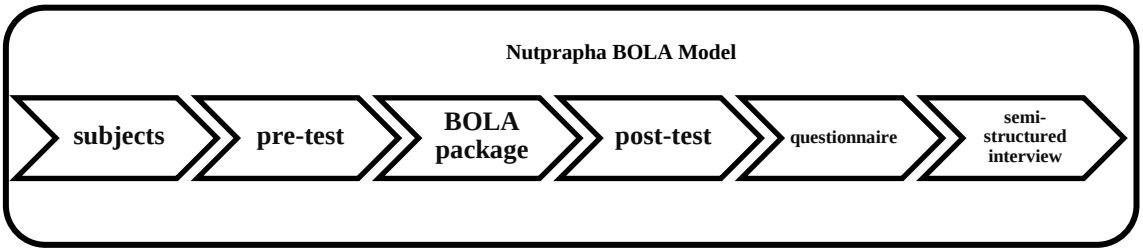


Figure 3.1: Research Design

3.4 Variables

As shown in 3.3, the theoretical framework indicated two main types of variables: independent and dependent variables.

3.4.1 The independent variable and BOLA packages.

3.4.2 The dependent variables, which were affected by the independent variables, were Nutprapha BOLA model, students' learning achievement and opinions toward learning through Nutprapha BOLA packages.

3.5 Instruments

There were six research instruments in this study.

3.5.1 Nutprapha BOLA Model

Nutprapha BOLA model was constructed by the researcher. Its usage appropriateness for teaching English for Careers in Technology was determined by the experts in Educational Technology and English language fields.

3.5.2 Nutprapha BOLA packages

Nutprapha BOLA packages contains contents of English for Careers in Technology. It was designed by the researcher.

3.5.3 Lesson Plan

The lesson plan shows the steps and process of Nutprapha BOLA packages instructions which contains English for Careers in Technology contents. It was planned by the researcher.

3.5.4 Proficiency Test (Pre-test & Post-test)

The proficiency test for measuring the students' learning achievement before and after the experiments consists of pre-tests and post-tests. The experts in the

English language teaching field examined them to measure their validity and reliability before they were used.

3.5.5 Questionnaire

The questionnaire was designed to gather information from the subjects of this study. It was composed of two parts. The first part was about personal information of the subjects. The second part was about the subjects' satisfaction toward Nutprapha BOLA pakcage for learning English for Careers in Technology.

3.5.6 Semi-structured Interview

The semi-structured interview was designed to gain in-depth data of students and teachers' satisfaction after using Nutprapha BOLA packages.

3.6 Construction and Efficiency of the Instruments

The construction and efficiency of the research instruments was carried out after a consultation with research professionals and research experts in Educational Technology and English language teaching fields.

3.6.1 Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model

The researcher constructed Nutprapha BOLA model based from several versions of Instructional System Design (ISD) models that have been developed for education, such as Morrison, the Ross and Kemp Model (Classroom-oriented), the Seels and Glassgow Model (Product-oriented), and Dick and Carey Systems Approach Model (Systems-oriented). More detail of each model will be explained in 3.7.2.3. To construct Nutprapha BOLA model, the researcher combined several ISDs for applicably between traditional classroom and online classroom settings. Each

model the mentioned earlier has a different orientation. The model was used to determine the appropriateness in use for teaching English for Careers in Technology by the experts in Educational Technology and the English language field. The following are the details how Nutprapha BOLA model has constructed based on Bramawong & Vate-U-Lan (2009)'s Seven-Step Model for R&D Prototype Development.

Step 1: Investigate the body of Nutprapha BOLA model content

The researcher studied the current curriculum of English for Specific Purposes which contains English for Careers in Technology course as one of the selective subjects for first year students at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University.

Step 2: Conduct a survey of need assessment for Nutprapha BOLA model

The researcher conducted a need analysis research to explore and investigate the needs for English language teaching innovation related to E-learning blended with regular classroom.

Step 3: Develop the conceptual framework of Nutprapha BOLA model prototype

After completing an investigation of content requirements and the needs of the course, the researcher developed the conceptual framework of Nutprapha BOLA model prototype to match those needs and requirements.

Step 4: Survey of experts' opinions toward Nutprapha BOLA model

The researcher surveyed experts in English language teaching and Educational Technology after each had reviewed Nutprapha BOLA model prototype to gain their opinion and suggestion to improve the model.

Step 5: Develop the first draft of Nutprapha BOLA model prototype

The researcher developed the initial draft of Nutprapha BOLA model prototype using results from Step 3 and 4 above.

Step 6: Conduct the developmental testing of Nutprapha BOLA model

The researcher conducted developmental testing using Nutprapha BOLA model prototype. Changes and modifications were implemented after each phase.

Step 7: Revise and finalize Nutprapha BOLA model prototype

After completion of modifications to the prototype based on results from developmental testing, the researcher finalized Nutprapha BOLA model prototype.

3.6.2 Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages

3.6.2.1 Nutprapha BOLA Packages Construction Procedures

Nutprapha BOLA packages were constructed by the researcher with the following steps;

1. The researcher studied current curriculum of English for Careers in Technology course for first year students at Faculty of Industrial Technology, Ubon Ratchathani Rajabhat University.
2. The researcher reviewed related literature on E-learning, Blended Learning and Teaching English as a Foreign Language.
3. The researcher studied on how to create Nutprapha BOLA packages by using multiple platforms and resources, such as Moodle, Wikispaces, Adobe Flash CS4.
4. The researcher constructed a storyboard for Nutprapha BOLA packages.

5. The researcher designed a prototype for Nutprapha BOLA packages.

6. The researcher created Nutprapha BOLA packages.

7. Nutprapha BOLA packages were examined by experts in Educational Technology and English language teaching fields.

8. The package was revised before being used in the try-out step.

3.6.2.2 Nutprapha BOLA Packages Effectiveness

Evaluation Process

There were three steps to evaluate the effectiveness of the packages. It shows as follows:

A. The Individual Testing

B. The Small Group Testing

C. The Field Study Testing

A. The Individual Testing

Nutprapha BOLA packages were tried out by three students with different English level proficiency. These were ranged from high proficiency, average proficiency, and low proficiency students. These students were not subjects in the present study. The criteria of distinguishing the samples into different levels of English learning proficiency were:

a. The students rated as high proficiency were those who received grade of "A" in the English course of the previous semester.

b. The students rated as average proficiency were those who received grade of "B+, B, C+ and C" in the English course of the previous semester.

c. The students rated as low proficiency were those who received grade of "D+, D" or lower in the English course of the previous semester.

The three students were assigned to study and do exercises of English for Careers in Technology via Nutprapha BOLA packages. After that, they were asked to do tests and give opinions about the package. The scores that the three students obtain from the exercises and the tests were calculated to find out the efficiency of the process (E1) and the efficiency of the product (E2). The researcher used opinions and useful comments to improve the lessons and contents on the package.

B. The Small Group Testing

In this step, Nutprapha BOLA packages were tried out by nine students with different levels of English proficiency. These represent three students with high proficiency, three students with average proficiency and three students with low proficiency. These students were not subjects in the present study. The same procedures were done with this group of students. After analyzing the data from the proficiency test scores and exercises, the researcher asked for the subjects' opinions and feedback of the lesson on the package. After that, the researcher revised the lessons and contents according to the useful comments.

C. The Field Study Testing

There were thirty students with different English proficiency level to be samples for this last try out step. They were ten high proficiency, ten average proficiency and ten low proficiency students. These students were also not the subjects in the study. The same procedures were done with this group of students. Students' proficiency scores from proficiency test and exercises were determined for efficiency of the package based on criteria of the 85/85 stand level (Brahmawong, 1978).

The following formula was used to determine and calculate for the efficiency of Nutprapha BOLA packages.

Formula

1. $E_1 = \frac{\left[\frac{\Sigma X}{N}\right]}{A}$ x 100

E_1 = Efficiency of the process

Σ^X = Total combined attained score

N = Total number of students

A = Total combined possible score

2. $E_2 = \frac{\left[\frac{\Sigma F}{N}\right]}{B}$ x 100

E_2 = Efficiency of the product

Σ^F = Total combined attained score

N = Total number of students

B = Total combined possible score

(Brahmawong, 1978)

3.6.3 Lesson Plan

The lesson plan based on Blended Learning was constructed by the researcher. The steps to conduct the lesson plan were;

1. The researcher studied English for Careers in Technology as a part of English for Specific Purposes syllabus that currently used at Ubon Ratchathani Rajabhat University.

2. The researcher constructed a lesson plan based on Nutprapha BOLA packages and English for Careers in Technology contents.

3. The lesson plan was examined by the experts in the English language teaching field.

4. The researcher improved and revised the lesson plan before being used with the subjects.

In traditional classrooms, most activities rely on the teacher lecturing, asking and answering questions, workbooks and other documents such as quizzes printed out on paper for each individual student. Blended online learning is integrating online learning technology to replace classroom activities which formerly required 100% of the instructors time or workbooks or other printed materials. The blending within the classroom allows the teacher to better manage his or her time and to focus efforts on the students who are having difficulties. If the lesson of the day involves listening and speaking, the class can be moved to a computer lab. This enables students to listen to the audio at their own paces. The teacher can monitor all students and give one-on-one time to students who are having difficulties and allow the other students to progress at their own learning speed. The traditional method would be to use a CD player to play the audio for the entire group and reply as many times as is required for the group to understand. Post lesson exercises can be immediately following the lecture. The teacher gets real time feedback and can identify portions of the less that need clarification or more understanding. Any difficulties students are experiencing can be corrected which saves time because the teacher does not have to spend time in the next session helping students who could not complete their homework assignments. The inclusion of technology in the classroom does not replace all traditional methods but supports, complements, and enhances the teaching and learning process. The following is a guideline for the lesson plan using in this present study.

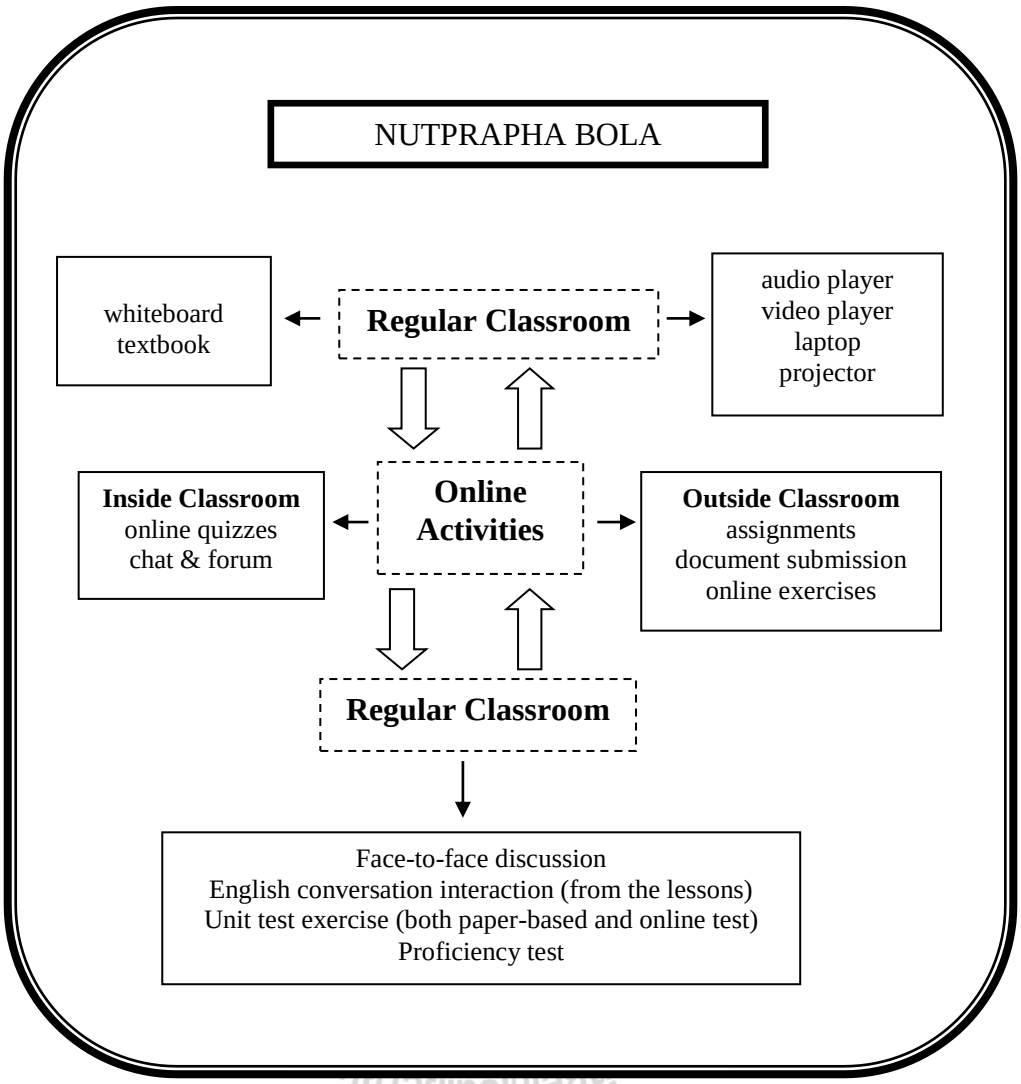


Figure 3.2 : Guideline of the lesson plan

3.6.4 English for Careers in Technology Proficiency Test

The English for Careers in Technology proficiency test constructed by the researcher was employed as a parallel of the pre-test and post-test for the subjects. The test development was conducted as follows.

1. The researcher studied English for Careers in Technology as a part of English for Specific Purposes curriculum which was currently used at Ubon

Ratchathani Rajabhat University and related to literature, then set the testing objective corresponding to the learning objective in Nutprapha BOLA packages.

2. The researcher studied and consulted with the experts in the English language teaching field about the testing principles and procedures of the test construction.

3. The researcher specified the test specifications.

4. The researcher developed a multiple-choice test for 100 items.

5. A pilot study was conducted with 80 first-year students at Ubon Ratchathani Rajabhat University who were not the samples in the study.

6. Based on the data obtained from the pilot study, an item analysis was carried out. Each question was analyzed for the level of difficulty and discrimination index.

The formulas for analyzing the proficiency test were;

1. Test Difficulty Formula

2. Discrimination Formula

1. Test Difficulty Formula

$$p = \frac{R_H + R_L}{N_H + N_L}$$

p = Difficulty of the test

RH = Number of students who answer a test item correctly in the high group

RL = Number of students who answer a test item correctly in the low group

NH = Number of students in the high group

NL = Number of students in the low group

2. Discrimination Formula

$$r = \frac{R_H - R_L}{N_H + N_L}$$

r = Discrimination index

RH = Number of students who correctly answered in the high group

RL = Number of students who correctly answered in the low group

NH = Number of students in high group

NL = Number of students in the low group

7. One hundred test items were selected as a pre-test and a post-test with 50 items in each.

8. The reliability of the tests were checked, using method of Coefficient Alpha of Cronbach (A-kakul, 1999).

9. The tests were sent to the experts who were academically qualified for a content validity check. The contents were then adjusted from their advice and the test results, respectively.

3.6.5 Questionnaire

The questionnaire was designed to gather information from the samples of this study. The questionnaire was designed to gather information from the subjects of this study. It was composed of two parts. The first part was about personal information of the subjects. The second part was about the subjects' satisfaction toward Nutprapha BOLA packages for learning English for Careers in Technology.

According to Wilkinson and Birmingham (2003), there are three types of questionnaires. First, "*the mail survey*" is the instrument which addresses to respondents and delivery by mail, and can be an efficient way of collecting a large

amount of data. However, this type of questionnaire sometimes is considered impersonal and can suffer from low response rates. The second type of questionnaire is "*the group administered questionnaire*" which is a useful instrument for collecting data from a sample of respondents who can naturally be brought together for the purpose. In this case, this type of questionnaire is best used in the context of classroom students. This type of instrument allows each member of the group to complete his or her own questionnaire and return it to the researcher upon completion. Response rates using group-administered questionnaires can be higher than those for mail surveys. The final type of questionnaire is "*the house-hold drop-off survey*" which is a combination of the mail and group-administered surveys. Using this type for collecting the data, the researcher delivers the questionnaire by hand to the respondent and collects the data at some later date. Therefore, the second type of the questionnaire, "group administered questionnaire", will be implemented in this study.

To measure opinion, Likert's rating scale is used. Likert's scale has five categories and each scale consists of two parts: a declarative statement and a list of responses categories ranging from "Strongly Agree" to "Strongly Disagree". All scale categories are labeled. The declarative statement changed for each scale, the response categories are constant across all scales (Dornyei, 2003).

The questionnaire contained twenty-two items. After students read each item, they will check in the box. A five point rating scale was used for rating students' and teachers' satisfaction. They are showed as follows:

5 = Strongly agree

4 = agree

3= Neutral

2= Disagree

1= Strongly Disagree

According to Likert's scale method, the questionnaire was constructed and developed using the following procedures.

1. The researcher studied literature and reviewed document about how to construct the questionnaire.

2. The researcher constructed statements based on the issues compiled from learning using Nutprapha BOLA packages.

3. All of the statements were examined by the experts in the English language teaching field for content validity and check using Likert's five rating scale.

4. The statements or items were used to try-out with eighty samples for item analysis.

5. The items were calculated for the discrimination using the t-test.

6. Twenty-two items were chosen to be part of the questionnaire and these items were tried out again to assure reliability.

7. The reliability of the questionnaire was checked, using the method of the Coefficient Alpha of Cronbach.

3.6.6 Semi-structured Interview

The interview involves a researcher orally asking questions for individuals to answer (Wilkinson & Birmingham, 2003). In other words, interviews traditionally have been conducted face-to-face and one-on-one, with the researcher speaking directly with one interviewee at a time (Thomas, 2003).

Patton (1980) categorizes three main types of interviews: the informal conversation interview, the general interview guide approach, and the standardized

open-ended interviews. In addition, Oppenheim (1999) provides two kinds of interviews to measure to attitudes. The first kind is exploratory interview which is known as depth interviews, or free-style interviews. The purpose of exploratory interview is essentially heuristics: to develop ideas and research hypotheses rather than to gather facts and statistics. It is concerned with trying to understand and how ordinary people think and feel about the topics of concern to the research. The second type is the standardized interviews such as used, for example, in public opinion polls, market research and government surveys. Its purpose is for data collection in a large scale survey. Marshall & Rossman (1999) assert that the qualitative depth interviews are much more like the conversation than the formal events with the predetermined response categories.

The researcher explored a few general topics to help uncover the participants' views but otherwise respects how the participant frames and structures the responses. Also, the participants' perspective on the phenomenon of interest should unfold as the participant views it, not the researcher view of it. The most important aspect of the interviewers' approach concerns conveying the attitude that the participant's views are valuable and useful.

Wilkinson & Birmingham (2003) provide three models of interviews to be considered. The first one is the unstructured interview which is a very flexible approach. In the unstructured interviews, areas of interest are established by the researcher but the discussion of issues is guided by the interview. However, it can be very difficult for the researcher to plan and discussion may sometimes get away from the key subject matter. The second model of interviewing is the semi-structured interview in which the interviewer directs the interview more closely. More questions

are predetermined and there is sufficient flexibility to allow the interviewee an opportunity to shape the flow of information. In the semi-structured interview, the format and the ordering of the questions are informed by the ongoing responses of the interviewee to the questions posed which help the researcher analyze data more easily. The third model is the structured interview in which the interviewer controls the order of questions. All of the questions are predetermined by the researcher. Unlike the other two models, the structured interview may provide an easier framework for analysis but is the least flexible during the interview.

Therefore, the semi-structured interview was used in this study. The interview was designed to collect students and teachers' satisfaction after using Nutprapha BOLA packages. The purpose of the interview was to collect in-depth information.

3.7 Data Collection

The procedures of data collection are as follows;

1. Conducted the pre-test with the students.
2. Nutprapha BOLA packages were used to teach in class from period 1-15. The teaching methods followed the lesson plan.
3. Conducted the post-test with the students who study English for Careers in Technology using Nutprapha BOLA packages.
4. Students and teachers responded to the questionnaire about their opinion toward Nutprapha BOLA packages.
5. Students and teachers who used Nutprapha BOLA packages for learning and teaching English for Careers in Technology were interviewed to get more in-depth opinions toward Nutprapha BOLA packages.

3.8 Data Analysis

The data obtained from different methods were analyzed and interpreted in two main ways, quantitative and qualitative data analysis. Both of the data were analyzed as follows:

3.8.1 Quantitative Data

All data were analyzed by means of the Statistical Package of Social Sciences (SPSS).

a) The statistics used for testing the reliability of the pre-test and post-test

The obtained data were analyzed to determine the reliability of the test. The statistics used for finding the reliability of the tests was SPSS.

b) The statistics used for testing the pre-test and post-test

The t-test was used to analyze the difference of pre-test and post-test scores.

c) The statistics used for testing the reliability of the questionnaire

The statistics used for determining the reliability of the questionnaire were obtained using the SPSS for the Coefficient alpha of the Cronbatch formula.

d) The statistics used for interpretation of the questionnaire

The questionnaires were analyzed by mean (X) and standard deviation (S.D.).

3.8.2 Qualitative data

The semi-structured interview was used as qualitative data. Content analysis was used to interpret the data obtained from the semi-structured interviews

This chapter discusses the research methodology employed in the present study. It presents population and samples used for the experiment. It also discusses research design. The instruments used to collect data in the study are also explained. Finally, it shows data collection and the analysis methods in the study. In the next chapter, the researcher will present results and discussion of the study.

CHAPTER 4

RESULTS AND DISCUSSIONS

This chapter presents the research findings which were organized according to the four research questions of the study as follows :

1. What are the components and logical steps of developing Blended Online Learning Approach (BOLA) model : Nutprapha BOLA model for teaching English for Careers in Technology?

2. Are Blended Online Learning Approach (BOLA) packages : Nutprapha BOLA packages efficient based on the 85/85 standard?

3. What are the differences of students' language achievements before and after using Blended Online Learning Approach (BOLA) packages : Nutprapha BOLA packages for learning English for Careers in Technology?

4. What are students and teachers' satisfaction toward using Blended Online Learning Approach (BOLA) packages : Nutprapha BOLA packages for learning and teaching English for Careers in Technology?

4.1 Results

4.1.1 Research Question One: *What are the components and logical steps of developing Blended Online Learning Approach (BOLA) model : Nutprapha BOLA model for teaching English for Careers in Technology?*

Nutprapha BOLA model is a framework for integrating technology and traditional classroom teaching. It was created by the researcher for teaching English for Careers in Technology. To construct Nutprapha BOLA model, the researcher designed the model based on several Instructional System Design (ISD) theories for applicability between traditional classroom and online classroom setting. The model includes: analysis to establish what strategies would best suit the content, the context, and the learners; the establishment of instructional or performance objectives; the identification of the most appropriate media; the development of instructional strategies; formative and summative evaluation and strong learning content management. Nutprapha BOLA model was developed in five phases; Phase 1) Conduct classroom setting analysis of Nutprapha BOLA model, Phase 2) Conduct application design of Nutprapha BOLA model, Phase 3) Develop Nutprapha BOLA packagess, Phase 4) Implement Nutprapha BOLA packagess, and Phase 5) Evaluate Nutprapha BOLA packagess. The following are briefly described steps of each phase of Nutprapha BOLA model.

Phase 1: Conduct Classroom Setting Analysis of Nutprapha BOLA Model

Step 1: Needs assessment

Step 2: Participant analysis

Step 3: Content analysis

Step 4: Technical analysis

Step 5: Structural analysis

Step 6: Resource assessment

Phase 2: Conduct Application Design of Nutprapha BOLA model

Step 1: Learning goals identification

Step 2: Learning objectives writing

Step 3: Entry behaviors identification

Step 4: Criterion reference establishment

Step 5: Existing sites and resources research

Step 6: Content inventory

Step 7: Instructional strategy conception

Step 8: Flowcharts creation

Step 9: Lessons and materials design

Step 10: Media utilization planning

Step 11: Testing design

Step 12: Evaluation approach design

Step 13: Interface design

Phase 3: Develop Nutprapha BOLA packagess

Step 1: Learning packages invention

Step 2: Media integration

Step 3: Prototyping

Step 4: Classroom processing

Step 5: Quality warranty

Phase 4: Implement Nutprapha BOLA packagess

Step 1: Promotion

Step 2: Distribution

Step 3: Reporting

Step 4: Maintenance

Phase 5: Evaluate Nutprapha BOLA packages

Formative evaluation

Summative evaluation

After Nutprapha BOLA model had been developed, the researcher consulted with the experts about the appropriateness of the model construction for teaching English for Careers in Technology. Then the model was revised according to the comments.

According to the components in each phase mentioned above, the evaluation form of Nutprapha BOLA model was sent to three experts in the Educational Technology and English language teaching field. The collected data from a five-point rating scale questionnaire (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree) was calculated for arithmetic means. The results of the analysis are presented in table 4.1.

Table 4.1 The Results of the Experts' Evaluation toward Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model.

Statements		$\overline{X}$	**SD**
1	Each component in Nutprapha BOLA model has clear function and connection to overall system.	5.00	0.00
2	The 5 steps of Nutprapha BOLA model: analysis, design, development, implementation, and evaluation phase are clear and easy to implement in teaching English for Careers in Technology. (Please comment on each step below, if any.)	5.00	0.00
3	Nutprapha BOLA model is appropriate to use in teaching English for Careers in Technology.	4.67	0.58
4	Nutprapha BOLA model is appropriate to use in Blended Online Learning classroom setting.	5.00	0.00
5	Nutprapha BOLA model has sufficient flexibility to be effective in teaching and/or learning at the university level.	4.67	0.58
Total		4.87	0.23

According to the data in Table 4.1, it indicated that Nutprapha BOLA model was rated by the experts at the mean score ($\overline{X}$) of 5.00 in items 1, 2, and 4 which means the experts agree that *each component in Nutprapha BOLA model has clear function and connection to overall system, The 5 steps of Nutprapha BOLA model: Analysis, Design, Development, Implementation, Evaluation phase are clear and easy to implement in teaching English for Careers in Technology,* and *Nutprapha BOLA model is appropriate to use in Blended Online Learning classroom setting.* The model was rated at the mean score ($\overline{X}$) of 4.67 in items 3 and 5 which means the experts agree that *Nutprapha BOLA model is appropriate to use in teaching English for Careers in Technology,* and *Nutprapha BOLA model has sufficient flexibility to be effective in teaching and/or learning at university level.* Therefore, the Table 4.1 revealed that Nutprapha BOLA model was rated by the experts in the Educational Technology and English Language Teaching as "Very Appropriate" at the mean score ($\overline{X}$) of 4.87.

4.1.2 Research Question Two: *Are Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages efficient based on the 85/85 standard?*

The researcher conducted trials of the Blended Online Learning Approach (BOLA): Nutprapha BOLA packages in order to improve learning contents to meet the criteria 85/85 standard. There were three trials in order to evaluate the package: 1) Individual Testing 2) Small Group Testing, and 3) Field Study Testing. The results of the three tests are presented as follows:

Table 4.2 The Results of the Individual Testing (3 students)

STUDENTS	Process Scores (Exercises)	Product Scores (End of Unit Tests)
1	79.18	77.69
2	82.66	80.99
3	84.24	82.77
$\overline{X}$	**82.03 (E1)**	**80.48 (E2)**

Table 4.2 shows the efficiency of the process and product for the Individual Testing which was tried out with three students who had different levels of proficiencies.

Student "1" referred to a subject with a low level of proficiency. The students rated as low level of proficiency were those who received grade of "D+, D" or lower in the English course of the previous semester. The process score was 79.18 (E1), and the product score was 77.69 (E2).

Student "2" referred to a subject with an average level of proficiency. The students rated as average level of proficiency were those who received grade of "B+, B, C+ and C" in the English course of the previous semester. The process score was 82.66 (E1), and the product score was 80.99 (E2).

Student "3" referred to a subject with a high level of proficiency. The students rated as high level of proficiency were those who received grade of "A" in the English course of the previous semester. The process score was 84.24 (E1), and the product score was 82.77 (E2).

Overall, Table 4.2 shows that the efficiency of the process and product for the individual testing was 82.03/80.48 which is below the 85/85 standard. This can be explained by the fact that some instructions and contents did not cover the learning objectives and were not appropriate to the students' learning abilities. According to

the student's opinion and feedback, it was found that students need more explanation and clearer instructions. Therefore, the package was improved and revised. The researcher added more explanation and revised some instructions and contents before they were used in Small Group Testing.

Table 4.3 The Results of Small Group Testing (9 students)

STUDENTS	Process Scores (Exercises)	Product Scores (End of Unit Tests)
1	81.44	80.08
2	81.23	80.02
3	81.39	80.06
4	83.49	81.21
5	83.36	81.61
6	84.02	82.58
7	86.85	83.82
8	86.80	84.32
9	87.49	85.45
$\overline{X}$	**84.01 (E1)**	**82.13 (E2)**

Table 4.3 shows the efficiency of the process and product for the Small Group Testing which was tried out with nine students who had different levels of proficiency.

Students "1-3" referred to subjects with low level of proficiency. The students rated as low level of proficiency were those who received grade of "D+, D" or lower in the English course of the previous semester. The process (E1) and product (E2) scores were 81.44/80.08, 81.23/80.02, and 81.39/80.06.

Students "4-6" referred to subjects with average level of proficiency. The students rated as average level of proficiency were those who received grade of "B+, B, C+ and C" in the English course of the previous semester. The process (E1) and product (E2) scores were 83.49/81.21, 83.36/81.61, and 84.02/82.58.

Students “7-9” referred to subjects with high level of proficiency. The students rated as high level of proficiency were those who received grade of “A” in the English course of the previous semester. The process (E1) and product (E2) scores were 86.85/83.82, 86.80/84.32, and 87.49/85.45.

To conclude, Table 4.3 shows that the efficiency of the process and product for the Small Group Testing was 84.01/82.13. The results of the Small Group Testing indicated that the efficiency of the process and product had improved but only slightly higher than the results from the Individual Testing. However, it is still lower than the 85/85 standard. This can be explained that some parts of the package could not be clearly understood by the students. According to the students’ opinions and feedback, it was found that students required reliable listening audio, help functions, and more explanation in Thai for some complicated instructions. Therefore, the researcher revised and improved the package by adding more offline audio that students could listen to without Internet buffering, help functions and translated some complicated instructions into Thai along with English before it was used in the Field Study Testing.

Table 4.4 The Results of the Field Study Testing (30 students)

STUDENTS	Process Scores (Exercises)	Product Scores (End of Unit Tests)
1	82.87	81.34
2	82.66	81.58
3	82.73	81.69
4	83.38	81.82
5	83.24	82.12
6	83.04	81.83
7	84.78	83.24
8	85.87	83.96
9	85.80	83.66
10	84.13	82.50
11	84.24	82.23
12	85.81	83.50
13	85.77	84.81
14	86.39	83.74
15	86.33	84.67
16	86.13	84.21
17	86.23	84.10
18	86.49	84.31
19	87.01	85.08
20	87.93	85.72
21	88.52	87.14
22	89.97	86.93
23	89.56	88.36
24	90.37	89.04
25	90.24	89.62
26	89.83	87.62
27	89.90	87.77
28	90.83	88.96
29	91.22	90.20
30	90.64	89.03
$\overline{X}$	**86.73 (E1)**	**85.03 (E2)**

Table 4.4 shows the efficiency of the process and product for the Field Study Testing which was tried out with thirty students who had different levels of proficiency.

The table shows that the efficiency of the process and product for the Field Study Testing was 86.73/85.03. The results of the Field Studying Testing can be explained that the efficiency of the process and product reached the criteria 85/85 standard.

This was because the researcher revised and improved the package at the Individual Testing phase by adding more explanation and revising some instructions and content before they were used in Small Group Testing. The package also added

more offline audio so that students could listen without Internet buffering, help functions and translated some complicated instructions into Thai along with English before it was used in the Field Study Testing.

During the Field Study Testing operations, the researcher found some problems occurred with the student assessment system. Students also pointed out a nonfunctional submit button in particular lessons and exercises. Therefore, the researcher reset the assessment system and reviewed all the lessons and exercises that students mentioned all over again. Then, the submit button was fixed to be functional again. Moreover, the researcher reviewed the contents and instructions of each lesson and exercise throughout the course again. Next, the researcher reviewed all the audio links both online and offline links to be certain about their functionality. At this stage, the researcher added more learning and teaching resources, in both online and offline versions to be certain that students can use them with both the Internet and Intranet.

After the three trials, the researcher used the package with the subjects of the study. The results of the efficiency of the process and the product are presented in Table 4.5.

Table 4.5 The Results of the Experiment

STUDENTS	Process Scores (Exercises)	Product Scores (End of Unit Tests)
1	82.87	81.91
2	82.66	81.05
3	82.73	80.84
4	83.38	81.09
5	83.24	80.81
6	83.04	81.04
7	84.78	82.02
8	85.87	83.21
9	85.80	82.73
10	84.13	82.19
11	84.24	82.62
12	85.81	84.39
13	85.77	84.43
14	86.39	84.97
15	86.33	84.60
16	86.13	85.04
17	86.23	84.49
18	86.49	85.11
19	87.01	85.39
20	87.93	85.61
21	88.52	85.94
22	89.97	88.10
23	89.56	88.14
24	88.91	87.46
25	87.92	86.83
26	89.83	87.53
27	89.90	88.20
28	90.83	88.91
29	89.67	87.79
30	86.93	85.87
31	87.01	85.53
32	87.93	85.77
33	88.52	86.76
34	85.85	84.43
35	89.56	86.71
36	88.64	87.62
37	86.68	85.49
38	89.83	86.71
39	86.39	83.94
40	90.83	88.12
$\overline{X}$	**87.85 (E1)**	**86.08 (E2)**

Table 4.5 shows that the efficiency of the process and product for the experiment with the selected subjects was 87.85/86.08.

This shows that the efficiency of the process and product of the experiment met the 85/85 standard, which corresponded to the second research question. It was because the package was revised and improved each time after the three trials: Individual Testing, Small Group Testing and Field Study Testing in order to meet the 85/85 standard. Therefore, the efficiency standard was met when it was used in the experimental stage.

4.1.3 Research Question Three: *What are the differences of students' language achievements before and after using Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning English for Careers in Technology?*

The subjects of the study were given a Pre-test and a Post-test to determine their English learning achievement before and after studying the English for Careers in Technology by using Nutprapha BOLA packages. The results of their English learning achievement are presented in Table 4.6.

Table 4.6 The Results of Students' English Learning Achievement

STUDENTS	PRE-TEST	POST-TEST	Differences
1	38	47	9
2	27	39	12
3	28	45	17
4	24	43	19
5	29	41	12
6	32	39	7
7	35	42	7
8	26	36	10
9	33	43	10
10	34	48	14
11	21	31	10
12	42	49	7
13	39	48	9
14	22	42	20
15	26	40	14
16	27	37	10
17	29	41	12
18	25	39	14
19	28	48	20
20	23	33	10
21	26	46	20
22	25	42	17
23	26	42	16
24	35	46	11
25	39	45	6
26	35	48	13
27	40	47	7
28	38	48	10
29	42	49	7
30	41	49	8
31	26	36	10
32	32	45	13
33	28	40	12
34	42	50	8
35	30	47	17
36	31	46	15
37	31	41	10
38	29	40	11
39	32	48	16
40	33	47	14
($\overline{X}$)	**31.23**	**43.33**	**12.1**
S.D.	**5.989**	**4.736**	**3.986**
N=40			**Sig. = 0.000**

Table 4.6 shows the score of students' English learning achievement before and after using Nutprapha BOLA packages. It shows the mean score ($\overline{X}$) of pre-test at 31.23, and post-test at 43.33. It indicates that the subjects obtained higher mean scores ($\overline{X}$= 12.1) after studying English for Careers in Technology by using Nutprapha BOLA packages.

In addition, to examine whether scores of their English proficiency tests increased significantly, pre-test and post-test scores of the subjects were compared and calculated for statistical differences. The results are presented in Table 4.7.

Table 4.7 The Results of a Comparison of Pre-test and Post-test Scores for the English Proficiency Test

Dependent T-Test								
	Mean	S.D.	Mean Difference	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pre-test	31.23	5.989	-12.100	-13.375	-10.825	-19.200	39	0.000
Post-test	43.33	4.736						

N = 40

As shown in Table 4.7, there is a highly significant difference between students' pre-test and post-test scores of the English proficiency test for the experiment at the level of 0.05.

It indicates that the students had better scores on the English proficiency test after learning via Nutprapha BOLA packages. It can be explained that Nutprapha BOLA packages helped students to significantly improve their English proficiency in studying English for Careers in Technology.

4.1.4 Research Question Four: *What are students and teachers' satisfaction toward using Blended Online Learning Approach (BOLA) packages: Nutprapha BOLA packages for learning and teaching English for Careers in Technology?*

This section presents the results of students' and teachers' satisfaction toward Blended Online Learning Approach (BOLA): Nutprapha BOLA packages.

4.1.4.1 The Results of Students' Satisfaction toward Nutprapha BOLA Packages

The researcher used a questionnaire to collect the data in order to investigate the students' satisfactions on studying English for Careers in Technology using Nutprapha BOLA packages. There were two parts of the questionnaire to ask about students' satisfaction toward Nutprapha BOLA packages. The first part was about students' personal information. The second part was eighteen statements that asked about students' satisfactions toward learning English using Nutprapha BOLA packages. The questionnaire used a five-point rating scale. The results were calculated for arithmetic means. The results of the analysis for the questionnaire part 1 are presented in Table 4.8 and the results of part 2 are presented in Table 4.9.

Table 4.8: The Results of the Questionnaire Part 1 about Students' Personal Information.

Students' Study Program		Gender		Year of Study
		Male	Female	
1	Computer Science	2	2	1st year
2	Computer Technology	1	3	1st year
3	Construction Technology	4	-	1st year
4	Electrical Technology	3	-	1st year
5	Electronics and Computer Technology	2	-	1st year
6	Industrial Management Technology	2	-	1st year
7	Industrial Product Design	3	1	1st year
8	Information Technology	-	5	1st year
9	Information Technology Management	-	4	1st year
10	Multimedia and Animation Technology	1	3	1st year
11	Software Engineering	3	1	1st year
	Total	**21**	**19**	

Table 4.8 shows the data of students' personal information. A total of 40 first year students responded to the questionnaire. They were from different in studying programs at the Faculty of Industrial Technology. There were eleven study programs in the faculty. The results show that there were two males and two females from the Computer Science program, one male and three females from the Computer Technology program, four males from the Construction Technology program, three males from the Electrical Technology program, two males from the Electronics and Computer Technology program, two males from the Industrial Management Technology program, three males and one females from the Industrial Product Design program, five females from the Information Technology program, four females from the Information Technology Management program, one male and three females from the Multimedia and Animation Technology program, three males and one female from the Software Engineering program.

Table 4.9 The Results of the Questionnaire Part 2 about Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology

	Statements	$\overline{X}$	S.D.	Level of Satisfactory
1	Learning English via Nutprapha BOLA packages helps create an independent learning atmosphere.	4.55	0.56	Very Satisfied
2	Learning English via Nutprapha BOLA packages has no limit of places. You can learn anywhere.	4.58	0.56	Very Satisfied
3	Learning English via Nutprapha BOLA packages has no limit of time. You can learn anytime.	4.58	0.56	Very Satisfied
4	Learning English via Nutprapha BOLA packages can save time and cost in traveling to the learning place.	4.61	0.55	Very Satisfied
5	Learning English via Nutprapha BOLA packages helps enhance learner-teacher interaction.	3.90	0.74	Satisfied
6	Learning English via Nutprapha BOLA packages helps learner-learner interaction.	4.00	0.68	Satisfied
7	Learning English via Nutprapha BOLA packages can help getting academic information from teacher and university quickly.	4.29	0.68	Satisfied
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.	4.19	0.70	Satisfied
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.	4.39	0.55	Satisfied
10	Learning English with Nutprapha BOLA packages are contemporary.	4.61	0.55	Very Satisfied
11	Nutprapha BOLA packages has clear contents on the website.	4.26	0.57	Satisfied
12	Nutprapha BOLA packages has compatibility of contents and exercises.	4.32	0.59	Satisfied
13	Learning via Nutprapha BOLA packages are convenient for choosing each lesson to learn.	4.61	0.49	Very Satisfied
14	Learning via Nutprapha BOLA packages are convenient to review the lesson outside the classroom.	4.61	0.55	Very Satisfied
15	Learning via Nutprapha BOLA packages are convenient to download and turn-in assignment.	4.52	0.56	Very Positive
16	Learning via Nutprapha BOLA is convenient for students to communicate with teachers and classmates outside the classroom.	4.29	0.58	Satisfied
17	Nutprapha BOLA packages are suitable for student-centered learning.	4.45	0.71	Satisfied
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.	4.32	0.65	Satisfied
	Total	**4.40**	**0.61**	**SATISFIED**

The data shows in Table 4.9 were about students' satisfaction on learning English using Nutprapha BOLA packages. The mean scores ($\overline{X}$)of the opinion of satisfaction using Nutprapha BOLA packages in this part at 4.61, rated as "very satisfied", were items 4, 10, 13 and 14: *Learning English via Nutprapha BOLA packages can save time and cost in traveling to the learning place,* and *learning English via Nutprapha BOLA packages are contemporary, learning English via Nutprapha BOLA packages are convenient for choosing each lesson to learn,* and *learning via Nutprapha BOLA packages are convenient to review the lesson outside the classroom*.

The mean score ($\overline{X}$) at 4.58 which indicated that students were "satisfied" toward Nutprapha BOLA packages were items 2 and 3: *Learning English via Nutprapha BOLA packages has no limit of places - you can learn anywhere,* and *learning English via Nutprapha BOLA packages has no limit of time - you can learn anytime*.

The mean score ($\overline{X}$) at 4.55 which showed that students were "very satisfied" toward Nutprapha BOLA packages was item 1: *Learning English via Nutprapha BOLA packages helps create an independent learning atmosphere*.

The mean score ($\overline{X}$) at 4.52 which revealed that students were "very satisfied" toward Nutprapha BOLA packages was item 15: *Learning via Nutprapha BOLA packages are convenient to download and turn in an assignment*.

The mean score ($\overline{X}$) at 4.45 which showed that students were "satisfied" toward Nutprapha BOLA packages was item 17: *Nutprapha BOLA packages are suitable for student-centered learning*.

The mean score ($\overline{X}$) at 4.39 which indicated that students were “satisfied” toward Nutprapha BOLA packages was item 9: *Learning English via Nutprapha BOLA packages are suitable for social conditions and the current economic situations*.

The mean score ($\overline{X}$) at 4.32 which revealed that students were “satisfied” toward Nutprapha BOLA packages were items 12 and 18: *Nutprapha BOLA packages has compatibility of contents and exercises,* and *Nutprapha BOLA packages are suitable for learning English for Careers in Technology*.

The mean score ($\overline{X}$) at 4.29 which showed that students were “satisfied” toward Nutprapha BOLA packages were items 7 and 16: *Learning English via Nutprapha BOLA packages can help getting academic information from teacher and university quickly,* and *learning via Nutprapha BOLA is convenient for students to communicate with teachers and classmates outside the classroom*.

The mean score ($\overline{X}$) at 4.26 which indicated that students were “satisfied” toward Nutprapha BOLA packages was item 11: *Nutprapha BOLA packages has clear contents on the website*.

The mean score ($\overline{X}$) at 4.19 which showed that students were “satisfied” toward Nutprapha BOLA packages was item 8: *Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively*.

The mean score ($\overline{X}$) at 4.00 which revealed that students were “satisfied” toward Nutprapha BOLA packages was item 6: *Learning English via Nutprapha BOLA packages helps learner-learner interaction*.

The mean scores ($\overline{X}$) of the least satisfying at 3.90, rated as "satisfied", was item 5: *Learning English via Nutprapha BOLA packages helps enhance learner-teacher interaction*.

To conclude, the mean score ($\overline{X}$) of students' satisfaction toward using Nutprapha BOLA packages were 4.40 which indicated that students were "satisfied".

4.1.4.2 The Results of Teachers' Satisfaction toward Nutprapha BOLA Packages

The researcher also used the questionnaire to collect the data in order to investigate the teachers' satisfaction toward Nutprapha BOLA packages. There were two parts of the questionnaire, first part was about teachers' personal information, second part was eighteen statements that asked about teachers' satisfactions of students' learning English for Careers in Technology using Nutprapha BOLA packages. The questionnaire used a five-point rating scale. The results were calculated for the arithmetic means. The results of the analysis for questionnaire in the first part are presented in Table 4.10, the results of the second part are presented in Table 4.11

Table 4.10 The Results of the Questionnaire Part 1 about Teachers' Personal Information.

	Gender		Teaching Experiences
	Male	Female	
Teacher 1		✓	1-5 years
Teacher 2	✓		6-10 years
Teacher 3		✓	6-10 years

Table 4.10 shows the data of teachers' personal information. A total of 3 English teachers responded to the questionnaire. They were from the English Department, Faculty of Humanities and Social Sciences of Ubon Ratchathani Rajabhat University. There were two females and one male. Teacher 1 has been teaching English for 1-5 years. Teacher 2 and 3 have been teaching English for 6-10 years.

Table 4.11 The Results of the Teachers' Satisfactions toward Students' Learning English for Careers in Technology using Nutprapha BOLA Packages

	Statements	$\overline{X}$	S.D.	Level of Satisfactory
1	Learning English via Nutprapha BOLA packages helps students to create an independent learning atmosphere.	5.00	0.00	Very Satisfied
2	Learning English via Nutprapha BOLA packages has no limit of places. Students can learn anywhere.	4.50	0.58	Satisfied
3	Learning English via Nutprapha BOLA packages has no limit of time. Students can learn anytime.	4.50	0.58	Satisfied
4	Learning English via Nutprapha BOLA packages helps students to save time and cost in traveling to the learning place.	4.50	0.58	Satisfied
5	Learning English via Nutprapha BOLA packages helps students to enhance learner-teacher interaction.	4.25	0.50	Satisfied
6	Learning English via Nutprapha BOLA packages helps learner-learner interaction.	4.00	0.00	Satisfied
7	Learning English via Nutprapha BOLA packages helps students getting academic information from teacher and university quickly.	4.50	0.58	Satisfied
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.	3.75	0.50	Satisfied
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.	5.00	0.00	Very Satisfied
10	Learning English with Nutprapha BOLA packages are contemporary.	5.00	0.00	Very Satisfied
11	Nutprapha BOLA packages has clear contents on the website.	4.25	0.50	Satisfied
12	Nutprapha BOLA packages has compatibility of contents and exercises.	5.00	0.00	Very Satisfied

	Statements	$\overline{X}$	S.D.	Level of Satisfactory
13	Learning via Nutprapha BOLA packages are convenient for students to choose each lesson to learn.	5.00	0.00	Very Satisfied
14	Learning via Nutprapha BOLA packages are convenient for students to review the lesson outside the classroom.	5.00	0.00	Very Satisfied
15	Learning via Nutprapha BOLA packages are convenient for students to download and turn-in assignment.	5.00	0.00	Very Satisfied
16	Learning via Nutprapha BOLA is convenient for students to communicate with teachers and classmates outside the classroom.	3.75	0.50	Satisfied
17	Nutprapha BOLA packages are suitable for student-centered learning.	5.00	0.00	Very Satisfied
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.	5.00	0.00	Very Satisfied
	Total	**4.62**	**0.24**	**VERY SATISFIED**

The data in Table 4.11 shows teachers' satisfaction of students' learning English for Careers in Technology using Nutprapha BOLA packages. The most satisfaction results in this part at 5.00 ($\overline{X}$), rated as "very satisfied", were items 1, 9, 10, 12, 13, 14, 15, 17, and 18: *Learning English via Nutprapha BOLA packages helps students to create an independent learning atmosphere, learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation, learning English with Nutprapha BOLA packages are contemporary, Nutprapha BOLA packages has compatibility of contents and exercises, learning via Nutprapha BOLA packages are convenient for students to choose each lesson to learn, learning via Nutprapha BOLA packages are convenient for students to review the lesson outside the classroom, learning via Nutprapha BOLA packages are convenient for students to download and turn-in assignment, Nutprapha BOLA*

packages are suitable for student-centered learning, and *Nutprapha BOLA packages are suitable for learning English for Careers in Technology*.

The mean score ($\overline{X}$) at 4.50 which indicated that teachers were "satisfied" toward Nutprapha BOLA packages were items 2, 3, 4, and 7: *Learning English via Nutprapha BOLA packages has no limit of places - students can learn anywhere, learning English via Nutprapha BOLA packages has no limit of time - students can learn anytime, learning English via Nutprapha BOLA packages helps students to save time and cost in traveling to the learning place,* and *learning English via Nutprapha BOLA packages helps students getting academic information from teacher and university quickly.*

The mean score ($\overline{X}$) at 4.25 which shows that teachers were "satisfied" toward Nutprapha BOLA packages were items 5 and 11: *Learning English via Nutprapha BOLA packages helps enhance learner-teacher interaction,* and *Nutprapha BOLA packages has clear contents on the website*.

The mean score ($\overline{X}$) at 4.00 which revealed that teachers were "satisfied" toward Nutprapha BOLA packages was item 6: *Learning English via Nutprapha BOLA packages helps learner-learner interaction*.

The mean scores ($\overline{X}$) of least satisfaction at 3.75, rated as "satisfied", were items 8 and 16: *Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively,* and *learning via Nutprapha BOLA packages are convenient for students to communicate with teachers and classmates outside the classroom.*

To summary, Table 4.11 shows that the mean score ($\overline{X}$) of teachers' satisfactions toward using Nutprapha BOLA packages were 4.62 which indicated that teachers were "very satisfied".

4.1.4.3 The Results of Semi-structured Interview

4.1.4.3.1 The Results of Semi-structured Interview from Students

The semi-structured interview was used to elicit the students' satisfaction and suggestions toward using Nutprapha BOLA packages for learning English for Careers in Technology. A total of forty students were interviewed for 5-10 minutes after responding to the questionnaire. Each student was asked questions to give in-depth information. The researcher interviewed students in Thai, which is their first language. The researcher conducted student interviews in their native tongue in order to avoid ambiguity and misinterpretation and to collect more in-depth data. A digital recording machine was used to record the conversations for accuracy and future reference. The results of the semi-structured interview are as follows:

Students were asked if they liked and what they liked most while learning English via Nutprapa BOLA packages, it was found that all of the forty students liked learning English via Nutprapa BOLA packages and there were five main reasons for their responses.

First, there were fifteen students who expressed that they liked to use Nutprapha BOLA packages to learn English because it was fun, useful and easy to use. The fifteen students said that learning English via Nutprapha BOLA packages were fun because it was a new learning system for them. A student's comment was:

> *" I like Nutprapha BOLA packages. I like using the package to learn English very much. I've never experienced an E-learning system like this before. It's new for me but it's also fun and very useful……" (S1)*

There were ten students who said that Nutprapha BOLA packages were very useful for this English course. They liked that they could easily download learning resources such as audio for listening. They also liked that they could practice listening with audio both online and offline. They responded that they liked to practice paragraph reading because they could listen to the audio while they were reading. This helped them to better understand the context. They also said that they enjoyed using Nutprapha BOLA packages because it contained both audio and colorful graphics. A student answered that she liked the audio with both original sound from the speaker's voice and another accent which was created by the researcher using text-to-speech from the textbook. This was placed in the review section for students to listen to after they submitted their answer. Moreover, they stated that they liked that they could practice each exercise repeatedly which helped them to understand the lesson better. The students' comments were:

> *" ..... It's fun and very useful. I like that we can listen to the paragraph reading which the textbook didn't prepare the audio for us....." (S13)*
>
> *" ..... It contains very useful English learning tools. I like that we can practice listening with audio for both online and offline format. I like that I can download the audio file very easily." (S14)*
>
> *" ..... I like that I can download learning resources to practice offline. I like that I can do the exercises repeatedly...." (S12)*

Additionally, students explained that Nutprapha BOLA packages were easy to use. They liked that there were no complicated instructions in the course which helped them to access each exercise easily. The student's comment was:

"Yes, I like Nutprapha BOLA packages very much because it's fun and easy to use. I like that there are no complicated instructions and it's easy to choose a topic to study." (S11)

Second, there were eleven students who replied that they liked Nutprapha BOLA packages because it was convenient. They said that using Nutprapha BOLA packages were convenient because it was easy for them to download learning resources and upload assignments online. A student said that if he forgot to bring his textbook to class he could still access the system and download learning resources to bring to class, which helped him keep up with the lesson. Students also remarked they liked that the system allowed them to save exercises they had not completed so they were able to resume from where they paused at a later time when it was convenient. They found this function especially useful when using computers at the university or Internet shops. Most students liked the ability to access the course by way of university Intranet when the Internet was not available. The students' comments were:

"Yes, I like Nutprapha BOLA packages because it's convenient for learning English. Sometimes I leave my textbook at home, but I still can download learning resources from the system. I also like the Intranet system when we use the computer inside the university. This system allows us to access to the course and exercises without an Internet connection." (S17)

"Yes, I like Nutprapha BOLA packages. I like that we can save our answer and come back to finish the exercise later. If I used the Internet at a shop and the time is up before I finish the lesson, I can save the answer and finish the rest of the exercise at school." (S24)

Third, there were six students who expressed that using Nutprapha BOLA packages helped them to improve English learning skills. They explained that the package helped them to be better in English vocabulary learning. They think that their listening and speaking skill has improved because they are able to practice repeatedly and communicate in English with the teacher in regular classroom. They also answered that Nutprapha BOLA packages helped them to understand more technical terms from the audio and beautiful images contained in the course. The students' comments were:

> *"Yes, I like Nutprapha BOLA packages very much because this system helped me to do better in English as you can see from my test scores. I did much better after studying with this E-learning system. I think I learned more English vocabulary." (S27)*
>
> *"Yes, I like using Nutprapha BOLA packages very much. It's a great English learning system for this course because there are many difficult technical terms in each unit. Nutprapha BOLA packages helped me to understand more of those terms from the audio and images." (S32)*

Fourth, there were four students answered that they liked Nutprapha BOLA packages because it promotes autonomous learning. They expressed that they enjoyed using Nutprapha BOLA packages because after studying in the regular classroom they could review the lessons and exercises repeatedly by themselves at home. It helped them to understand the lessons better. The students' comments were:

> *"Yes, I like Nutprapha BOLA packages very much because I like that after class we can practice the exercises by ourselves more than one*

time. It's also enjoyable listening to the audio and seeing colorful images in the course." (S33)

"Yes, I like Nutprapha BOLA packages. I like that I can study and review the lesson by myself after I've already studied in the regular classroom. It's also easy to access the course to practice before the exam." (S36)

Fifth, there were four students mentioned that they liked Nutprapha BOLA packages because they can get immediate feedback during learning and practicing through the course. They liked that they could consult with classmates and the teacher during learning online whenever they needed. Moreover, they liked that the system provided correct answers after they completed the exercise which helped them to learn what they did wrong and correct the mistakes. It helped them to understand the lesson better. The student's comment was:

"Yes, I like Nutprapha BOLA packages. I like that the system provides correct answers after we complete the exercises. This lets us know what we did wrong, and we can go back and do the exercise again. This helped me to understand the lesson better." (S40)

Students were asked what they did not like while using Nutprapha BOLA packages to learn English. They revealed the same responses that they did not like when they struggled with technical problems during learning and practicing English through the package. There were three main technical problems students mentioned.

First, there was no the Internet connection in the area. Five students said that they did not like when they tried to use Nutprapha BOLA packages to practice English but there was no the Internet connection in the area, while trying to use the

Internet outside the university. Two students said that they did not like when they tried to use Nutprapha BOLA packages inside the university but both the Internet and Intranet did not work. The student's comment was:

> *"I don't like when both Internet and Intranet didn't work at the same time while I was trying to study using Nutprapha BOLA packages inside the university." (S24)*

Second, complaint was a low-speed Internet connection. Six students commented that they did not like when they tried to use Nutprapha BOLA packages to practice English but they could not do activities online due to the low-speed of the Internet. The students' comments were:

> *"I don't like when there are too many students accessing the course at the same time making the system too slow to listen audio online." (S31)*
>
> *"I don't like when the images didn't appear on the page due to the Internet connection." (S32)*

Third, there were insufficient learning tools. Students complained that they did not like when they tried to use Nutprapha BOLA packages at the university computer room but there were not enough computers for them to access the course. A student' s comment was:

> *"I don't like that I can't use the computer at the computer room because there are not enough computers for all the students who want to use one." (S39)*

Students were asked if they expected to use any E-learning system that is similar to Nutprapha BOLA packages again and what content or subjects they would like to learn using it. The forty students answered that they would like to study English with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. Each student explained that they would like to use it with an other English course related to their required English courses. There were six English courses students mentioned.

First, English for Communication course. There were ten students responded that they would like to study English for Communication course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They said that they would like to study new vocabulary through the system. The student's comment was:

> *"..... I want to use E-learning to learn English again. Next time, I want to learn more about vocabulary in English for Communication course." (S3)*

Second, English for Specific Purposes course. There were four students remarked that they would like to study English for Specific Purposes course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They stated that they would like to improve their reading skill through the system. The student's comment was:

> *" ..... I want to study English with this E-learning system again. Next time, I want to improve my reading skill in English for Specific Purposes ... ." (S12)*

Third, English for Computer Science course. There were twelve students said that they would like to study English for Computer Science course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They expressed that they would like to improve their listening skill through the system. The student's comment was:

" ..... I think this system will help me to improve my listening skill by listening and reading the text repeatedly." (S23)

Fourth, English for Information Technology course. There were six students answered that they would like to study English for Information Technology course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They noted that they like that the system will allow them to practice English exercises repeatedly. The student's comment was:

" ..... I want to use it with English for Information Technology course, because I can practice online as many times as I want." (S29)

Fifth, course is Business English. There were four students mentioned that they would like to study Business English course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They responded that they would like to improve their listening skill through the system. The student's comment was:

" ..... I want to improve my reading skill in Business English course…. ." (S33)

Sixth, is English for Engineering course. There were four students said that they would like to study English for Engineering course with E-learning combined with regular classroom, similar to Nutprapha BOLA packages. They explained that

they would like to do English exercises with both online and offline learning resources through the system combined with the regular classroom. The student's comment was:

> *" ..... I like that we can use both textbook and online resources both inside and outside the classroom……. Next time, I want to use this system with English for Engineering course." (S40)*

4.1.4.3.2 The Results of Semi-structured Interview from Teachers

The semi-structured interview was used to elicit the teachers' satisfaction and suggestions toward using Nutprapha BOLA packages for teaching English for Careers in Technology. All of three teachers were interviewed for 10-15 minutes after responding to the questionnaire. Each teacher was asked questions to give in-depth information. The researcher interviewed teachers in Thai language which is their first language. The researcher used Thai language to interview for avoiding ambiguity and misinterpretation to earn more in-depth data. A digital recording machine was used to record the conversations for accuracy and future reference. The results of the semi-structured interview are as follows:

Teachers were asked about their satisfaction toward Nutprapha BOLA packages. Each interviewee expressed different answers. There were two main results from their answer.

First, the teachers answered that they were impressed by the usefulness of Nutprapha BOLA packages. There were two teachers said that using Nutprapha BOLA packages were very convenient for them to set up an English course. It was also easy to edit and update teaching and learning contents in the course. They like that the system allowed them to store teaching resources such as audio files and

documents into the system very easily. They added that using Nutprapha BOLA packages to teach English will help them to save time preparing lessons before moving to the regular classroom. One teacher's comment was:

> *"I like that we can use this online course inside the regular classroom. …… It would help me to save time preparing lessons before class. Everything has been set up inside the course both presentation and exercises. I can spend more time with individual students who really need help on language practice. I have more time to concentrate on weak students and guide them individually to learn more effectively." (T2)*

Second, the teachers said they like that they can edit or update the course even though the Internet connection did not work, because they can use the Intranet system of the university to access the course. A teacher's comment was:

> *" ….. I also like that it's easy to access the course to update resources for students even though the Internet doesn't work. We can access both the Internet and Intranet if we are inside the campus….." (T1)*

Teachers were asked about their opinion if Nutprapha BOLA packages would help students to improve their English learning skills. The three teachers agreed that after students learning English using Nutprapha BOLA packages their English learning skills had improved. They gave the reasons as follows.

> *"I think learning via Nutprapha BOLA packages will help students to improve their English because I notice that some students who used Nutprapha BOLA package gained better scores on their grammar and vocabulary." (T1)*

Teachers were asked what they did not like about using Nutprapha BOLA packages. The three teachers revealed responses similar to those forty students that they did not like when they experienced technical problems while using Nutprapha BOLA packages. A teacher's comments was:

> *"Even though we can use Intranet when the Internet was not available if the university server is down, we can't do anything at all……." (T1)*

Teachers were asked about their expectation to use technology blended with regular classroom, similar to Nutprapha BOLA packages, they responded with different answers. There were two main results from their answer.

First, one teacher said that she would like to blend E-learning system, similar to Nutprapha BOLA packages to teach every English course such as grammar course and listening course. The following statement is an example of the teachers' comments.

> *"I would like to blend E-learning to teach every course I teach such as Grammar I, II, and III, and Listening I and II. Moreover, I would like to use Nutprapha BOLA packages to create and store language test as a test bank for every subject I teach."(T1)*

Second, another teacher explained that she would like to blend E-learning system, similar to Nutprapha BOLA packages to teach English Foundation to weekend students, because this group of students come to the university only on weekends, therefore the system like Nutprapha BOLA packages will be very useful for them during the week to practice the lesson and to contact the teacher easier. The following statement is an example of the teachers' comments.

"I would like to blend E-learning system similar to Nutprapha BOLA packages to teach English Foundations to weekend students. This group of students can study in the university only on weekends, so if they can access Nutprapha BOLA packages during weekdays before they come to regular class on weekends, I believe that they can improve their English much faster and easier."(T2)

4.2 Discussion

The results of the study revealed that the Blended Online Learning Application (BOLA) model and package were effective for teaching English for Careers in Technology. The evidence for the effectiveness of Nutprapha BOLA model and package is discussed below.

4.2.1 To Answer Research Question One, the Process of Designing and Developing Nutprapha BOLA Model for Teaching English for Careers in Technology

To construct an effective instruction for English language teaching, the process of development is very important. Nutprapha BOLA model was designed and developed by the researcher step-by-step. Every step in designing and developing Nutprapha BOLA model were considered and evaluated by experts in both the Educational Technology and English Language Teaching fields. The first step to construct Nutprapha BOLA model was to review related literature. After that the model was designed based on the most appropriate and relevant theories and model. The second step was to develop the model into five phases: 1) Conduct classroom setting analysis of Nutprapha BOLA model 2) Conduct application design of

Nutprapha BOLA model 3) Develop Nutprapha BOLA packages 4) Implement Nutprapha BOLA packages 5) Evaluate Nutprapha BOLA packages. This supported Hodell (1997) who mentioned that each instructional design model is rooted in what is called the ADDIE model. This fundamental model consists of the five steps found in almost all ISD models: analysis, design, development, implementation, and evaluation. Nutprapha BOLA model was submitted to the experts to determine about the appropriateness of the model construction and contents. Then the model was revised based on the experts' feedback and comments. The third step was to evaluate the model by experts. After Nutprapha BOLA model had been revised, the researcher submitted the model to experts in Educational Technology and English Language Teaching to evaluate.

According to the results of the experts' evaluation toward Nutprapha BOLA model, the highest mean score (X) of 5.00 can be explained that each component in Nutprapha BOLA model has clear function and connection to the overall system. The five steps of Nutprapha BOLA model: analysis, design, development, implementation and evaluation are clear and easy to implement in teaching English for Careers in Technology. In addition, the experts agreed that Nutprapha BOLA model is appropriate to use in the Blended Online Learning classroom setting. The mean score ($\overline{X}$) of 4.67 can be explained that the experts agreed that Nutprapha BOLA model is appropriate to use in teaching English for Careers in Technology. Moreover, the experts agreed that Nutprapha BOLA model has sufficient flexibility to be effective in teaching and/or learning at university level as in the researcher using Nutprapha BOLA model with bachelor students at Ubon Ratchathani Rajabhat University, Thailand. Finally, Nutprapha BOLA model was rated by the experts as "very appropriate" ($\overline{X}$ = 4.87).

The results of the model evaluation indicated that Nutprapha BOLA model was appropriate to use for teaching English for Careers in Technology. This can be explained by the revision of the model each time based on the experts' feedback and comments made the model more effective and ready to meet future challenges (Condie & Livingston, 2007).

It also can be indicated that Nutprapha BOLA model was designed using appropriate and logical steps for its construction. The experts agreed that each component in the model had clear function and connection to the overall system. The experts who evaluated the model also agreed that the five phases of Nutprapha BOLA model were clear and easy to implement because the model had sufficient flexibility to be effective for teaching and learning at tertiary level. The results from the evaluation form also showed that the experts agreed that Nutprapha BOLA model was appropriate to use for teaching English for Careers in Technology and the blended online learning classroom setting. It is similar to the study by Saitakham (2010) who created the Saitakham Model. The model was evaluated by experts to identify the model's effectiveness. The results of the study showed that the experts agreed that the model was suitable to teach English vocabulary by context-clues based guessing meaning technique via web-based instruction because this model was designed using a logical process, and each component and step were clear and easy to understand.

To conclude, an instructional design model is a representation of a view on how people learn. Nutprapha BOLA model is the guideline by the researcher as an instructional designer to create instruction to observe how students learn English. The model will help the instructors conceptualize a process or system. They simplify the complexities of real situations into sets of generic steps that can be applied in many contexts (Bustafson & Branch, 2002).

4.2.2 To Answer Research Question Two, Nutprapha BOLA Packages were Proven to be Effective according to the 85/85 Standard

Nutprapha BOLA packages were proven to be effective according to the 85/85 standard. Scores from the learning process and product were 87.85/86.08. This is related to the following processes involved in constructing Nutprapa BOLA packages.

Nutprapha BOLA packages were developed by the researcher based on Nutprapha BOLA model in which the effectiveness was already proven by the experts. The teaching materials in Nutprapha BOLA packages were sent to the experts to evaluate. They were revised according to the suggestions of the experts. The contents of Nutprapha BOLA packages were based on the results of a need analysis of students which supported their needs and interests. This helped students pay more attention to the contents of each lesson. The need analysis suggested teaching methods, evaluation methods and useful classroom management recommendations (Bonk, 2006). However, the scope of the content was based on the requirements of the course as stated in the English for Careers in Technology curriculum of the English Department at Ubon Ratchathani Rajabhat University.

The lesson plan used in Nutprapha BOLA packages were created by the researcher and was systematically constructed and used based on the Blended Learning Theory. The flexible lesson plan process encouraged students to be more active learners and feel comfortable learning with Nutprapha BOLA packages. Moreover, the organized lesson plan allowed teachers to facilitate students during learning and teaching when necessary (Thorn, 2003). The evaluation methods in Nutprapha BOLA packages also helped students to achieve their expected learning outcomes for their individual work, pair work and group learning according to their language proficiency.

According to the evidence mentioned above, it can be proven that all the exercises and activities in Nutprapha BOLA packages designed by the researcher worked and supported each other properly. Nutprapha BOLA packages were revised and improved after each of the three trials: individual testing, small group testing and field studying testing. This made Nutprapha BOLA packages effective for English language learning and teaching according to the 85/85 standard.

The results showed the efficiency of the process (E1) and product (E2) for the present study was 87.85/86.08. This can be explained that the scores of process higher than the product. According to results from the process and product, the product or the unit tests scores (E2) were lower than the process or exercise scores (E1) across all phases of the trials Individual Testing, Small Group Testing and Field Study Testing. The results were related to the varied English ability backgrounds of the students. There are additional reasons to explain why process scores (E1) were higher than the product scores (E2) during the three trial stages and experimental study. This might be because students had practiced during the process stage repeatedly. The ability the system provides for students to practice lesson exercises repeatedly helped them gain more skill and a better understanding of the lesson. These are learning strategies on language learning. The repetition had a positive effect on (E1) scores. However, at the product stage students could do the unit test only once.

During the process stage students were able to redo the exercises and correct their mistake while practicing. The students were allowed to redo the exercises until they were satisfied with their scores, but only for a maximum of five times per exercise. The teacher, at her discretion, could either reset the system for selected students or increase the number of times the student could practice the exercise. This

was used only in situations to help struggling students who were experiencing difficulty with the contents. Contrarily, the unit test can be done only once when students are confident or had enough practice to decide for themselves whether they were ready. In some cases, the teacher evaluated and determined whether students were ready to take the unit test or not. This could be the reason the process scores were higher than the product scores in this study.

In addition, Suwanbenjakul (2002) discussed in her study that the reason the efficiency of the process (E1) was higher than the product (E2) might be because students were interested in doing exercises on the web which helped them to learn and check their answer with immediate feedback. It also motivates students to pay attention in practicing to get high scores. Besides, she pointed out that the test to evaluate student English ability of each unit might be more difficult than the exercises, therefore students' scores of the outcomes were lower than the process. However, research conducted by Suppasetseree (2005) showed the results differently which showed the scores of the process (E1) were lower than the product (E2). He discussed in his study that it might be because the test at the product stage had the same format and content of the exercise at the process stage. Therefore, the students got higher scores at the product stage after mastering the exercises during the process stage.

Students' scores in the process as learning activities score (E1) and the results of product as the unit test score (E2) met the 85/85 standard and, in fact, slightly exceeded it. This can be explained due to the students having different background knowledge in their English learning. According to the objectives of Ubon Ratchathani Rajabhat University, they supported the government policy; students can learn what

they would like to learn, in order to give educational opportunities to students in rural areas. Therefore, most students were not required to take an entrance exam. Hence, the students' English ability could be severely limited. This can explain the reason that students' learning scores only slightly exceeded the accepted 85/85 standard. Similarly, Sahatsathatsana (2010) discussed the reason that the efficiency of the process and product in his study only slightly met the 85/85 standard might be the result of the students' background in their studies of English.

To sum up, Nutprapha BOLA packages were proven to be effective according to the 85/85 standard. Scores from the learning process and product were 87.85/86.08. It can be indicated that during the process stage students were encouraged to learn with a flexible and comfortable environment both in regular classroom and outside the classroom with students' self-learning via Nutprapha BOLA packages. However, at the product stage, as English was not the students' major field, they preferred to pay more attention and preparation for other subject related to their major field during examination period. Moreover, during the process (E1), students could practice and review the lesson more than one time, or until they thought they had gained enough for lesson comprehension. However, at the product stage (E2), students could only do the test once. These were the reasons why students had product scores (E2) lower than process scores (E1).

4.2.3 To Answer Research Question Three, the Results Show that Students' English Proficiency in Pre-test and Post-test were Significantly Different at $p<0.05$.

The results indicated that students' proficiency post-test scores were significantly higher than the pre-test. This might be because the course contained

contexts with clear audio with listening script and colorful graphics which motivated students' interest for learning English. This was supported by Gange (1985) who explained that the reason the post-test scores were higher than the pre-test was because the audio and graphics could have helped to get more attention from the learners. The multimedia resources could help students to progress their listening and reading abilities in language learning. Similarly, Khemthong (2006) discussed in his study that the subjects who used the computer multimedia instruction on basic English vocabulary had higher average post-test score than the pre-test because the computer multimedia instruction had texts, sound effects, pictures, and graphics which encourage students' intention to learn English. In addition, Suwannabubpha (2006) pointed out that the subjects in the study had higher scores in the post-test because the courseware contained pictures, moving pictures and videos which enhanced students' motivation and comprehension during learning English. Liangpanit (2010) also supported that the reason the subjects in his study had post-test scores higher than the pre-test was because the Business Vocabulary Learning Program for Business English majors that he conducted could help the students to master the vocabulary comprehensively and effectively. Moreover, Wongthi (2010) explained that the results in his study showed that English learning achievement after the experiment was significantly higher than the pre-test because the computer assisted instruction promoted the students' English learning achievement.

To conclude, the results of the students' English proficiency showed that Nutprapha BOLA packages encouraged students to learn effectively. The introduction of the course with clear learning objectives helped students to understand the purpose of each lesson both in the regular classroom and the online course. This helped students to

be on the right learning path of their choice to achieve more effective learning with the blended learning system. The process of learning in Nutprapha BOLA packages promoted autonomous learning which encouraged students to learn by themselves and helped them to reach their learning achievement goals more effectively.

4.2.4 To Answer Research Question Four, the Students' and Teachers' Satisfaction toward Nutprapha BOLA Packages

The results from the questionnaire and interview revealed that students were very satisfied with Nutprapha BOLA packages. Students agreed that they could access the course and the Internet several times a week both at school and at home because they owned laptops, personal computer or other communication devices that could access the Internet anywhere anytime. This allowed the students to practice the lesson more often and helped them to choose learning with their self-paced based on their convenience and learning styles. Hodell (1997) supported this when he suggested that different learning styles are addressed and facilitated if learning occurs through varied activities. More results from questionnaire showed that Nutprapha BOLA packages helped create an independent learning atmosphere which made students feel comfortable and posses a positive motivation to study English. Concordantly, Uthaikun (2008) explained that students' opinions on learning English through courseware were good. It was because students can communicate actively in English after learning with the courseware. They also enjoyed using the courseware to do exercises and activities independently. Students were also very satisfied with the ease of using Nutprapha BOLA packages for learning English because it can be used anytime anywhere and save time and cost for them to traveling to the university when they were not otherwise required to be there.

According to the interview results, the students had sufficient knowledge and skill to operate a computer and basic learning multimedia which were required for the course. This helped students to focus only on the lessons and not have to worry about the technical system to operate the online course outside the classroom. The working knowledge of computer operations allowed them to learn independently with less teachers' assistance. Students were satisfied with Nutprapha BOLA packages because they could communicate with their teachers and classmates through Nutprapha BOLA packages. This made students feel comfortable to ask questions that they forgot to ask or did not want to ask in the classroom. Moreover, they could practice and review exercises and activities by self-learning through the system. Furthermore, most students enjoyed learning English through Nutprapha BOLA packages such as listening and reading. This was because the package was constructed for students to learn integrated English skills. The multimedia learning tools should be potentially available for students to promote their integrate language skills. The teachers should combine methods to integrate skills of language learning; listening, speaking, writing and reading, and to integrate technology into language teaching (Teeley, 2007). This indicated that multimedia learning tools such as Nutprapha BOLA packages were effective learning tools to promote students to integrate learning skills.

The teachers also expressed that using Nutprapha BOLA packages might help them to be more comfortable teaching and monitor their students as often as they need both inside the regular classroom and outside the classroom during students using as self-learning. Hughes (2007) also stated in his study that teaching and monitoring students online allowed teachers to understand students' needs more than asking them

inside the regular classroom. This might be because students felt more comfortable sharing and expressing their problems privately with the teacher online which made teachers also feel comfortable to help them to solve problems. Teachers also revealed that it would be very convenient if they could edit and update teaching contents as many times as they needed to support individual students' learning styles like Nutprapha BOLA packages allowed.

The least satisfaction toward using Nutprapha BOLA packages for learning and teaching English by students and teachers was the reliability of the Internet connection. They could use Intranet inside the campus but when they were home they also wanted to access to the course to learn or update information. So if the Internet connection did not work they could not do anything online. Luckily for some students who already downloaded learning resources while they online, they could practice at home or anywhere with offline format. For teachers who couldn't access the course when they were outside the campus, they still can work offline then uploaded them later when they were back to work.

To conclude, Nutprapha BOLA packages were a good English learning tool to enhance and promote students to learn English. It promoted students to learn English more actively, effectively, and independently because that students could interact in the lessons with both audio and graphics. Suppasetseree (2005) also mentioned in his study that the attitudes toward learning Remedial English via the Internet were generally positive. That might be because it promoted independent learning. Students also received immediate feedback that helped them enjoy autonomous learning more. However, the exercises and activities should be maintained and updated by the teachers for better learning in a future course with a new group of learners.

The results of the study were four main sections: the development of Nutprapha BOLA model, the efficiency of Nutprapha BOLA packages, students' learning achievement and students' opinions toward Nutprapha BOLA packages. First, Nutprapha BOLA model was rated by the experts in Educational Technology and English Language Teaching as "very appropriate". Second, Nutprapha BOLA packages met the criteria 85/85 standard. The package gained 85.12/83.32 which was slightly higher level of efficiency than the criteria. Third, learning achievements of the subjects were significantly different at the 0.05 level. The average post-test score was higher than pre-test significantly. Fourth, students and teachers demonstrated positive opinions on learning with Nutprapha BOLA packages. The data obtained from the semi-structured interview also supported the results and were discussed in detail in this chapter.

CHAPTER 5

BLENDED ONLINE LEARNING APPROACH (BOLA) MODEL : NUTPRAPHA BOLA MODEL

The purpose of this chapter is to present the Blended Online Learning Approach (BOLA) model : Nutprapha BOLA model. It explains each step of the construction in details. The construction of the English for Careers in Technology course in Nutprapha BOLA packages is also described. Illustrations of the course are also demonstrated.

5.1 Design of Blended Online Learning Approach (BOLA) Model : Nutprapha BOLA model

Instructional systems design (ISD) is a problem-solving process that has been applied to the creation of learning since the 1940s (Kruse, 2004). During the last 10 years more than 100 instructional design models have emerged based on one or more learning theories. Hodell (1997) mentioned that each instructional design model is rooted in what is called the ADDIE model. This fundamental model consists of the five steps found in almost all ISD models: analysis, design, development, implementation, and evaluation. To deliver current training required in the rapidly changing educational environment, Internet technology has become a common delivery platform creating a need to identify effective ISD approaches appropriate to the technology (Hannafin, 1992)

An instructional design model is a representation of a view on how people learn. It is also the guideline by which an instructional designer creates instruction. The model will help the instructors conceptualize a process or system. They simplify the complexities of real situations into sets of generic steps that can be applied in many contexts. Many instructional design models, when diagrammed, appear to be linear and rigid. In practice, most are "iterative, moving backwards and forwards between the activities" (Moore, Bates & Grundling, 2002). Most are also flexible; leaving it to the experienced designer to decide how much detail is required at each step.

This Blended Online Learning Approach (BOLA): Nutprapha BOLA model development is designed based on several versions of Instructional System Design (ISD) models that have been developed for education, such as Morrison, Ross and Kemp Model (Classroom-oriented), Seels and Glassgow Model (Product-oriented), and Dick and Carey Systems Approach Model (Systems-oriented). There are five steps of ADDIE model found in each models: analysis, design, development, implementation, and evaluation.

Morrison, Ross and Kemp Model is classroom-oriented and describes a holistic approach to instructional design that considers all factors in the environment. This model prescribes a process that is iterative and subject to constant revision. This flexible model is designed to focus on content and appeal to teachers (Prestera, 2002)

Seels and Glasgow Model is a 3-phases model: needs analysis, instructional design, and implementation & evaluation. These 3 steps allow a project to be planned, resourced, and managed as three phases. Presetera (2002) explained that "the model leads to efficiency in project planning, resource allocation, and the control of the product development cycle while recognizing that instructional designers are often

asked to either manage a project or work within an established project management framework".

Dick and Carey Systems Approach Model is a systems-oriented. This model bases on an instructional theory that says, "there is a predictable and reliable link between instructional materials and the response that it produces in a learner" (McGriff, 2001). Gustafson and Branch (2002) confirmed that this model "reflects the fundamental design process used in many business, industry, government, and military training settings, as well as the influence of performance technology and the application of computers to instruction".

To construct Nutprapha BOLA model, the researcher designed the model based on several ISD for applicably between traditional classroom and online classroom setting. Each model has a different orientation. They are robust, complete and clear. Each model includes: analysis to establish what strategies would best suit the content, the context, and the learners; the establishment of instructional or performance objectives; the identification of the most appropriate media; the development of instructional strategies; formative and summative evaluation and strong learning content management. The development of Blended Online Learning Approach (BOLA) : Nutprapha BOLA model can be illustrated as follows.

The Blended Online Learning Approach (BOLA) Model :

Nutprapha BOLA model

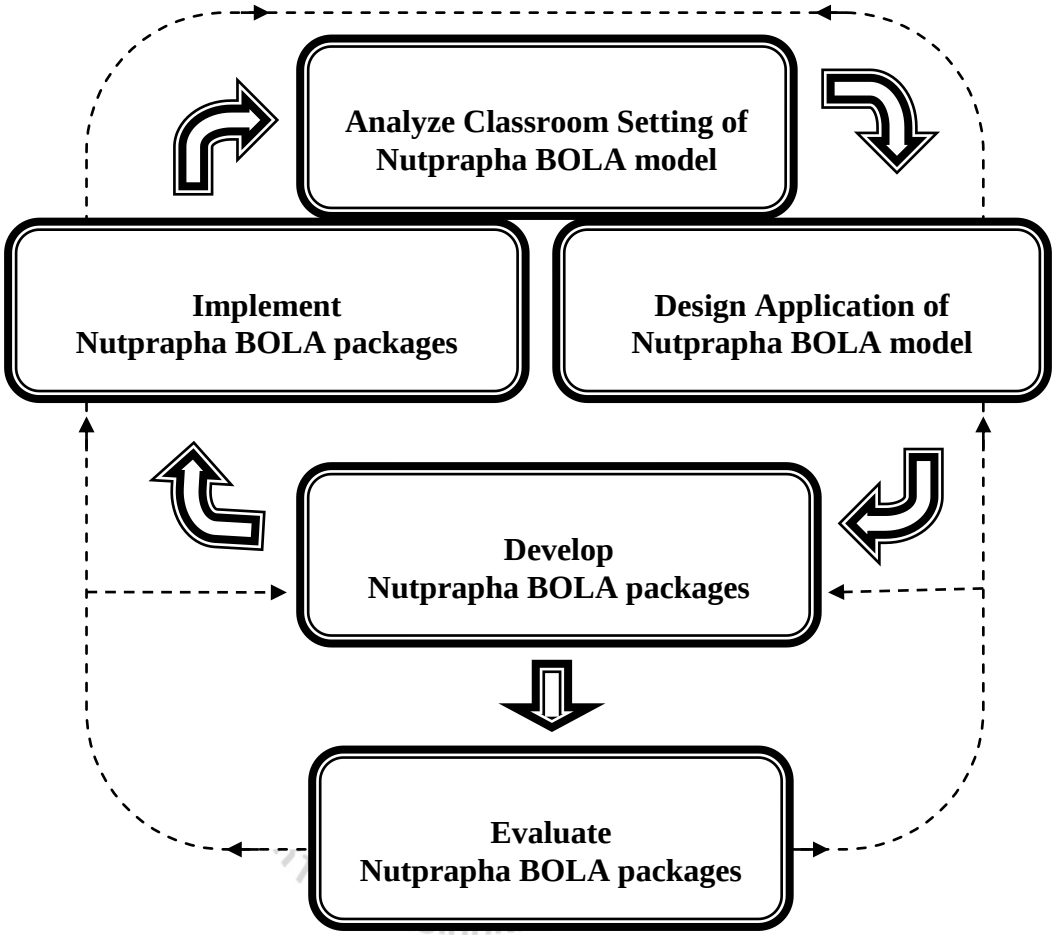


Figure 5.1 The Blended Online Learning Approach (BOLA) Model :

Nutprapha BOLA model

Here are phases and steps of the Blended Online Learning Approach (BOLA) model : Nutprapha BOLA model.

Phase 1 : Conduct Classroom Setting Analysis of Nutprapha BOLA model

Step 1.1 : Needs assessment

Step 1.2 : Participant analysis

Step 1.3 : Content analysis

Step 1.4 : Technical analysis

Step 1.5 : Structural analysis

Step 1.6 : Resource assessment

Phase 2 : Conduct Application Design of Nutprapha BOLA model

Step 2.1 : Learning goals identification

Step 2.2 : Learning objectives writing

Step 2.3 : Entry behaviors identification

Step 2.4 : Criterion reference establishment

Step 2.5 : Existing sites and resources research

Step 2.6 : Content inventory

Step 2.7 : Instructional strategy conception

Step 2.8 : Flowchart creation

Step 2.9 : Lessons and materials design

Step 2.10 : Media utilization planning

Step 2.11 : Testing design

Step 2.12 : Evaluation approach design

Step 2.13 : Interface design

Phase 3 : Develop Nutprapha BOLA packages

Step 3.1 : Learning packages invention

Step 3.2 : Media integration

Step 3.3 : Prototyping

Step 3.4 : Classroom Processing

Step 3.5 : Quality warranty

Phase 4 : Implement Nutprapha BOLA packages

Step 4.1 : Promotion

Step 4.2 : Distribution

Step 4.3 : Dissemination

Step 4.4 : Maintenance

Phase 5 : Evaluate Nutprapha BOLA packages

Formative evaluation

Summative evaluation

The following are presented details of steps in each phase.

Phase 1 : Conduct Classroom Setting Analysis of Nutprapha BOLA model

Step 1 : Needs assessment

The researcher constructed needs assessment to identify to identify problems and background within the classroom setting for English for Careers in Technology course. At this step, it was necessary to specify learning goals and objectives based on the results of needs assessment. There were some specific questions to help the researcher drawing the main components required in Nutprapha BOLA model development at need assessment step, for example; what are students' learning problems and background knowledge before taking this course?, what are specific skills students need to achieve?, is it possible to teach 4 skills of English learning online? If yes, why? If not, why not?, why will students have to take this course?, what are students' expectations to this course?, what resource limitations will students face? The results of the need assessment showed that students had a low level of proficiency in English learning background knowledge. They needed to practice with

all four skills of English learning. Moreover, students expected to expand their use of technology in learning English.

Step 2 : Participant analysis

The researcher analyzed participants involved in the present study. The information obtained in the participant analysis helped the researcher to adjust instruction to specific type of learners. It also helped the researcher to understand at what level to begin the course, and how to choose the best strategy to deliver the course most effectively. There were some specific questions that needed to be answered as part of participant analysis, for example; who will enroll in the course?, what academic year of students?, what background will students bring for this instruction?, what expectations will students have of the course?, what hardware and software will students have?, what Internet connection will students have?, what resources will students have at their disposal? After the researcher analyzed potential participants to be involved, the researcher determined that the target students of this study should be first year students from the Faculty of Industrial Technology, Ubon Ratchathani Rajabhat Univeristy.

Step 3 : Content analysis

The researcher had to do content analysis at this step. It was always important during working on analysis phase to identify whether any content existed that could be used or with minor modifications. The reasons that the researcher searched for existing content are that existing content could help to save time and budget. Additionally, it allowed the researcher to concentrate on content improvements.

The results of content analysis were that the researcher chose English for Careers in Technology for the study to fit the need of the participants involved which were students from the Faculty of Industrial Technology.

Step 4 : Technical analysis

The main concern for Nutprapha BOLA model development was availability of technology. It was very important to define upfront what the minimum requirement would be to participate in the course. The following were minimum requirements needed to design Nutprapha BOLA model.

1. Organized minimum requirements including processors, memory, hard drive space, hardware (CD-ROMs, DVD capability, speakers, microphone, etc.), software (browsers, word processors, FTP, plug-ins, video viewers, etc.), and bandwidth for the learner and the instructor.

2. Organized alternative tools that would be needed to develop the course including all software and hardware.

3. Organized the server capabilities and systems (such as LMS) that would be needed to deliver and mange the course.

4. Stated what the learner requirements would be for video, audio, plug-ins and other media

5. Stated what the instructor and developer requirements would be for the above media and what tools they would use to create or develop that media.

Step 5 : Structural analysis

According to all the information gathered in the prior steps, it was then necessary to focus the structure of Nutprapha BOLA model. There were three main points for concern; a) What should the structure of the course be? (A traditional classroom solution, an online only solution, a blended solution), b) What is the appropriate duration for the course with regards to setting constraints, students' needs and their expectations?, c) What is the appropriate time distribution in the course? The

results showed the structural as, for example, time for instruction, assimilation, time for practical skill development (hands-on, simulations, games), time for test preparation .

Step 6 : Resource assessment

Assessing resources for Nutprapha BOLA model development did not mean an exhaustive search or determination of exactly what would be used in the instruction. It was simply a preliminary search to find whether there were materials that could be used, such as online, print, video, computer based, etc. This resources research was carried out over the Internet and a traditional library.

Phase 2: Application Design of Nutprapha BOLA model

Step 1: Identified goals

Identifying learning goals for Nutprapha BOLA model helped the researcher to construct learning objectives for students. It also helped the researcher understand and apply Nutprapha BOLA model to fit the learners. A well-organized stated goal assisted the researcher to focus efforts and minimize deviations during course design and delivery. It also provided learners with a guideline to measure performance and build accurate expectations. Moreover, it helped to build an efficient and effective course. Therefore, the goals of Nutprapha BOLA model is to help students and teachers learning and teaching using useful educational technology combines with regular classroom.

Step 2 : Wrote learning objectives

At this step, the researcher wrote learning adjective for Nutprapha BOLA model which the researcher concentrated on Terminal and Enabling objectives. Terminal objectives described students' expected level of performance by the end of

the course and describe results, not processes. It assisted in focusing efforts and to develop enabling objectives. Since Nutprapha BOLA model offers both traditional and online forms, both had the same terminal objectives as they both had the same desired outcomes. Enabling objectives defined the skills, knowledge, or behaviors students must achieve in order to successfully complete terminal objectives. Therefore, the learning objectives helped the instructor to track students' competency which includes performance, condition, and standards.

Step 3 : Identified entry behaviors

It was very important to assess entry behaviors and to set appropriate pre-requisites. Failing to properly and adequately asses the entry level behaviors and knowledge put the learning process at risk and could be an obstacle to achieving the goals and objectives that had been set for the course of instruction. To assist in determining the entry behaviors the researcher referred to the information obtained in the participant analysis phase then considered what needed to be learned in the course. The results of this step were that Nutprapha BOLA model is concerned with both traditional and online setting, the learners' computer literacy was essential. The researcher assessed the potential learners' command of technology and determined what minimum standards were given the medium used.

Step 4 : Established criterion reference

After the researcher developed learning objectives, the criterion reference was constructed. Each objective determined how the behavioral change could be measured. The behavioral change was then measured by the criterion references according to the achievement of objectives. The differences were related to how the accomplishment was measured either online or traditional form. Multiple choice

questions, simulations, and online problem solving was used depending on the subject matter and population. Online and traditional criterion reference showed equivalent behavioral change. Online learning required well written and defined criterion references. It provided the framework to adapt and improve instruction based on learners' performance.

Step 5 : Researched existing sites and resources

To design an instruction, the researcher always needed resources. Resources weree found from books, online or other media. It was essential to identify those resources in order to; a) draw from experiences b) find material to support or supplement in the instruction c) find resources to support the learners d) reduce costs. There were some specific questions that needed to be answered as part of participant analysis. There were some specific questions that helped the researcher focus on evaluation of the resources available. For example; Is there available information?, Are there available courses or materials in other media?, Are there learning objects from other courses or training that can be used or re-purposed in the course or to complement it?, Are there experts that can contribute to this course or training as instructors or "guests"?, What are the available online resources (libraries, websites, and discussion forums)?, What are the available resources at learner locations (libraries, books, videos, testing centers, and other physical resources)?

After all of the questions were answered, the researcher created a summary of the findings. The researcher was as neutral as possible with regard to instructional methodology as many of these resources were not used in the course but to reinforce learning. It was found to be best usig supporting resources that covered a range of instructional modality.

Step 6 : Performed a content inventory

The researcher performed a research for available resources for the course that could be used to accomplish each of the objectives. The researcher created a spreadsheet that linked resources to specific objectives which helped the instruction to be efficient in the inventing phase. bA content inventory was performed with consideration given according to the following.

a) Using learning objects from existing courses be used as part of the course.

b) Using old courses to draw experience or be use as guides.

c) Using books, journal articles, and computer applications to supplement the course.

d) Supporting materials that the researcher used as references but did not use or assign as part of the course.

Step 7 : Devised an instructional strategy

It was necessary to devise an appropriate instructional strategy to maximize the learning effectiveness after developed learning objectives and established criteria to measure the learning achievement. In this step, the researcher and team brainstormed about alternative ways to achieve the required behavioral change for learners. The researcher focused on the difference of instructional methodologies, techniques to reinforce and remediate, and the exploration of different motivational techniques. During the brainstorm session, the storyboard was created. It was an important instrument to make the researcher to aware of the course framework and teaching approach that was proposed. The current trend in traditional and online teaching is to make use of reusable teaching and learning materials. Each learning object consists of an objective, instructional content (including appropriate media), assessment of the instruction, and references.

Step 8 : Created flowcharts

After the storyboard was created, a flowchart was created for the course according to the instructor's and team's plan. The researcher was sensitive to the logic of instructional organization according to the learning objectives. Content navigation was greatly impacted by how the course was mapped. The flowchart included all course components; main menu, modules or headers in the course, lessons (web pages for each lesson), pretests, quizzes/tests, discussion forums, help items and all other elements used in the course or training.

Step 9 : Designed lessons and materials

The researcher had to concentrate on the effectiveness of lesson elements during designing lessons and teaching materials. It provided the chance for a critical assessment of the instructional approach and caused the researcher to consider learning styles and set guidelines.

The first step was to design a lesson template and then focus on each lesson.

a) Created a lesson template

The researcher created a generic template for the instruction which include all aspects to cover in each lesson. The use of the template was flexible during the lesson authoring.

b) Planed each lesson

After the generic template was constructed, the researcher began to plan each lesson. There were some specific questions the researcher used as a guide while planning in each lesson.

For example;

- What can be used in the lesson as an anticipatory set?

- How can the content of the lesson be delivered effectively?
- What media can be used for different learning styles?
- What specific models apply to this skill set?
- What hand-on opportunities can be provided online for the lesson?
- What practice or appropriate simulation can be provided for the lesson

The researcher had constructed an organized lesson plan based on the answer of each question as a draft, then revised based on the experts comments .

Step 10 : Planed media utilization

It was critical that the instructor selected the appropriate media to fit the learning objectives. There were two main considerations when the researcher planed for media utilization. They were;

a) Technical considerations

The media in the instruction had to be compatible with the minimum requirements. It had to effectively supported the learners and be easily accommodated by the development tools of the researcher.

b) Instructional considerations

Media use had to support the learning objectives, and have an instructional reason for its use in the course.

Step 11 : Designed testing

The traditional use of testing was to determine a candidate's or learners ability to retain or increase knowledge. The results of testing were used to eliminate or promote the learners. There might be instances in which this is appropriate but not in a course or training environment. Testing has a positive role in a course. The goal is to evaluate the learner in order to provide constructive feedback and remediation when

necessary. While constructing a test, the researcher focused on the course objectives and measure performance. To construct online test, the researcher made sure to use quiz software (scripts or applications) that were programmed to evaluate the answers and provide feedback. The online test consisted of test questions, possible answer choices (multiple choices), correct answers and reinforcement/feedback, wrong answers and remediation/feedback, etc. Test questions were created to be clear. Full multiple choice questions were preferred over "true or false" or "all of the above" or "none of the above" type.

Step 12: Designed evaluation approach

It was very important to provide an opportunity for the learner to evaluate the course in order to improve the instruction. To understand learners' perceptions and feedback is essential to the continuous improvement process for instruction.

In addition, in traditional classroom setting, the researcher gets feedback through student expressions and general behavior. For online classroom setting, the constant feedback does not present, therefore, a formal evaluation is more important and should be focused on.

Step 13 : Designed the interface

The interface was also an important part of the instruction. The ease or difficulty of using it has a strong impact on the user. If the interface is too complicated it tends to de-motivate where as if it is easy and simple a learning flow is created. A user friendly interface can draw the learner to be engaged in the course while a confusing or non-user friendly interface can have the opposite effect. Therefore, the researcher used Moodle for the interface because it contains the ease of modification.

Phase 3 : Nutprapha BOLA packages Development

Step 1 : Inventing learning package

The researcher can start inventing the content in this step based on the information obtained through the prior phases of analysis and design. It did not deviate from the learning objectives and supply all the information needed in a logical manner. Teaching tools and other media were included in order to account the different learning styles.

Step 2 : Media integration

A variety of media content was created in the instruction to support the objectives of each lesson based on the information obtained during analysis and determinations made during the design. Media use included; text, images/graphics (still or animated), video streaming, audio (streaming or downloadable files), databases, games or simulations, e-books, etc. The instructor made sure all media is optimized to match the minimum requirements as determine in the analysis and design phase. It was ensured that the subject matter experts contributing to the course or training had the facilities and tools to create the media that did not already exist.

Step 3 : Prototyping

The prototype was tested during all steps and phases prior to full development to contribute to the effectiveness of the instruction. The researcher identified potential problems and adjusted the instruction at this step before all the development is done.

Prototype development included the content of the course which showed the potential learners and their actions. After that the instructor should make any necessary changes to test with a prototype all over again. After the researcher and team were satisfied that the instruction that met its goals, they then proceeded the next step of the instructional development.

Step 4: Processing in classroom

This step was carried out by technical staff and consisted of the creation of the Web page. The pages were created in MOODLE, an LMS (Learning Management System) platform using embeded media but it also involved the use of several useful E-learning tools. The researcher, who has extensive use of media and the technical skill, sometimes carried out this step. The researcher attempted to assist the proficient in development. If the researcher is not well acquainted with development for the web may chose considerable time and the media might fail to be optimized. Processing in classroom required familiarity with MOODLE templates, and some other useful E-learning tools such as Microsolf Office and Adobe PhotoShop.

Step 5: Quality warranty

The researcher and designer, by definition, work too closely with the project and it is easy to overlook flaws. Disinterested students were used to discover flaws through Beta Test the applications. Since the students were not graded it was expected they would give honest feedback about problems, flaws and ways to improve the design.

Phase 4: Nutprapha BOLA packages Implementation

Step 1: Promotion

The nature of promotion will depend on whether you are trying to recruit students via the Internet or from the student population on the campus. Obviously, as an academic, expert help was needed to optimize promotion efforts. On campus all promotion could be turned over to the Human Resources department. On the Internet is a different story. The place where the targets candidates are must be located. After finding the location the message must be created and delivered in an acceptable

manner. Maximum efforts must be made to promote to the proper group that will most likely apply to join the course or training. If promotion efforts are not handled properly a large amount of time and effort will be wasted.

Step 2: Distribution

The distribution process required a high level of technical ability. For this reason it was important for the researcher to find a qualified assistant who could manage online courseware. When the researcher decided to use Learning Management System (LMS) as a platform for the course, it was easier to provide tools to enroll, manage and track learners. When the researcher used another platform, the technical staff who are qualified to distribute and provide an access system to the course would be contacted.

Step 3: Reporting

The researcher adapted the teaching and improved the learning process in the instruction based on information obtained from the learners' feedback. The feedback was provided during and after initiating the instruction. The researcher listed all reports that she wanted to have in order to run the course efficiently. It was then observed as to how close the LMS or other platform comes to providing the needed reports.

Step 4: Maintenance

After the instruction was launched, the instructor should plan to perform impeccably in support of the learners. Along with the learners, web technology needed to be supported as well. All links had to function, severs had to perform appropriately and timely, Internet access had to reliable to ensure continuity of the course of instruction. It was planned so that in the event of a failure the system could be restored or a back up on standby. The best technical support was prepared in advance.

Phase 5: Nutprapha BOLA packages Evaluation

There were two forms of instructional evaluation. They were formative and summative evaluation. Formative Evaluation was an ongoing process designs for the usage at each phase of Nutprapha BOLA packages development. Formative evaluation directed the course and allowed for ongoing improvement and adjustment. The researcher collected data and information at each stage of development to improve the effectiveness of the product. Summative Evaluation evaluated the product in its final form and was conducted to determine whether or not the learning objectives had been met. A pre-test and a post-test were given and used in both formative and summative evaluation. A student attitude questionnaire was also given.

A. Formative Evaluation

There were three stages of formative evaluation.

Stage 1: Individual Testing

Nutprapha BOLA packages was tried out by three students with different levels of proficiency, which represented one low level of proficiency student, one average level of proficiency student and one high level of proficiency. These students were not the subjects in the study. The criteria of distinguishing the samples into different levels of English learning achievement were;

a) The students rated as low level of proficiency were those who received grade of “D+, D” or lower in the English course of the previous semester.

b) The students rated as average level of proficiency were those who received grade of “B+, B, C+ and C” in the English course of the previous semester.

c) The students rated as high level of proficiency were those who received grade of “A” in the English course of the previous semester.

The three students were assigned to do a pre-test. Then they studied and did exercises of English for Careers in Technology via Nutprapha BOLA packages. After that, they were asked to do a post-test and give some opinions about the package. The scores that the three students obtain from the exercises and the post-test were calculated to find out the efficiency of process (E1) and the efficiency of the product. The researcher used opinions and useful comments to improve the lesson and contents on the package.

Stage 2: Small Group Testing

In this step, Nutprapha BOLA packages was tried out by nine students with different proficiency, which represents three low level of proficiency students, three average level of proficiency students and three high level of proficiency students. These students were not the subjects in the study. The same procedures were done with this group of students. After analyzing the data from the proficiency test scores and exercises, the researcher asked the subjects' opinions and feedback of the lesson on the package. After that the researcher revised the lesson and content according to the useful comments.

Stage 3: Field Study Testing

There were thirty students with different proficiency were samples for this last try out step. They were ten low level of proficiency students, ten average level of proficiency students and ten high level of proficiency students. These students also were not the subjects in the study. The same procedures were done with this group of students. Students' achievement scores from proficiency test and exercises were determined for efficiency of the package based on the 85/85 standard.

B. Summative Evaluation

Use of well-designed pre and post tests to determine knowledge gained was recommended. The evaluation tool must: a) accurately reflect the instructional goals to ensure content validity, b) based on multiple observers to ensure reliability, and c) consistent among different classrooms, teachers, and rotations.

Methods planned for Evaluation

a) Test for criterion-related referenced items

b) Provide means for anonymous feedback as well as face-to-face

c) The evaluator discussed, one-on-one, with the learner particular responses and reactions of the questionnaire and pre-test, post test as well as the above mentioned questions to search for mistakes and reasons for mistakes.

d) The various evaluation instruments were evaluated for clarity, reliability, and accuracy.

e) Amount of time needed to complete the instruction was calculated.

d) A Computer/learner interaction check list for consistency, matching of instructional goals, and coding errors was used.

In conclusion, the process of the construction and design of Nutprapha BOLA model has been listed above. This is the framework for the entire application. In the next section Nutprapha BOLA packages components will be explained.

5.2 Blended Online Learning Application (BOLA) Package

The package includes multiple learning and teaching resources for students to download and for teachers to update resources and update the contents. There are two

main components in Nutprapha BOLA packages; offline & online learning and teaching resources. The explanation of each component is as follows.

A. Textbook and E-book

The contents in the course were based on a textbook "OXFORD ENGLISH FOR CAREERS, TECHNOLOGY 1" by Eric H. Glendinning.

B. Classroom lecture online and offline as PPT and PDF format

Classroom lectures were in PPT and PDF format that students can choose to download depending on their convenience. The teacher also prepared these presentations in files to be ready for students to copy to their portable memory such as CD-ROM or USB.

C. Audio with listening script offline and online

The audio to practice listening in Nutprapha BOLA packages were in MP3 file format with listening script. It was ready for students to copy to their portable memory such as CD-ROM or USB.

D. Nutprapha BOLA packages user manual offline and online

Nutprapha BOLA packages user manual is in booklet form which the teacher distributed at the orientation stage.

E. Online Exercises

Online Exercises in Nutprapha BOLA packages included interactive multiple-choice, short-answer, jumbled-sentence, matching/ordering, and gap-filled quizzes.

5.3.1 Nutprapha BOLA packages platform

According to Suppasetseree & Dennis (2010), the advantages of using Moodle in English classrooms are: Moodle facilitates student-centered learning, facilitates anytime-anywhere learning, makes course administration easier and helps to reduce

the cost and time of delivering instruction. The result of their study revealed that Moodle is a free online course management system which is suitable for language teaching and learning. It is a user-friendly tool to create E-learning or a course online for English teachers and it is easy for students to download learning resources. In addition, it was easy for teachers to assign students' homework and convenient for students to turn in the assignment online. The study also showed that there were several features in the Moodle system that help support and deliver instruction easier than in a traditional classroom setting. Teachers who used Moodle agreed that an online course helped students to learn at their personal convenience and proficiency level. Students can download learning material or practice the exercise given outside the class to review their studying anytime and anywhere they want and receive feedback to show their skills immediately. The conclusion of their study revealed that all the teachers who use Moodle in their teaching were satisfied with the results after using it. Students also enjoyed using it to help increase their learning levels.

Moodle features used in Nutprapha BOLA packages shows as follows.

A. Online Quizzes

In Nutprapha BOLA packages, online quizzes allowed learners to take a quiz in different forms such as fill-in-the-blank, true/false quizzes and multiple choices.

B. Creating and Managing Course Content

Related lessons and exercises were uploaded through this feature. Online activity such as listening is assigned so that students can visit anytime they want and practice anywhere and anytime.

C. Using Forums, Chat and Dialogue

Students were assigned to chat or discuss through this channel and topics for discussions were mostly related to their previous lessons.

D. Assignments & Exercises

According to assignments and exercises, embedded glossaries were seen as important for students in their English language learning. If students have sufficient vocabulary, they will be able to understand the learning content.

E. Document Submission

Document submission was seen as necessary for students to submit their work online. This option made it easy for students to submit their assignments. It was also beneficial for teachers to check students' homework on this channel.

F. Class Schedule, Calendar, Bulletin Board

Schedule was used to notify students of the set activities so that students could plan and prepare themselves before the study time.

G. Student Grades and Scales

Students' grades and scales were used in the area of assessment. Students' grades could be kept in the system as in Nutprapha BOLA packages used this function as self-assessment

5.3.2 External Application used to enhance Nutprapha BOLA packages

There are two main categories of course construction tools used to create Nutprapha BOLA packages. Within each category there are several tools. The explanation of each tool is as follows.

5.3.2.1 Online tools

A. Flickr by Yahoo

The URL for Flickr is www.flickr.com. Flickr is an image and video hosting website acquired by Yahoo Company. The system allowed teachers to embedded images scanned from textbook into Nutprapha BOLA packages.

B. Chirbit

The URL for Chirbit is www.chirb.it. Chirbit is a useful tool that enables teachers to record, upload and share audio files online easily. In Nutprapha BOLA packages, teachers can record their voice or upload existing audio files from textbook to the system for students to download or practice online.

C. AuthorStream

The URL for AuthorStream is www.authorstream.com. AuthorStream is a web-based PowerPoint Presentation sharing platform from authorGen Technologies Company. In Nutprapha BOLA packages, after the teachers create a multimedia presentation in Microsoft's presentation program PowerPoint, the teachers can upload

to AuthorStream which can be converted to Flash format. The teachers can get an embedding code to put in the course platform.

D. Scribd

The URL for Scribd is www.scribd.com. Scribd is a Web 2.0 based document-sharing website which allows teachers to post documents of various formats, and embedded them into Nutprapha BOLA packages.

E. ispeech.org

The URL for iSpeech is www.ispeech.org. The program iSpeech used in Nutprapha BOLA packages is E-learning Text to Speech technology. The teachers can instantly create spoken audio content for the course very easily by just typing a sentence and convert to human voice.

F. FACEBOOK

The URL for FACEBOOK is www.facebook.com . Facebook is the most popular social network widely used by both teachers and students in universities around the world. The purpose to use social network in Nutprapha BOLA packages is

to communicate between teachers to students, students to students and teachers to teachers. The topics used in this communication tool were related to the contents and lessons in Nutprapha BOLA packages only.

5.3.2.2 Offline tools

A. Microsoft Word, PowerPoint

Microsoft Word and PowerPoint were the most basic content creators for English language teaching in regular classroom. Most teachers know how to use them well. The teachers used Microsoft Word and PowerPoint to create learning and teaching materials for Nutprapha BOLA packages. They use Word to store all contents before they copy and paste to the system. PowerPoint was being used to create classroom lecture as presentation which students can download or read online through the online course.

B. Hot Potatoes

Hot Potatoes is a free quiz construction software to create interactive multiple-choice, short-answer, jumbled-sentence, crosswords, matching/ordering, and gap-filled exercises for the World Wide Web. The teachers used Hot Potatoes to create multiple quizzes and upload to Nutprapha BOLA packages for students to practice online.

C. Adobe Acrobat and Reader

Adobe Acrobat and Reader is widely used as a way to present information with a fixed layout similar to a paper publication. The teachers used Adobe Acrobat to view, create, manipulate, print and manage files in Portable Document Format (PDF). Students used Acrobat Reader to view and print PDF files through Nutprapha BOLA packages.

D. Adobe Photoshop

Adobe Photoshop is a graphic editing program which teachers used to edit images taken from the textbook before uploading to Nutprapha BOLA packages.

E. ACDsee 10 Photo Manager

ACDsee 10 Photo Manager is a shareware image organizer, viewer and editor software. The teachers used the program to organize and edit images takes from the textbook before uploading to Nutprapha BOLA packages. It is also convenient for students to use the program to view images from the course.

F. Audio Edit Magic

Audio Edit Magic is a visual audio editing and recording software solution, which supports many advanced and powerful operations with audio data. The teachers used the program to edit audio files taken from textbook before uploading to Nutprapha BOLA packages.

G. Winamp

Winamp is a media player for Windows-based PCs and Android devices. Students used this program to listen to audio files after downloading from Nutprapha BOLA packages.

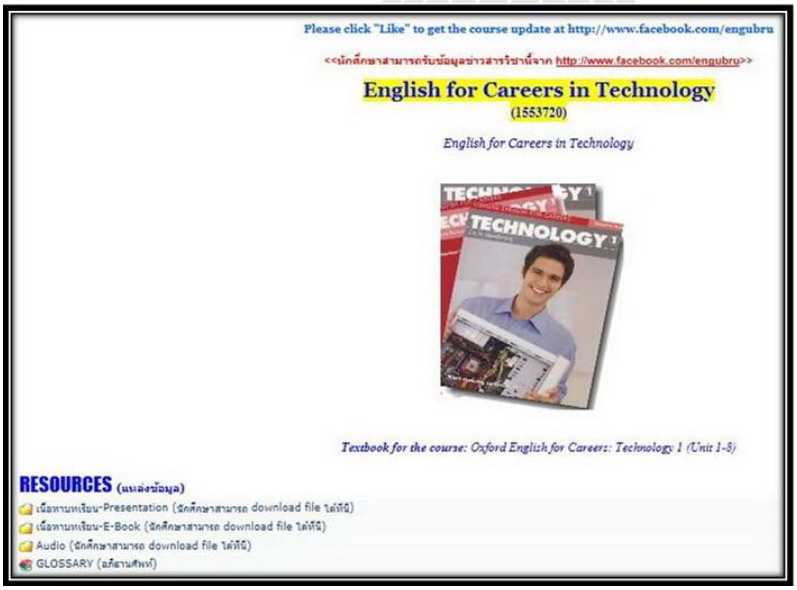
5.3.3 An overview of the course on Nutprapha BOLA packages

1) The landing page for students and teachers to log-in to Nutprapha BOLA packages (http://www.lms.ubru.ac.th)

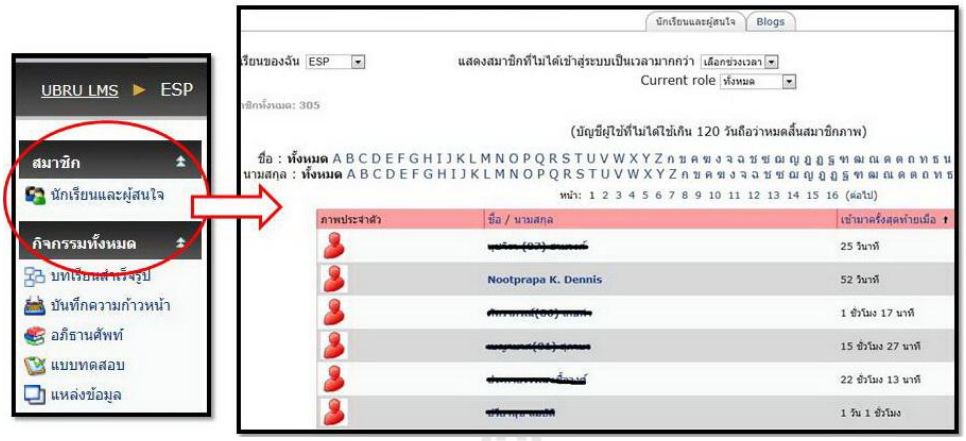
2) After logging in, the user's name will appear on the top right hand

3) Both students and teachers can access the course through the course lists on the landing page after log-in

4) After access to the course, both students and teachers will see the image of the textbook. There is a list of contents in this page that students can choose to study and teachers can choose to edit and update the contents.



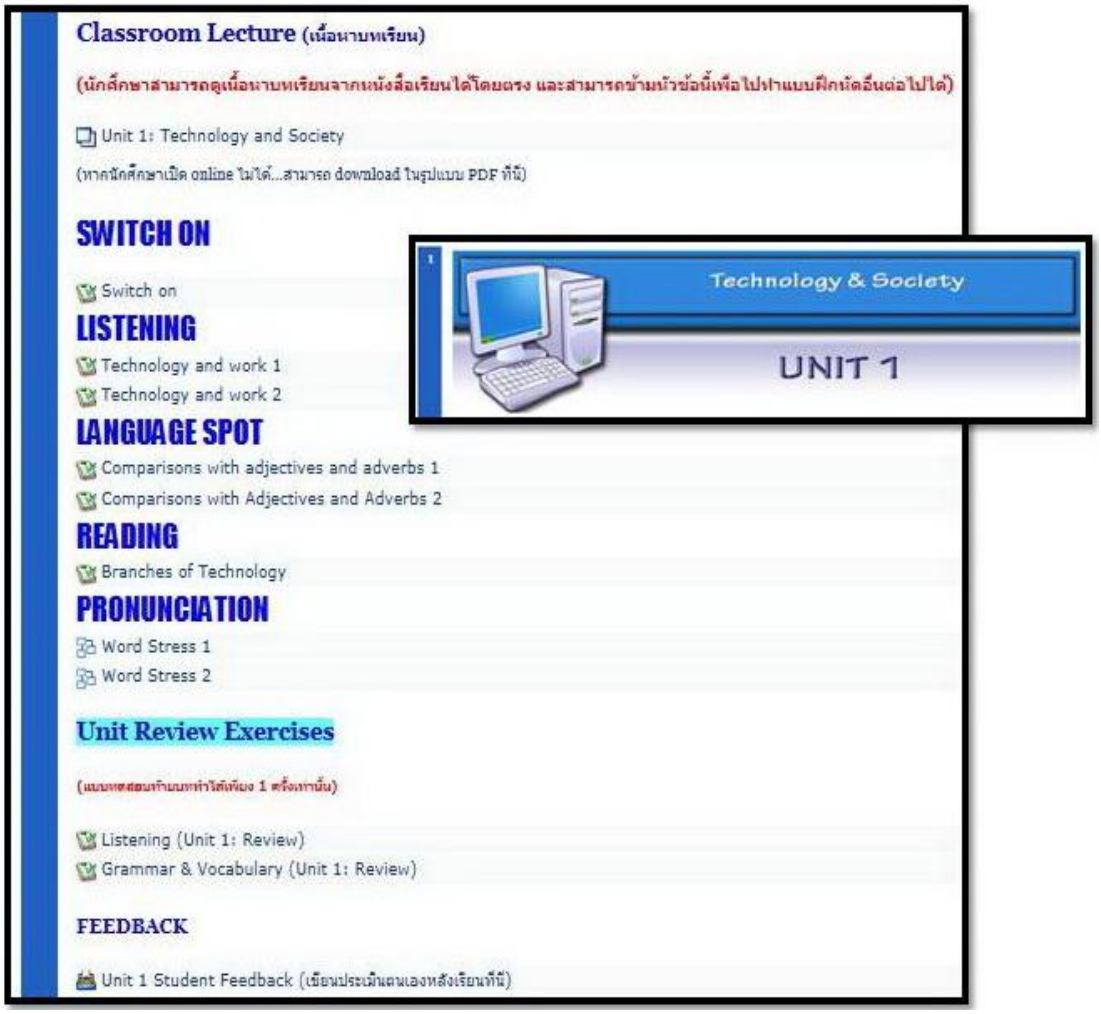
5) On the top left hand corner, there is the menu showing students and participants who registered for the course.



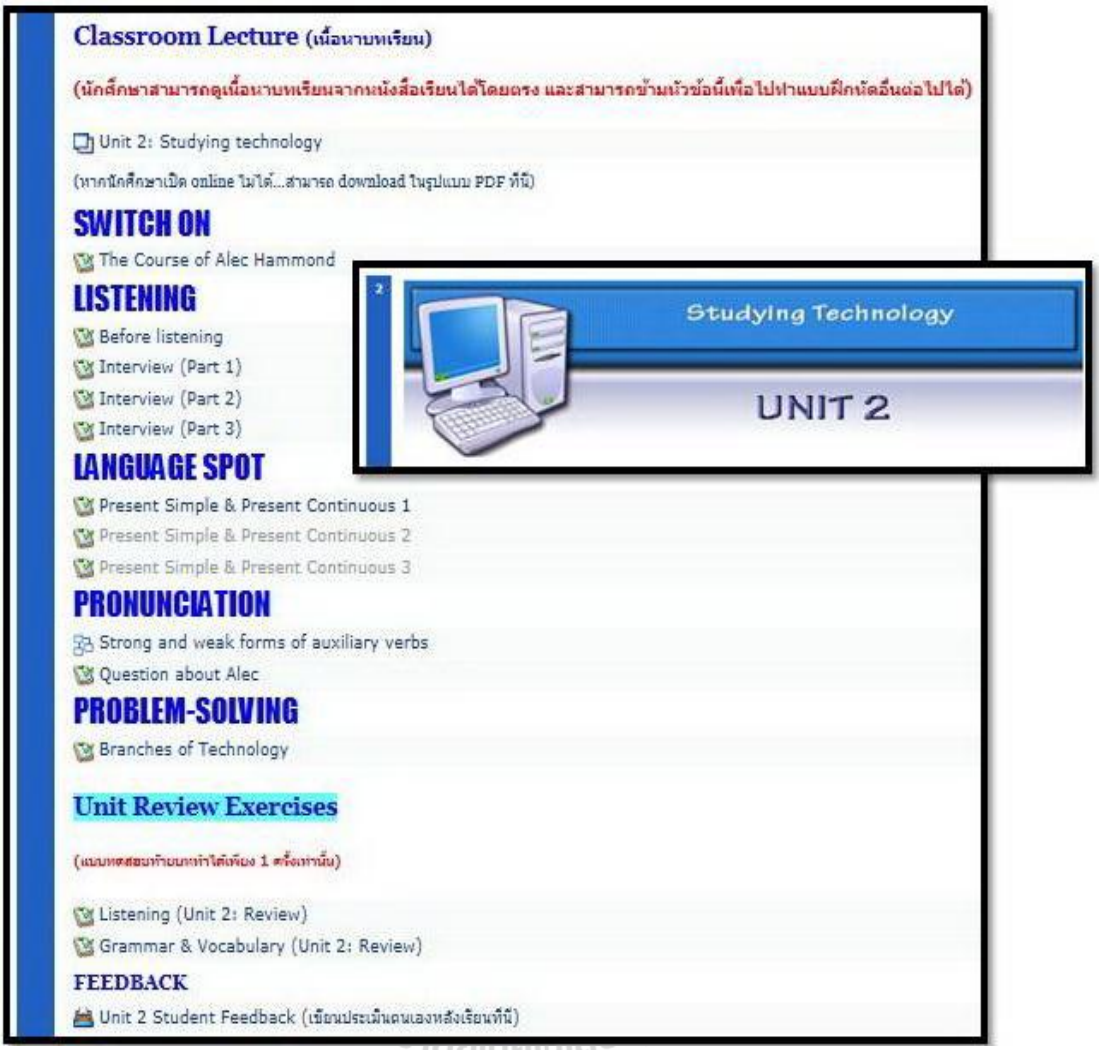
6) This function is for teachers only. It is editing menu which teachers can edit and update anytime they need.

7) Learning units and exercises

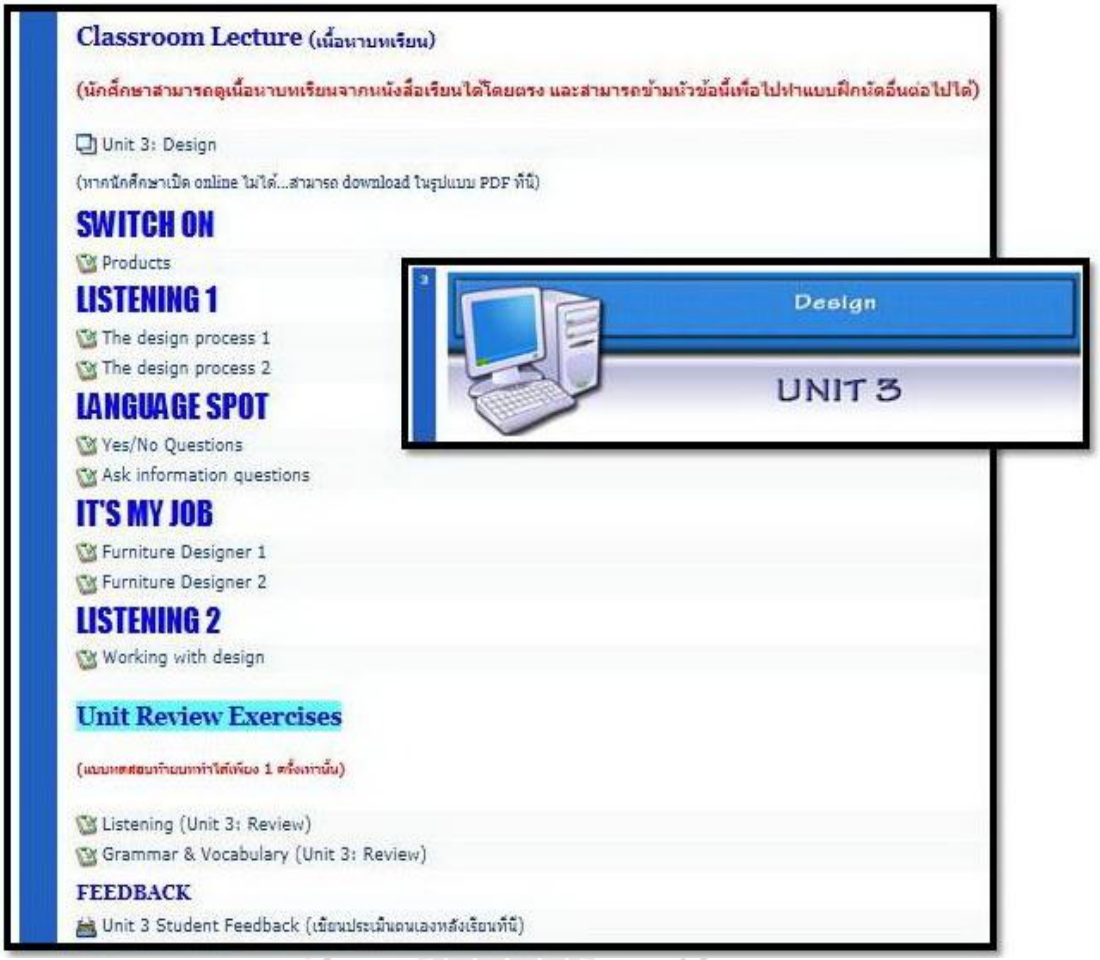
7.1 Unit 1: Technology and Society



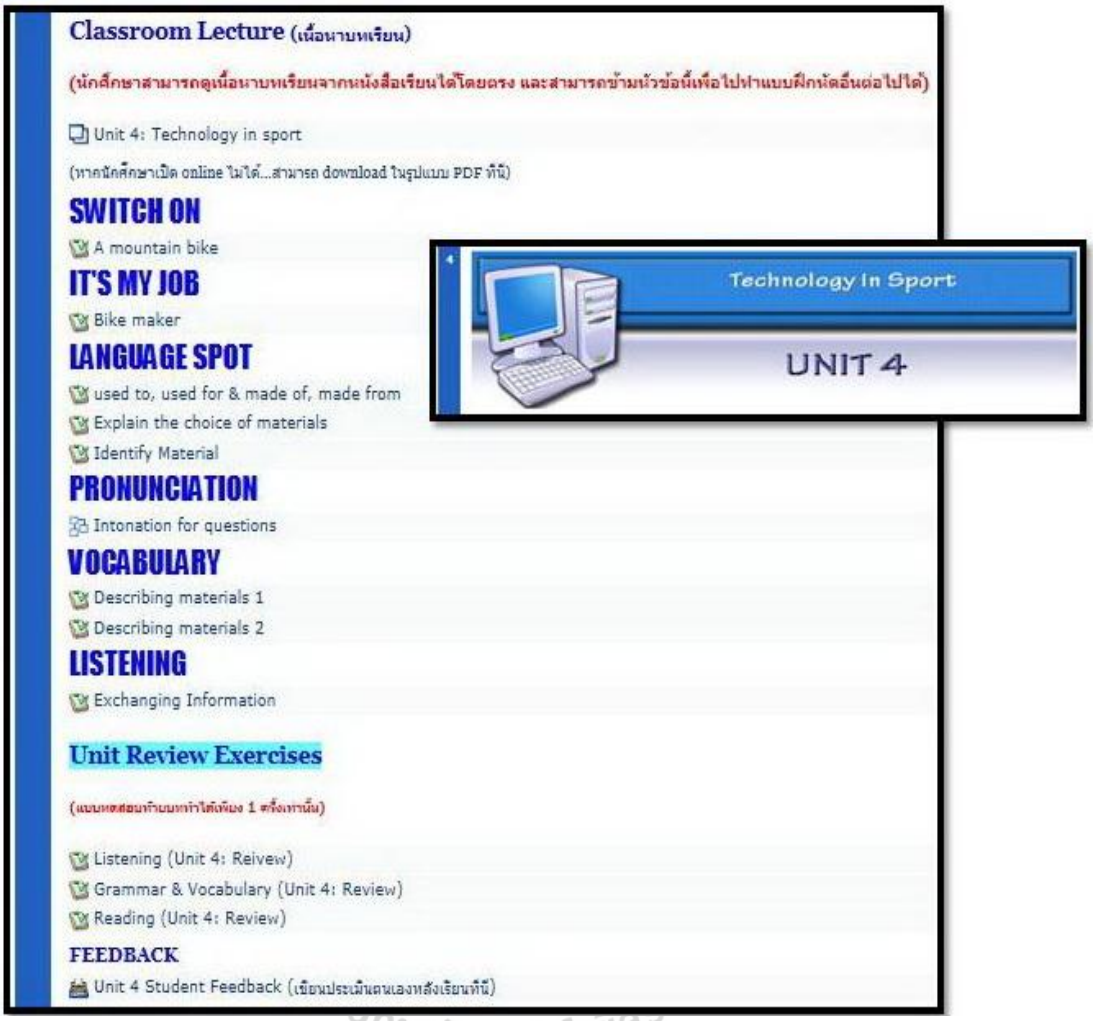
7.2 Unit 2: Studying Technology



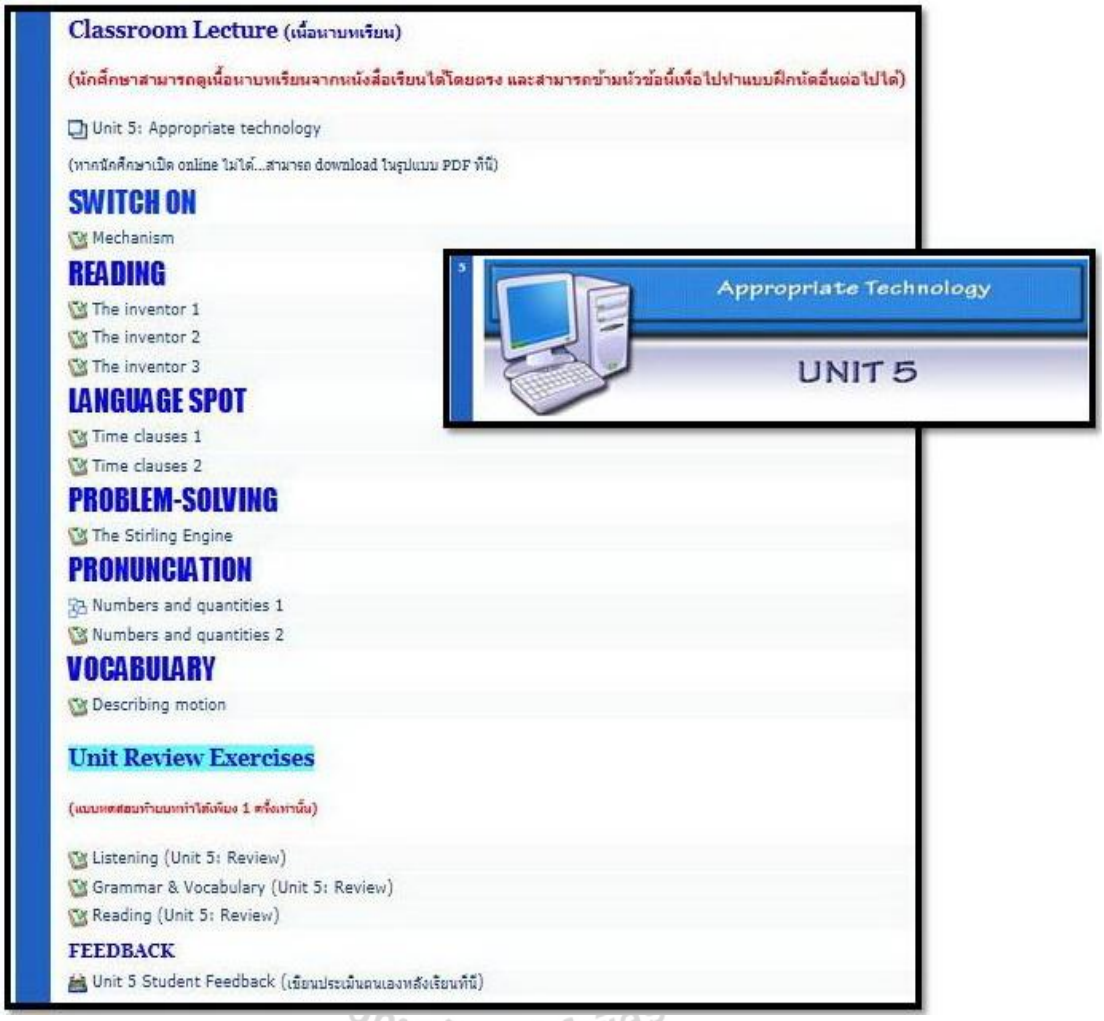
7.3Unit 3: Design



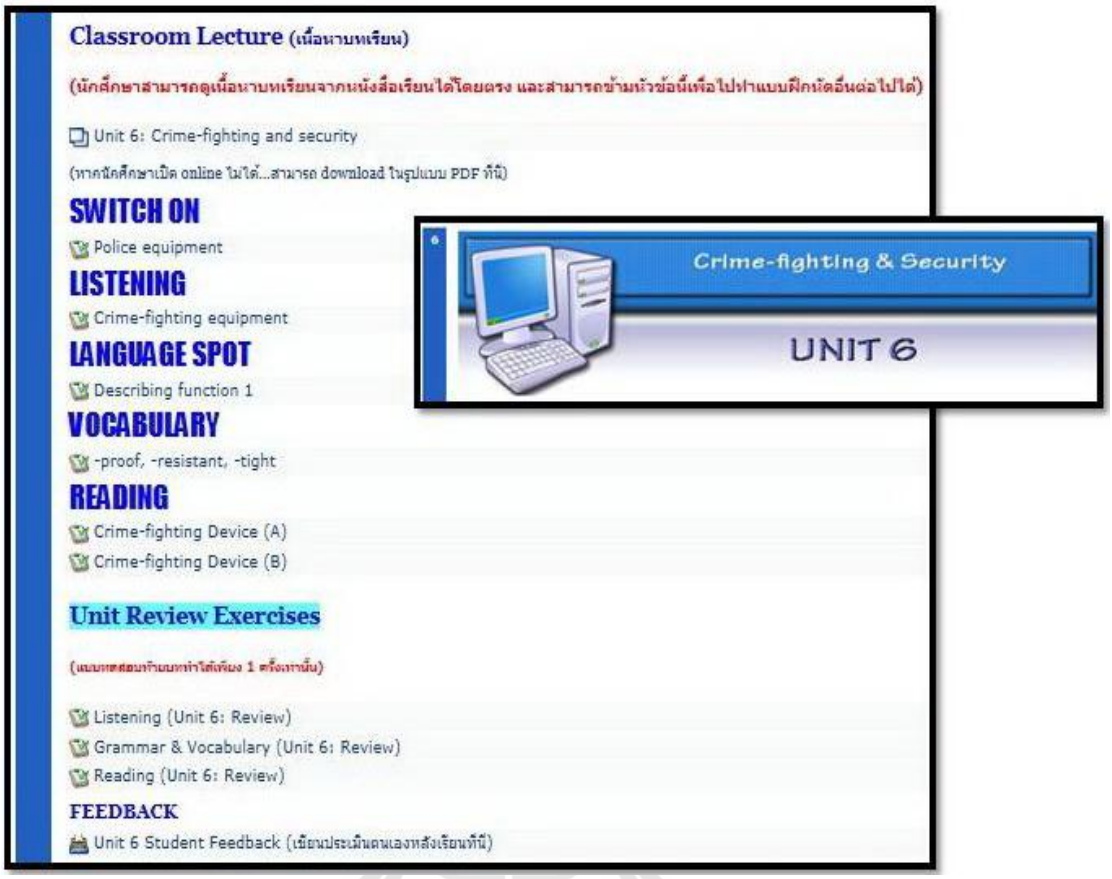
7.4 Unit 4: Technology in Sport



7.5 Unit 5: Appropriate Technology

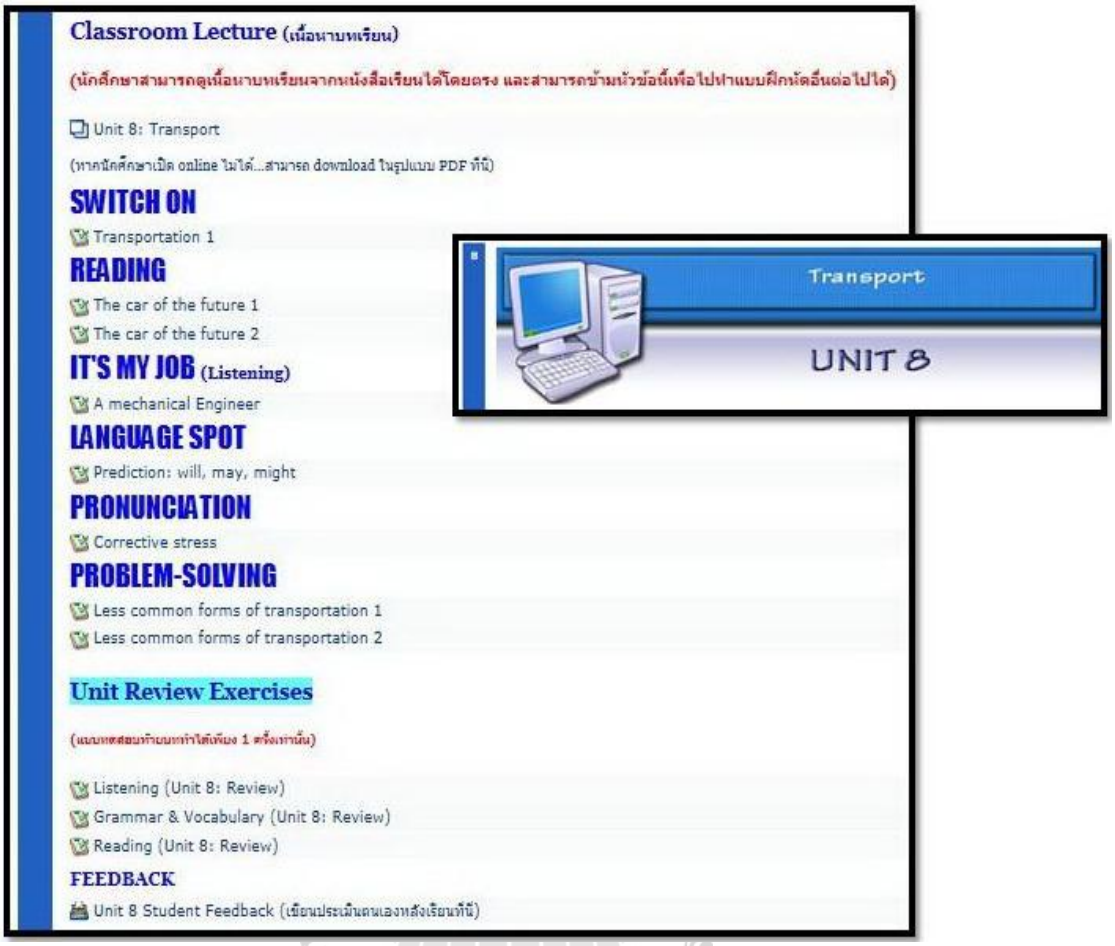


7.6 Unit 6: Crime-fighting and Security

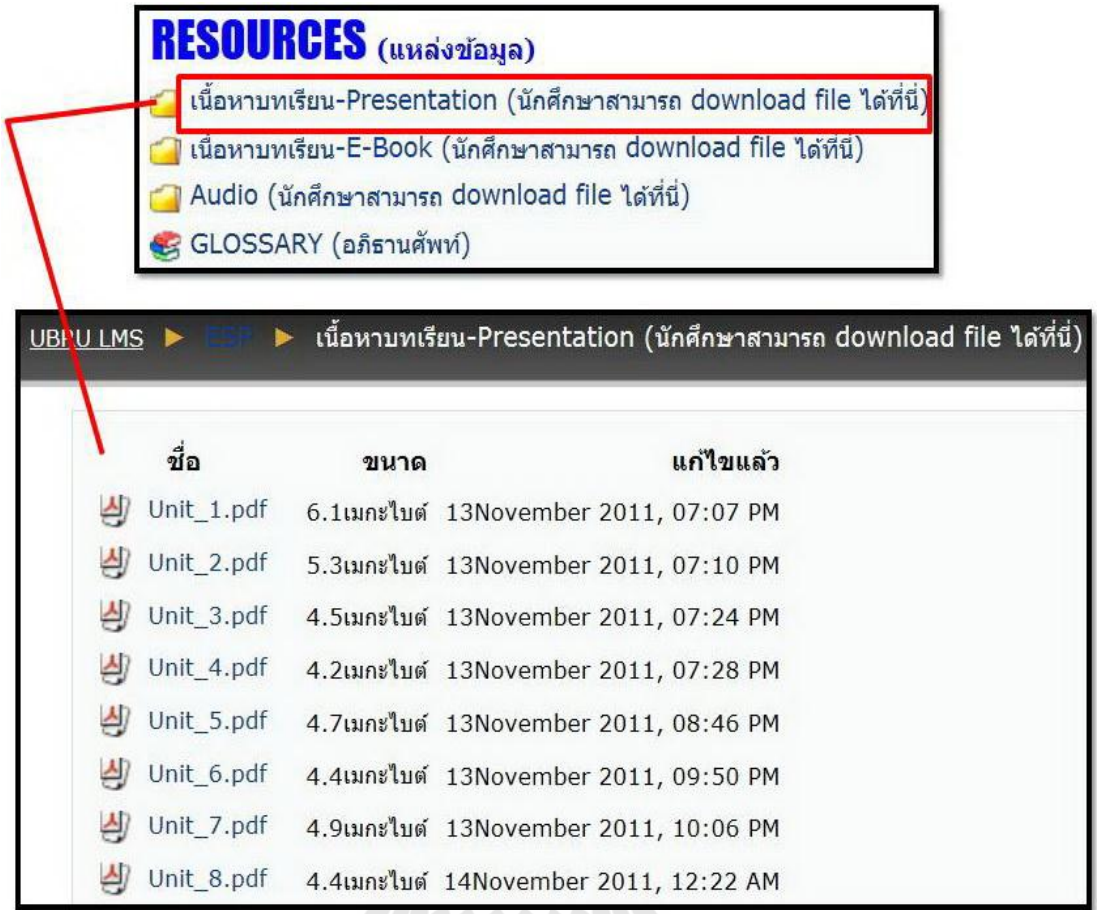


7.7 Unit 7: Manufacturing

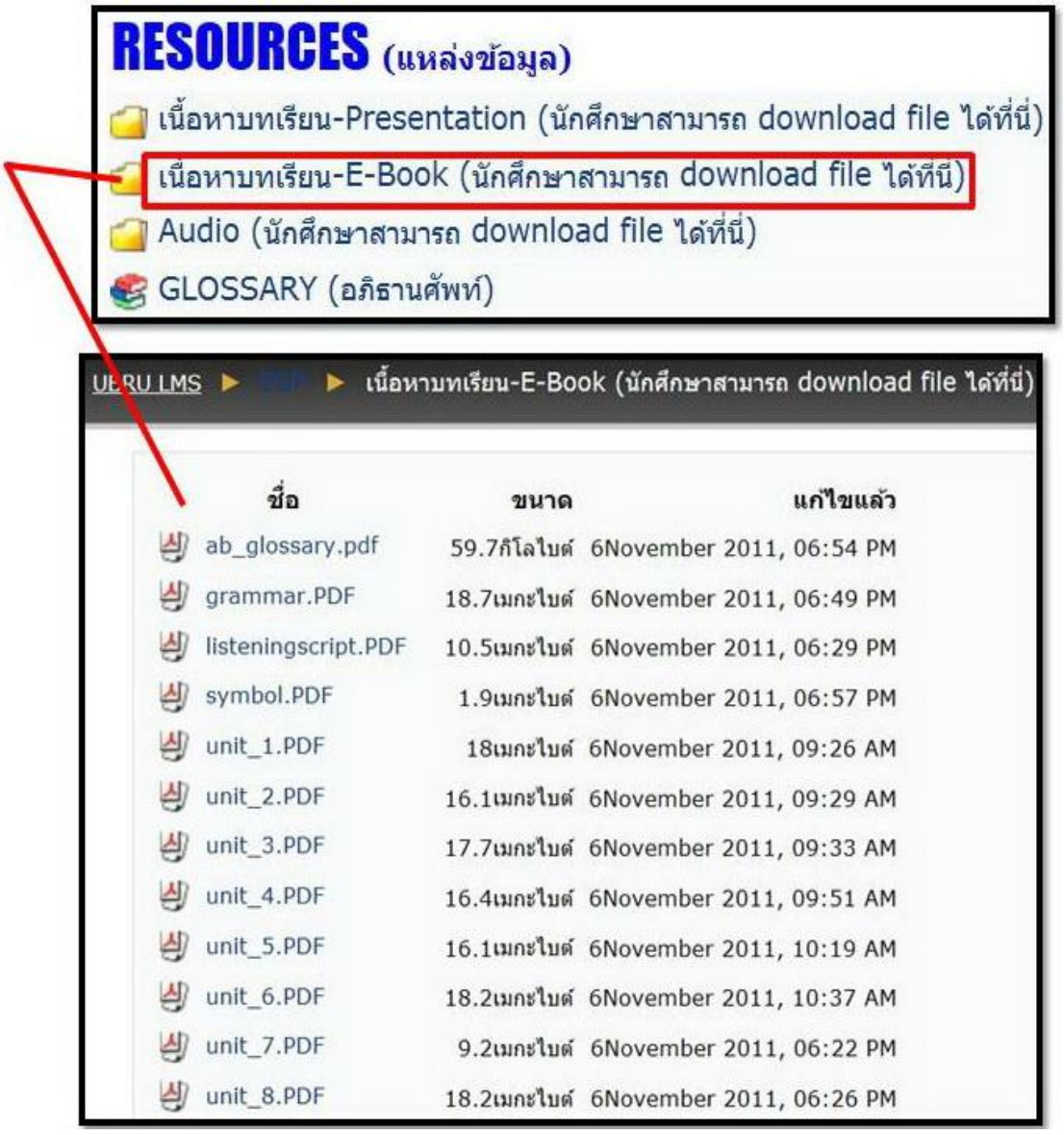
7.8 Unit 8: Transport



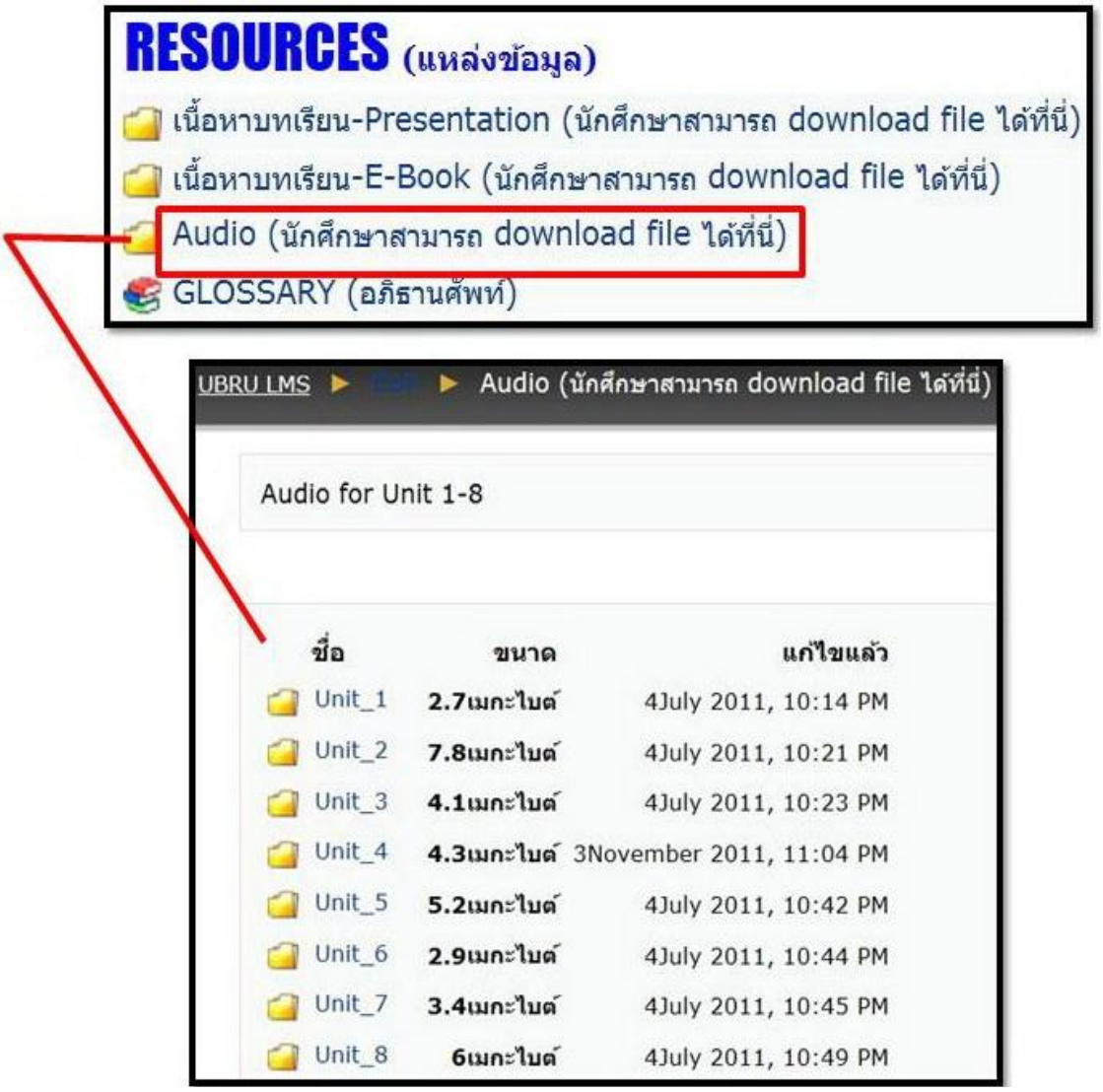
8) This is a list of classroom lectures as PDF files that students can download.



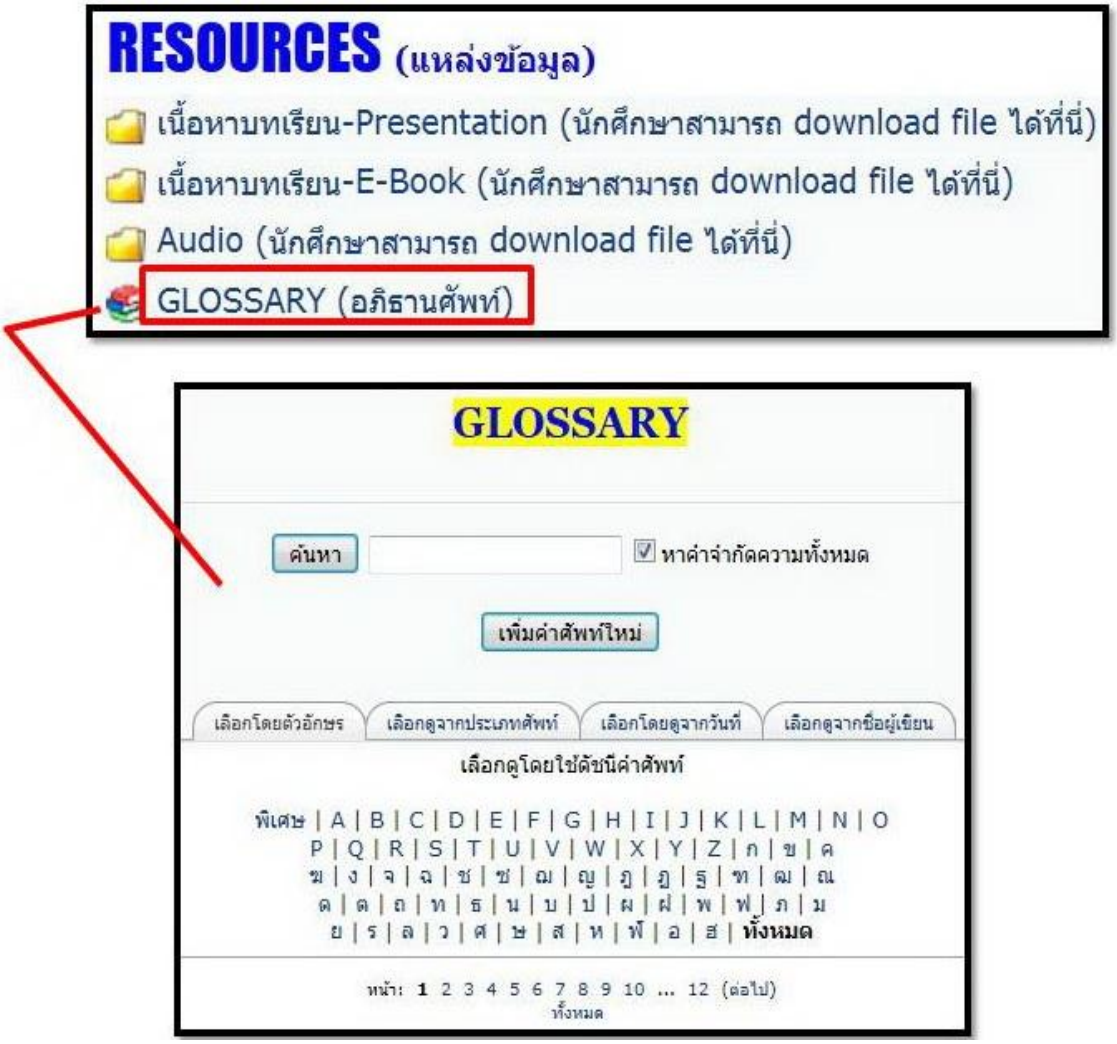
9) This is a list of E-books as PDF files that students can download.



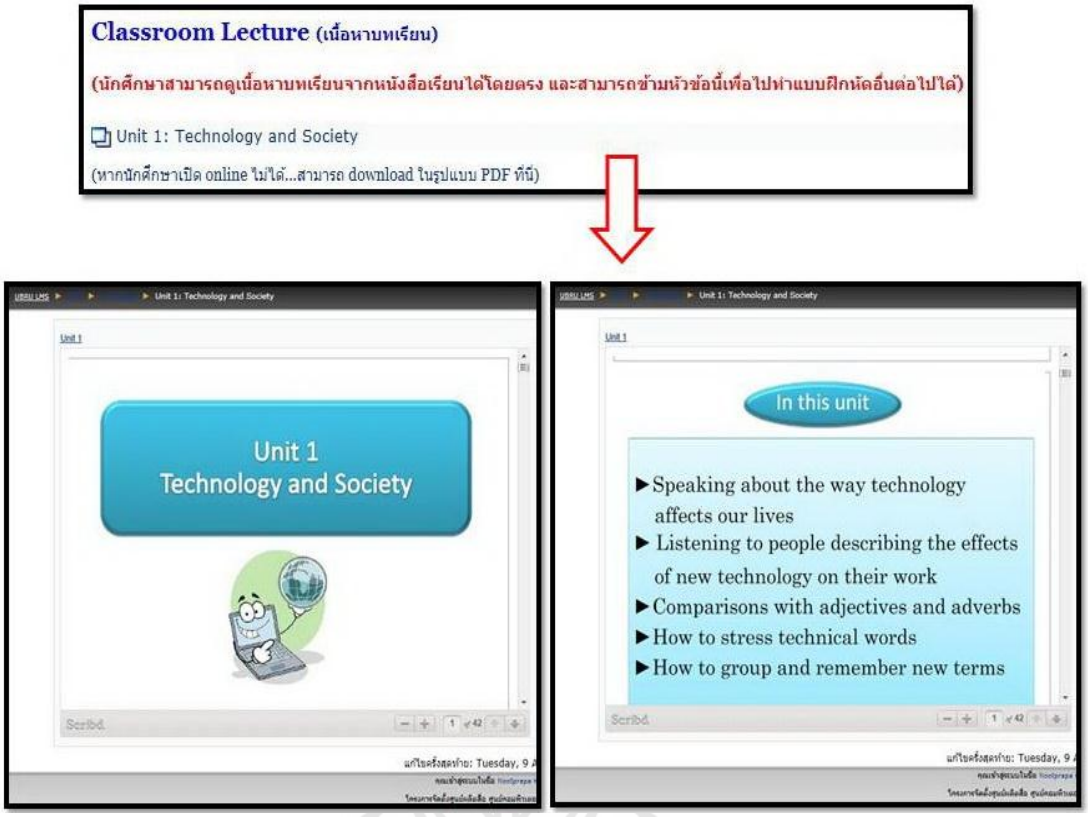
10) This is a list of audio files for each unit that students can download.



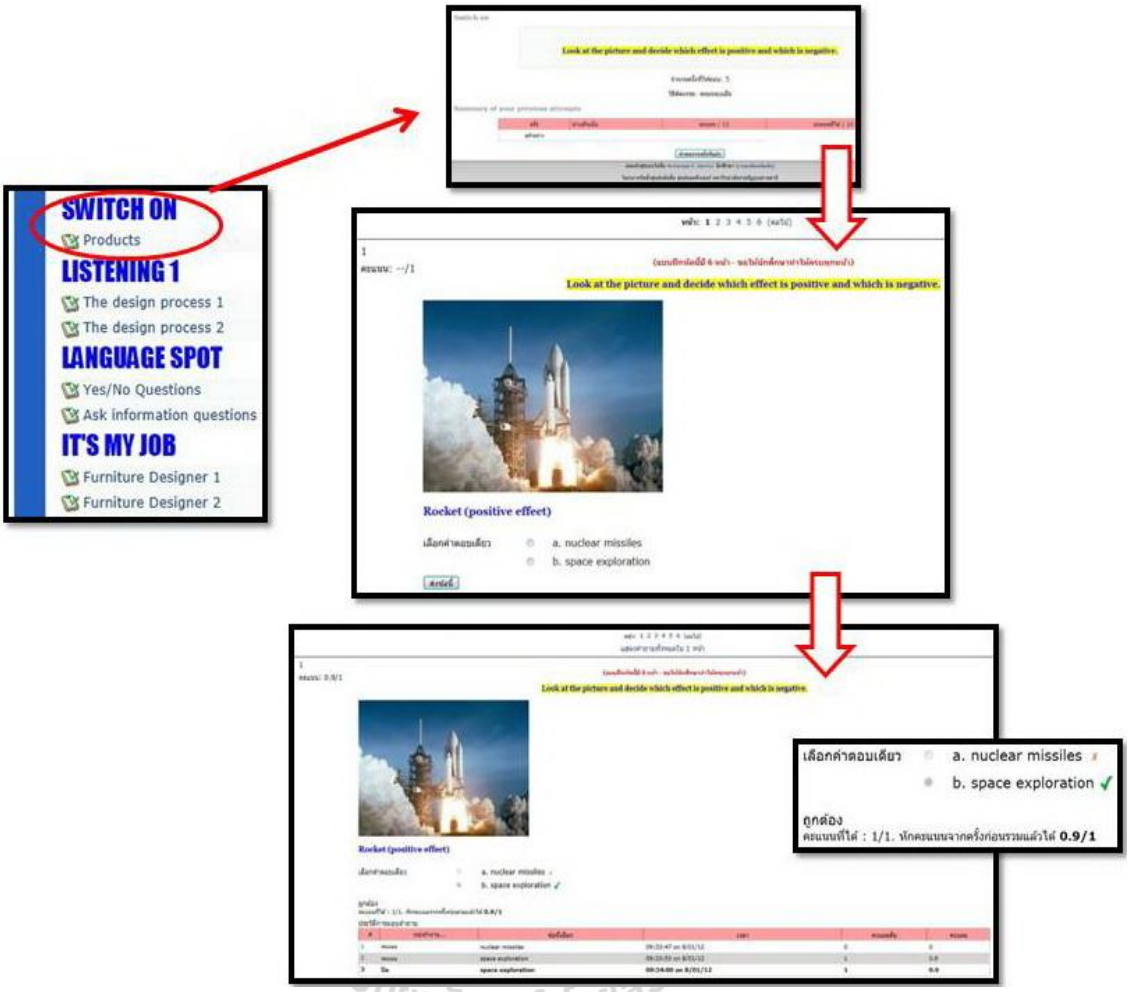
11) This part is the Glossary which students can consult anytime they struggle with new vocabulary in the lessons.



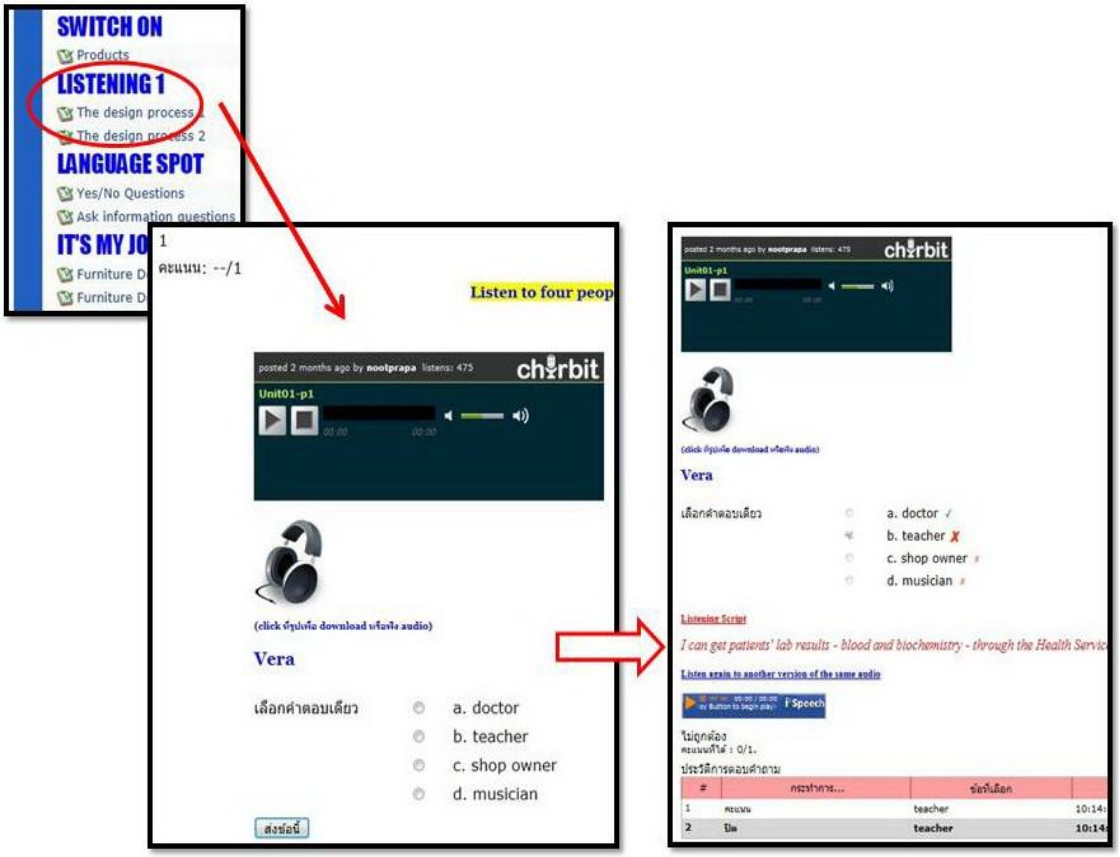
12) This shows the classroom lecture as online presentation. It is created with Scribd.



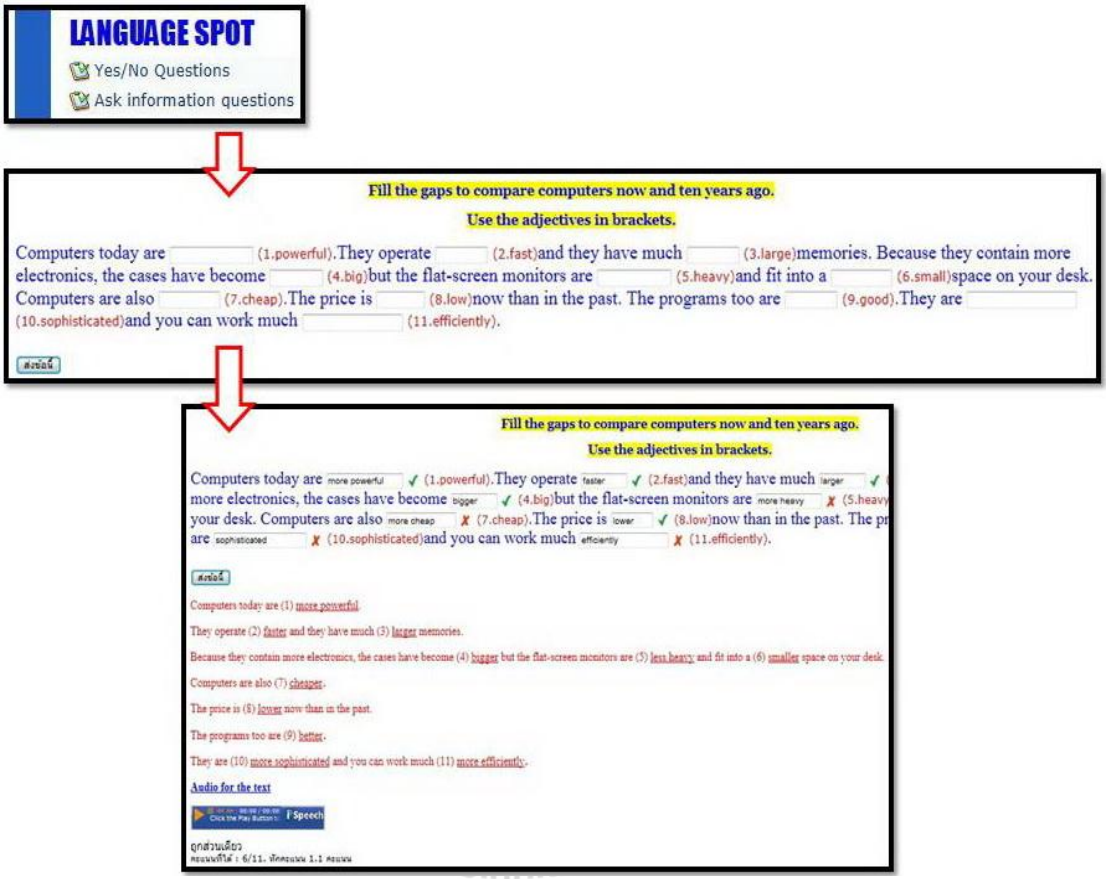
13) Example of “Switch on” with multiple-choice exercise.



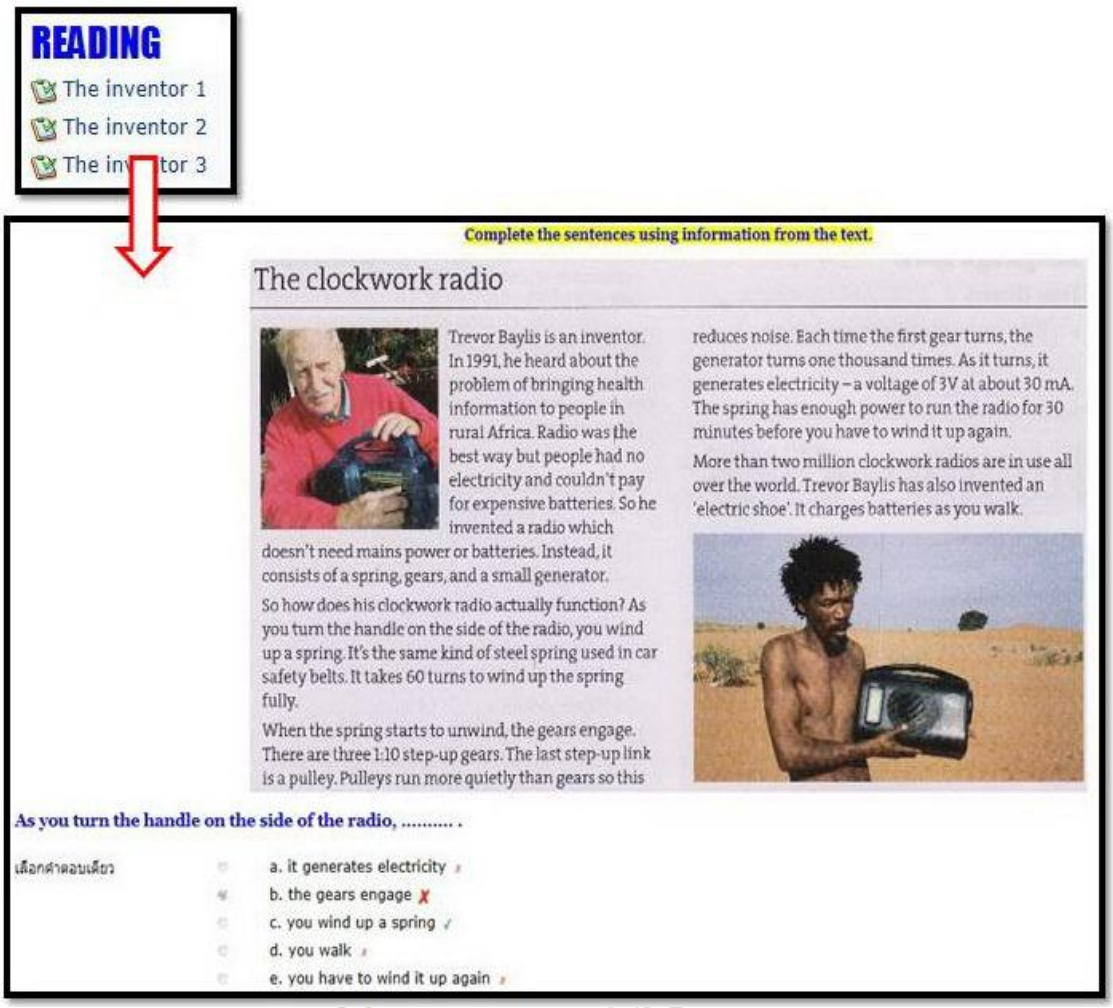
14) Example of “Listening” with online and offline audio. “Chirbit” is for online listening. The “headphone icon" is for offline audio which students can download. After students submitted the answer, they will get “iSpeech” online audio created with text-to-speech tools.



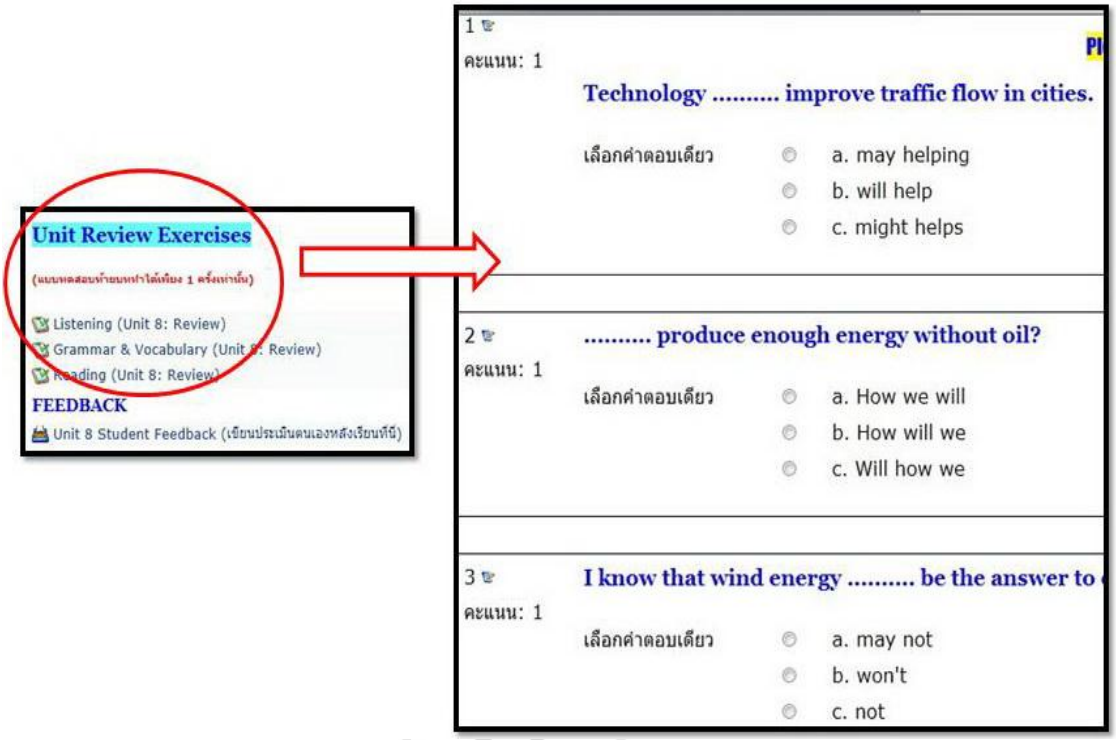
15) Example of “Language Spot” with gap-filled. After students submitted the answer, they would see the answer key with text-to-speech created from “iSpeech”.



16) Example of “Reading” with multiple choices.



17) Example of “Unit Review Exercises” with multiple-choice.



In short, this chapter proposed procedures of constructing Nutprapha BOLA model and package. There was explanation of each step in details. It also displayed images captured from English for Careers in Technology with brief explanation of the usage. The next chapter will be conclusions and recommendations for the present study.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this final chapter is to summarize the findings of the present study. The recommendations for the study and future research are also listed. The summary includes the purposes of the study, the population and samples, the instrumentation, the research procedures, and the results of the study. The following are the recommendations for the study. Suggestions for further research are shown in the final section.

6.1 Conclusions

The present study has been conducted in order to develop a Blended Online Learning Approach (BOLA) model : Nutprapha BOLA model for English for Careers in Technology for students at Ubon Ratchathani Rajabhat University. The purposes of the study were to design and develop a Nutprapha BOLA model in teaching English for Careers in Technology, to determine the efficiency of Nutprapha BOLA packages based on the 85/85 standard, to compare students' language achievements before and after using Nutprapha BOLA packages, and to explore students and teachers' opinions toward Nutprapha BOLA packages.

The population and samples in this study were divided into two main groups namely; population and samples for the try-out steps to evaluate the effectiveness of Nutprapha BOLA packages, population and samples for the experiment. The

population for the try-out steps was eighty second year students from Faculty of Industrial Technology who registered for English for Careers in Technology course in the first semester of the academic year 2011. The samples were divided into three stages; stage one for individual testing consisted of three students, stage two for small group testing consisted of nine students, and stage three for field study testing consisted of thirty students. The population for the experiment was eighty first year students from Faculty of Industrial Technology who registered for English for Careers in Technology course in the second semester in the academic year 2011. A total of forty students from this group were samples in the experiment of the study.

In the part of research procedures, the study was constructed by the researcher in the first and second semester of the academic year 2011. Nutprapha BOLA packages was constructed and designed based on Nutprapha BOLA model. The package was used to compare the students' achievement before and after using Nutprapha BOLA packages to study English for Careers in Technology. The subjects were measured for their learning proficiency by a pre-test. After the experiment was constructed, a post-test was given to all of the students. The data obtained was analyzed to find out whether the learning achievement contained significant differences. The subjects were also administered a questionnaire and semi-structured interview. In addition, the subjects who were administered a questionnaire and semi-interview included three teachers who taught the students using Nutprapha BOLA packages.

The results of the research can be summarized as follows :

1. Nutprapha BOLA model was constructed by the researcher and evaluated by experts in Educational Technology and English Language Teaching fields. The researcher was to review related literature then adapt and design the model based on

the most appropriate and relevant theories of ISD (Instructional System Design). There are five phases of the model. They are: classroom setting analysis, application design, package development, package implementation and package evaluation. The results of the study showed that Nutprapha BOLA model was rated by experts as "very appropriate" ($\overline{X}$ =4.87) to use for teaching English for Careers in Technology.

2. Nutprapha BOLA packages was proven to be effective according to the criteria 85/85 standard. Scores from the learning process and test (E1/E2) were 87.85/86.08.

3. The results of the study showed that students' English proficiency in pre-test and post-test were significantly different at $p<0.05$. It can be claimed that Nutprapha BOLA packages encouraged students to learn more effectively.

4. The students' satisfaction on learning English via Nutprapha BOLA packages indicated that they were "satisfied". In addition, the teachers' satisfaction of students' learning English via Nutprapha BOLA packages showed that they were "very satisfied".

6.2 Recommendations for the Present Study

The recommendations based on the results of the present study are as follows.

1. According to the results of the study, students were very satisfied with the useful audio and beautiful images contained in the package. However, if students access the package from outside the university with a low-speed Internet, they would experience difficulties downloading files or listening to audio online and the images did not appear properly. Therefore, the size of the file for both audios and images should be smaller. Even though students had offline versions of those files, CD-Rom or USB flash drive, listening to audio and viewing images online is more convenient.

2. According to the results of the try-out steps of the present study, students mentioned that they did not understand the instructions in English so the researcher had to add additional explanation in Thai to sections students mentioned. However, to alleviate this issue the researcher should include explanation in Thai for all instructions throughout the course because students were not English majors. It would help students to understand the intent of the exercises and optimize the learning potential. Khemthong (2006) had encountered the same problem. The scholar determined the problem was caused because the students were not English majors and thus lacked a good foundation in the language. It was found that adding a Thai version of instructions greatly reduced the problem.

3. According to the interview, students were satisfied that they could study online with the teacher's assistance. The teachers should prepare "Frequently Asked Questions (FAQ)" for students so that they do not have to consult the teacher all the time. It will help students to become use autonomous learners.

4. The data from the interview revealed that students enjoyed spending time studying online with Nutprapha BOLA packages. The teachers should encourage students to spend more time studying through Nutprapha BOLA packages not only the assignment given by the teachers, but also previewing lessons and materials before coming to the regular class.

5. The results of the present study showed that students were satisfied with practicing English skill; listening and reading, through Nutprapha BOLA packages. There should be more writing and speaking exercises for students to practice these skills because learning English effectively should integrated all of the four main skills.

6.3 Recommendations for Further Research

The following recommendations are proposed for further research as a result of the findings of the present study.

1. According to the students and teachers' satisfaction of using Nutprapha BOLA packages for learning English for Careers in Technology, the similar study should be carried out in other subjects such as English for Computer Sciences, English for Information Technology, Business English, etc. as students suggested from the interview because the system will allow them to practice new vocabulary repeatedly and encourage their autonomous learning.

2. A comparative study of an English learning package similar to Nutprapha BOLA packages and other teaching methods, such as, online collaborative learning and web-based learning using different learning platforms should be conducted.

3. A Similar research should be conducted involving students at other levels, such as fourth year students because they will need more autonomous learning blended with teacher assisted to prepare for their career fields after graduating.

4. According to the teachers' comments, they would like to use E-learning combined with regular classroom in their next semester of teaching. Therefore, an academic training course related to E-learning education should be prepared to promote and enhance teachers in their effort to practice and create their own online courses.

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APPENDIX A

The Evaluation of the Efficiency of the Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages in the Development Testing Process

The Evaluation of the Efficiency of the Blended Online Learning Approach (BOLA) Packages in the Development Testing Process

1. The detail of students' scores for the results of the Individual Testing (3 students)

Process (Exercise Scores)									
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	$\overline{X}$
1	78.59	78.22	78.25	79.98	79.88	79.33	79.87	79.33	**79.18**
2	83.25	82.10	84.26	84.12	82.25	82.47	81.59	81.22	**82.66**
3	85.12	85.10	81.45	84.11	84.22	84.22	84.56	85.12	**84.24**
								E1 =	**82.03**
Product (Test Scores)									
1	76.85	78.55	76.21	78.44	78.44	76.58	78.55	77.87	**77.69**
2	81.21	81.36	82.14	82.15	81.42	81.36	78.41	79.89	**80.99**
3	83.12	83.02	82.41	83.11	83.72	82.15	81.45	83.21	**82.77**
								E2 =	**80.48**

2. The detail of students' scores for the results of the Small Group Testing (9 students)

Process (Exercise Scores)									
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	$\overline{X}$
1	81.87	80.88	81.83	81.47	80.47	79.58	83.54	81.87	**81.44**
2	79.99	81.66	80.78	81.75	81.89	82.86	80.99	79.89	**81.23**
3	81.89	82.86	81.48	81.45	81.89	81.89	79.22	80.44	**81.39**
4	81.22	82.78	83.87	82.12	83.85	83.32	84.35	86.42	**83.49**
5	83.79	82.23	83.23	83.21	84.89	82.54	82.87	84.11	**83.36**
6	84.52	83.14	83.45	83.59	83.45	84.52	84.69	84.78	**84.02**
7	90.05	86.32	85.69	86.55	86.22	86.87	86.52	86.58	**86.85**
8	91.42	90.12	91.11	85.15	84.22	84.83	83.22	84.36	**86.80**
9	88.85	89.11	88.04	85.89	89.52	85.77	86.21	86.56	**87.49**
								E1 =	**84.01**
Product (Test Scores)									
1	79.12	80.15	80.01	80.74	80.47	79.58	80.34	80.22	**80.08**
2	79.89	78.95	78.06	80.45	81.89	82.97	79.89	78.06	**80.02**
3	80.25	82.15	81.78	80.45	80.89	77.89	78.99	78.08	**80.06**
4	81.22	80.86	80.08	80.51	80.22	81.45	82.22	83.11	**81.21**
5	81.01	81.23	83.13	80.22	82.11	81.05	82.15	82.01	**81.61**
6	81.66	83.14	83.45	82.59	83.05	82.09	82.47	82.22	**82.58**
7	83.86	82.95	84.77	83.85	84.25	83.04	83.32	84.54	**83.82**
8	84.08	84.12	85.01	85.15	84.01	84.02	84.11	84.07	**84.32**
9	85.47	85.44	85.25	83.85	85.76	85.74	86.21	85.88	**85.45**
								E2 =	**82.13**

3. The detail of students' scores for the results of the Field Study Testing (30 students)

Process (Exercise Scores)									
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	$\overline{X}$
1	82.85	83.57	82.99	81.86	81.45	82.87	84.81	82.59	**82.87**
2	83.25	82.10	84.26	84.12	82.25	82.47	81.59	81.22	**82.66**
3	84.12	83.22	81.45	82.56	83.12	83.11	82.05	82.23	**82.73**
4	81.37	80.87	83.59	84.88	83.44	85.47	83.97	83.47	**83.38**
5	81.88	82.97	83.15	83.15	83.65	83.59	83.57	83.99	**83.24**
6	83.12	83.02	82.41	83.11	83.72	82.15	83.57	83.21	**83.04**
7	85.26	85.62	84.65	84.59	84.59	84.59	84.57	84.35	**84.78**
8	84.59	86.57	85.75	86.57	87.59	85.62	85.51	84.78	**85.87**
9	85.48	85.94	87.59	86.54	85.62	86.54	85.47	83.21	**85.80**
10	83.25	84.12	84.26	84.88	84.85	83.97	84.14	83.55	**84.13**
11	85.12	85.10	81.45	84.11	84.22	84.22	84.56	85.12	**84.24**
12	85.75	85.95	84.95	85.97	84.11	85.69	87.51	86.51	**85.81**
13	85.52	85.87	85.54	85.33	86.57	85.56	85.23	86.55	**85.77**
14	85.89	84.78	85.74	86.74	85.85	89.51	85.87	86.74	**86.39**
15	85.77	86.87	85.08	86.75	85.55	86.52	86.52	87.57	**86.33**
16	86.09	86.29	85.85	86.68	86.95	85.98	86.11	85.07	**86.13**
17	86.87	87.44	86.52	86.57	86.12	85.02	86.21	85.06	**86.23**
18	86.52	87.12	86.59	85.52	86.74	86.85	85.69	86.87	**86.49**
19	86.52	86.55	87.58	86.88	88.95	87.62	86.52	85.47	**87.01**
20	87.56	87.52	87.88	89.52	87.55	87.33	87.54	88.57	**87.93**
21	89.36	89.57	87.56	88.12	88.69	88.52	88.52	87.85	**88.52**
22	90.05	90.87	89.49	88.85	89.22	91.57	89.74	89.97	**89.97**
23	91.42	90.12	91.11	88.87	88.95	89.54	87.98	88.51	**89.56**
24	92.02	91.57	92.58	91.89	89.52	88.87	88.59	87.89	**90.37**
25	89.57	90.15	91.57	89.99	88.95	89.57	90.58	91.57	**90.24**
26	91.12	90.22	89.47	88.51	89.85	89.75	88.88	90.87	**89.83**
27	90.05	89.85	88.87	92.02	95.25	90.05	86.52	86.58	**89.90**
28	91.42	90.12	91.11	89.97	88.79	91.98	90.47	92.77	**90.83**
29	91.59	92.57	92.58	88.95	91.02	90.59	92.57	89.87	**91.22**
30	92.15	91.57	89.88	88.86	90.58	89.64	89.87	92.57	**90.64**
								E1 =	**86.73**

Product (Test Scores)									
1	81.85	81.01	81.99	80.89	80.75	81.85	80.81	81.59	**81.34**
2	82.25	81.12	83.25	83.21	80.25	81.41	80.95	80.22	**81.58**
3	83.21	82.32	80.14	81.41	82.05	82.04	81.14	81.24	**81.69**
4	80.30	79.84	82.51	83.21	81.52	84.11	82.51	80.56	**81.82**
5	80.44	81.52	83.13	82.04	82.06	82.64	82.21	82.95	**82.12**
6	82.15	83.55	80.41	82.12	81.09	81.52	82.57	81.26	**81.83**
7	83.25	83.21	83.54	83.09	83.51	83.24	83.66	82.45	**83.24**
8	82.05	84.56	84.07	85.62	86.34	83.54	83.27	82.25	**83.96**
9	82.25	83.21	85.62	84.25	84.31	84.25	83.24	82.11	**83.66**
10	82.12	83.02	82.41	82.45	82.82	82.52	82.14	82.55	**82.50**
11	83.23	83.10	79.21	81.15	83.41	82.14	83.45	82.14	**82.23**
12	84.11	83.34	82.02	83.44	82.24	83.23	85.47	84.12	**83.50**
13	85.05	85.07	85.04	85.03	86.07	85.02	83.15	84.05	**84.81**
14	83.02	82.44	84.33	82.45	83.21	85.21	84.23	85.01	**83.74**
15	84.52	85.55	84.09	85.14	84.03	84.32	84.61	85.12	**84.67**
16	84.02	85.26	84.25	83.25	84.26	83.22	84.52	84.87	**84.21**
17	84.55	85.23	84.36	84.12	82.12	84.15	85.22	83.05	**84.10**
18	84.36	85.21	85.63	84.25	84.33	83.25	81.26	86.22	**84.31**
19	85.62	85.23	86.26	84.84	85.69	85.52	83.24	84.26	**85.08**
20	85.33	85.11	86.23	86.95	84.21	85.75	84.68	87.52	**85.72**
21	88.06	88.07	86.03	87.32	87.09	87.12	87.28	86.14	**87.14**
22	88.23	89.02	87.25	85.34	86.21	87.52	86.54	85.29	**86.93**
23	89.51	90.25	90.24	87.78	87.21	88.05	86.24	87.56	**88.36**
24	91.25	90.25	91.08	90.89	88.98	86.08	87.12	86.65	**89.04**
25	89.99	90.22	90.09	89.97	88.98	88.96	89.54	89.21	**89.62**
26	90.12	89.22	87.52	85.51	86.25	86.55	86.22	89.54	**87.62**
27	90.01	87.59	88.21	90.12	89.54	86.52	84.52	85.62	**87.77**
28	90.58	90.01	90.02	88.26	85.25	87.23	90.11	90.25	**88.96**
29	90.09	91.05	90.50	88.56	91.11	89.85	90.55	89.89	**90.20**
30	91.25	90.09	89.22	86.12	89.54	88.63	87.25	90.12	**89.03**
								E2 =	**85.03**

APPENDIX B

The Evaluation of the Efficiency of the Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Package in the Experiment Stage

The Evaluation of the Efficiency of the Blended Online Learning Approach (BOLA) Packages in the Experiment Stage

The detail of students' scores for the results of the Experiment (40 students)

	Process (Exercise Scores)								
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	$\overline{X}$
1	82.85	83.57	82.99	81.86	81.45	82.87	84.81	82.59	**82.87**
2	83.25	82.10	84.26	84.12	82.25	82.47	81.59	81.22	**82.66**
3	84.12	83.22	81.45	82.56	83.12	83.11	82.05	82.23	**82.73**
4	81.37	80.87	83.59	84.88	83.44	85.47	83.97	83.47	**83.38**
5	81.88	82.97	83.15	83.15	83.65	83.59	83.57	83.99	**83.24**
6	83.12	83.02	82.41	83.11	83.72	82.15	83.57	83.21	**83.04**
7	85.26	85.62	84.65	84.59	84.59	84.59	84.57	84.35	**84.78**
8	84.59	86.57	85.75	86.57	87.59	85.62	85.51	84.78	**85.87**
9	85.48	85.94	87.59	86.54	85.62	86.54	85.47	83.21	**85.80**
10	83.25	84.12	84.26	84.88	84.85	83.97	84.14	83.55	**84.13**
11	85.12	85.10	81.45	84.11	84.22	84.22	84.56	85.12	**84.24**
12	85.75	85.95	84.95	85.97	84.11	85.69	87.51	86.51	**85.81**
13	85.52	85.87	85.54	85.33	86.57	85.56	85.23	86.55	**85.77**
14	85.89	84.78	85.74	86.74	85.85	89.51	85.87	86.74	**86.39**
15	85.77	86.87	85.08	86.75	85.55	86.52	86.52	87.57	**86.33**
16	86.09	86.29	85.85	86.68	86.95	85.98	86.11	85.07	**86.13**
17	86.87	87.44	86.52	86.57	86.12	85.02	86.21	85.06	**86.23**
18	86.52	87.12	86.59	85.52	86.74	86.85	85.69	86.87	**86.49**
19	86.52	86.55	87.58	86.88	88.95	87.62	86.52	85.47	**87.01**
20	87.56	87.52	87.88	89.52	87.55	87.33	87.54	88.57	**87.93**
21	89.36	89.57	87.56	88.12	88.69	88.52	88.52	87.85	**88.52**
22	90.05	90.87	89.49	88.85	89.22	91.57	89.74	89.97	**89.97**
23	91.42	90.12	91.11	88.87	88.95	89.54	87.98	88.51	**89.56**
24	90.22	89.66	86.22	90.02	87.58	86.31	96.21	85.02	**88.91**
25	87.22	88.23	90.22	86.21	85.46	87.22	89.25	89.53	**87.92**
26	91.12	90.22	89.47	88.51	89.85	89.75	88.88	90.87	**89.83**
27	90.05	89.85	88.87	92.02	95.25	90.05	86.52	86.58	**89.90**
28	91.42	90.12	91.11	89.97	88.79	91.98	90.47	92.77	**90.83**
29	90.02	90.25	91.25	88.21	89.62	89.59	90.14	88.25	**89.67**
30	80.21	89.56	88.57	85.21	89.25	87.56	87.55	87.55	**86.93**
31	86.52	86.55	87.58	86.88	88.95	87.62	86.52	85.47	**87.01**
32	87.56	87.52	87.88	89.52	87.55	87.33	87.54	88.57	**87.93**
33	89.36	89.57	87.56	88.12	88.69	88.52	88.52	87.85	**88.52**
34	88.35	86.21	82.11	84.56	85.26	87.65	87.41	85.23	**85.85**
35	91.42	90.12	91.11	88.87	88.95	89.54	87.98	88.51	**89.56**
36	90.02	89.52	90.52	90.02	88.52	88.05	86.23	86.23	**88.64**
37	86.33	84.55	86.66	84.56	87.56	87.56	87.22	89.03	**86.68**
38	91.12	90.22	89.47	88.51	89.85	89.75	88.88	90.87	**89.83**
39	86.21	85.54	84.26	86.54	95.36	86.96	84.15	82.12	**86.39**
40	91.42	90.12	91.11	89.97	88.79	91.98	90.47	92.77	**90.83**
								E1 =	**87.85**

Product (Test Scores)									
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	$\overline{X}$
1	82.85	81.02	82.99	81.86	81.45	82.87	82.01	80.26	**81.91**
2	82.20	81.02	82.06	82.64	80.25	80.25	79.85	80.14	**81.05**
3	82.25	81.46	80.11	80.11	81.33	81.25	80.06	80.11	**80.84**
4	80.01	80.22	80.36	81.25	80.26	83.22	82.14	81.23	**81.09**
5	80.02	80.01	81.42	80.31	82.01	81.22	80.25	81.22	**80.81**
6	82.12	82.23	80.12	80.15	83.17	80.25	80.14	80.11	**81.04**
7	83.16	83.19	82.52	82.11	82.12	82.11	80.19	80.75	**82.02**
8	82.23	84.05	83.54	84.09	85.21	83.21	83.11	80.25	**83.21**
9	83.08	82.14	85.22	84.02	82.33	80.77	82.14	82.12	**82.73**
10	82.12	83.14	83.24	82.15	82.15	81.71	82.19	80.78	**82.19**
11	83.12	83.01	80.12	82.14	83.14	82.14	83.14	84.15	**82.62**
12	84.57	84.12	83.24	84.15	83.15	84.68	86.12	85.12	**84.39**
13	84.12	84.22	84.12	84.26	85.23	84.16	84.13	85.22	**84.43**
14	84.25	84.12	85.11	84.12	84.59	87.21	86.12	84.25	**84.97**
15	83.21	84.52	84.31	84.12	84.55	85.59	84.12	86.34	**84.60**
16	85.09	85.19	84.75	85.41	85.12	84.87	85.02	84.89	**85.04**
17	85.41	86.12	84.25	84.12	84.32	84.26	84.27	83.14	**84.49**
18	85.21	86.12	85.09	84.26	85.47	85.29	84.28	85.17	**85.11**
19	84.61	84.42	86.22	84.55	87.21	86.25	85.22	84.61	**85.39**
20	85.05	85.09	85.47	88.02	85.07	85.91	86.01	84.25	**85.61**
21	88.03	87.07	85.52	87.12	86.23	84.22	85.22	84.12	**85.94**
22	89.51	89.21	88.52	87.05	85.24	88.53	89.22	87.52	**88.10**
23	90.25	89.36	90.21	87.26	87.15	87.52	86.12	87.22	**88.14**
24	89.28	88.92	84.12	89.25	88.04	84.07	90.02	86.01	**87.46**
25	86.23	87.15	89.21	85.12	84.23	86.22	88.25	88.26	**86.83**
26	89.22	89.23	88.14	86.22	86.24	85.27	86.72	89.19	**87.53**
27	89.12	88.15	86.14	90.28	92.18	89.52	84.98	85.22	**88.20**
28	90.12	90.12	90.02	88.09	86.19	90.27	86.21	90.25	**88.91**
29	88.39	89.52	89.25	87.25	87.25	87.26	86.25	87.14	**87.79**
30	80.01	88.15	87.08	84.09	88.52	86.22	86.41	86.44	**85.87**
31	85.51	85.36	86.47	85.08	86.25	86.37	85.08	84.12	**85.53**
32	85.09	85.55	85.66	87.24	85.63	85.12	85.61	86.24	**85.77**
33	88.52	88.52	86.25	87.25	87.96	86.24	84.25	85.12	**86.76**
34	86.65	84.85	80.31	82.54	84.21	86.25	86.47	84.12	**84.43**
35	90.52	87.01	87.22	86.24	85.02	88.41	84.25	85.02	**86.71**
36	89.08	88.15	89.25	89.21	87.14	87.26	85.23	85.62	**87.62**
37	85.62	83.47	85.22	83.54	85.24	86.24	86.37	88.23	**85.49**
38	87.12	87.24	88.14	86.22	86.21	87.25	86.24	85.22	**86.71**
39	84.12	84.58	86.25	82.14	84.15	83.25	85.04	82.01	**83.94**
40	88.59	88.02	88.26	88.18	87.28	88.31	88.05	88.25	**88.12**
								E2 =	**86.08**

APPENDIX C

The Proficiency Pre-test and Post-test

for English for Careers in Technology

The Proficiency Pre-test and Post-test for English for Careers in Technology

A) PRE-TEST

PART 1: LISTENING

Listen to the short talk then answer the question

AUDIO

1. What is the woman's job?
   - *a. a doctor*
   - *b. a shop owner*
   - *c. a musician*
   - *d. a teacher*

Listen to Karl describing his work then answer the question 2 - 4

AUDIO

2. What does he design?
   - *a. products for home use*
   - *b. products for hospital use*
   - *c. drawing for home use*
   - *d. drawing for hospital use*
3. What two things does he think about when he's designing?
   - *a. the function of the house and how to design it*
   - *b. the function of the object and how people will use it*
   - *c. sketching and drawing the shape of the products*
   - *d. sketching and drawing the design of the products*
4. What does his work start with?
   - *a. design a kitchen*
   - *b. design a house*
   - *c. sketching the people*
   - *d. sketching the shape*

Listen to the interview, then answer the question 5 - 8

AUDIO

5. What would the man like to do when he finish the course?
   - *a. build a bridge*
   - *b. go overseas*
   - *c. start traveling*
   - *d. continue studying*
6. What kind of degree will he take?
   - *a. a master degree in Constitution Law*
   - *b. a master degree in Structural Engineer*
   - *c. a bachelor degree in Constitution Law*
   - *d. a bachelor degree in Structural Engineering*
7. What kind of structures does he wants to work on?
   - *a. The big structures such as a house*
   - *b. The big structures such as a bridge*
   - *c. The big structures such as a university*
   - *d. The big structure such as a swimming pool*

8. Why does he want to go overseas?
   a. Because he doesn't like to travel.
   b. Because he doesn't like to build a road.
   c. Because he likes to travel.
   d. Because he like to build a road.

PART 2: GRAMMAR

Choose the correct answer to complete the sentence.

9. Melting ……. liquids.
   a. is producing *b. is produced* *c. produces* *d. produce*
10. We can't use AutoCAD today because the software ……. .
   a. don't work *b. don't working*
   c. isn't working *d. isn't work*
11. How many templates ……. ?
   a. will need you *b. will you need*
   c. you will need *d. will need*
12. The metals ……. into shape by the process.
   a. is bent *b. are bent* *c. bend* *d. bent*
13. The body is made ……. a variety of components.
   a. by *b. to* *c. for* *d. from*
14. Urethane is ……. golf ball covers.
   a. used to make *b. used to making*
   c. use to make *d. use to making*
15. I ……. working with fiber-glass.
   a. am used to *b. used to* *c. am used for* *d. used for*
16. A smart car is ……. than a lorry.
   a. less powerful *b. least powerful* *c. much powerful* *d. powerful*
17. Computers ……. smaller now than thirty years ago.
   a. are much *b. much are*
   c. much more *d. more than*
18. He likes studying ……. working.
   a. more than *b. much than* *c. is more than* *d. is more*
19. A: ……. B: She works in London.
   a. When does she work? *b. Where does she work?*
   c. When is she work ? *d. Where is she work?*
20. A: ……. B: She designs mobile phones.
   a. Who did she design? *b. What did she do?*
   c. Who is she design? *d. What does she design?*
21. A: ……. B: We use plastic.
   a. Which material do you use? *b. Why do you use plastic?*
   c. How much does it weight? *d. How much does it cost?*
22. Are there any women in your class?
   a. Yes, there are 3. *b. Yes, there are 2 males.*
   c. No, there aren't any engineers. *d. No, there aren't any classes.*

23. Will you look for a job after your course?
    a. No, I will not get a job. *b. No, you will not get a job.*
    c. No, you won't. *d. Yes, I will.*

PART 3: VOCABULARY

Choose the correct word to complete the sentence.

24. Carbon emissions cause ……. .
    a. global warming *b. globalization*
    c. United Nations *d. exploration*
25. He can ……. into any company's intranet network to steal important information.
    a. scan *b. hack* *c. click* *d. type*
26. China is building a lot of ……. .
    a. population *b. pollution*
    c. global warming *d. power stations*
27. I want to work in ……. and development department to use my new ideas.
    a. research *b. relationship*
    c. subject *d. fitness*
28. We do experiments in the ……., where we keep our equipment.
    a. factory *b. labium* *c. label* *d. lab*
29. With this ..... you can go to a famous university.
    a. quantity *b. irritation*
    c. modification *d. qualification*
30. If it is elastic, you can ……. it, to make it longer.
    a. stretch *b. sketch*
    c. scratch *d. strengthen*
31. The skateboard deck is made of …….. . It can be cut with a saw.
    a. glass *b. plywood* *c. plastic* *d. rubber*
32. Everyone's fingerprints are ……. . They are all different.
    a. unique *b. unitary* *c. united* *d. unitive*
33. The camera is fitted with a motion ……. .
    a. video *b. signature* *c. sensor* *d. selector*
34. Fiber-glass is used for vaulting poles because it's light and …….. . It bends very easily.
    a. flexible *b. hard* *c. elastic* *d. brittle*
35. Rubber is very …….... . You can stretch it without breaking it.
    a. tender *b. brittle* *c. flammable* *d. elastic*
36. Smoke alarms are used to ……..... people from fire.
    a. prevent *b. educate* *c. warn* *d. call*
37. The first stage is to mix the ……. listed on the recipe card.
    a. intelligence *b. incensement*
    c. intention *d. ingredients*
38. ……. cars have two types of power, gas and battery.
    a. High Bird *b. Hybrid* *c. Hilarious* *d. Hyundai*

PART 4: READING

A: Read the headlines then match the headlines to the correct branch of technology.

39. Stem cells give patient new chance at life

a. biotechnology *b. crime* *c. defense* *d. telecommunications*

40. **Notepads replace magazines and newspapers**

a. biotechnology *b. crime* *c. defense* *d. telecommunications*

41. Navy launches newest aircraft carrier

a. biotechnology *b. crime* *c. defense* *d. telecommunications*

B: Read the description of how the device works to find the answer to the questions.

Reading 1

Caught – by a Lamp Post

Cities in the UK like London, Glasgow, and Birmingham are fitting a new device to lamp posts in areas which have a crime problem. It's called Flashcam and has been developed by an American company, Q Star. It consists of a camera with a motion sensor. If it detects a group of people in an area where there is no reason for them to be, it shouts a warning at them such as: Stop! If you are engaging in an illegal activity, your photograph will be taken. Please leave the area. If people don't move, it goes off with a very intense flash and a loud shout. They have had a positive effect in some parts of London in reducing crime and anti-social behavior.

42. What does it do?

a. It gives warnings and takes pictures in areas with crime problems.
b. It stops warnings and takes pictures in areas with crime problems.
c. It helps the policeman to catch bank robbery.
d. It helps to reduce the policeman's work.

43. How does it work?

a. It catches the thief with sensor.
b. It catches the robbery with monitor.
c. It's fitted with a gun sensor.
d. It's fitted with a motion sensor.

44. Where is it used?
    a. In areas which have a social network problem.
    b. In areas which have a crime problem.
    c. In areas which have too many people.
    d. In areas which have many supermarkets.
45. How successful is it?
    a. It has had a positive effect in some parts of London.
    b. It has not had a positive effect in some parts of London.
    c. It has had a negative effect in some parts of London.
    d. It has had both negative and positive effect in some parts of London.

Reading 2

Eyes don't Lie

The iris is the colored ring round the central part of your eye. Each one is different, which makes it perfect for security systems such as Iris-scanning.

First, your iris is scanned and the information converted to a digital file which is stored in a database. This process takes about three minutes. When you go to a high security area, you simply look at a camera which scans your iris. The result is compared with your database entry. It takes just over a second to complete the check. The system is used at airports to speed passengers through passport control and to control entry to restricted areas. Some banks use it at ATM machines instead of PINs.

Apart from the speed, the advantage is that users don't need to remember a password or key. The system can handle users wearing glasses, contact lenses, and also changes to the eye as people age. So far, it's foolproof.

46. What is the device called?
    a. Colored-ring *b. Iris-scanning*
    c. Security-system *d. Digital-file*
47. According to the text, where is it used?
    a. schools *b. hospital*
    c. police station *d. airports*
48. How does it work?
    a. The fingerprint is scanned digitally and stored in a database.
    b. The iris is scanned digitally and stored in a database.
    c. The users have to remember username and password to get through the system.
    d. The users have to scan their fingerprints and irises to store in a database.

49. What is a big advantage of the device?
    a. No battery or camera
    b. No password or key
    c. No eye or age
    d. No scan or database
50. Why is the system foolproof?
    a. It can handle Sony and Canon.
    b. It can handle dogs and cats.
    c. It can handle ATMS's and PIN's
    d. It can handle glasses and contact lenses.

B) Post-test

PART 1: LISTENING

Listen to the short talk then answer the question

AUDIO

1. What is the man's job?
    a. a doctor *b. a shop owner*
    c. a musician *d. a teacher*

Listen to Hilary describing her work then answer the question 2 - 4

AUDIO

2. What does she do?
    a. a product developer *b. a product drawer*
    c. a manufacturers designer *d. a manufacturer worker*
3. What two groups does she work with?
    a. designers and accountants *b. designers and manufacturers*
    c. manufacturers and accountants *d. manufacturers and workers*
4. What does she have to work out?
    a. the drawings *b. the costings*
    c. the designs *d. the models*

Listen to the talk, then answer the question 5 - 8

AUDIO

5. How does his work improve life in cities?
    a. It improves air quality. *b. It improves air pollution.*
    c. It improves water quality. *d. It improves water pollution.*

6. What other product does his company make?
   a. Diesel-powered generators *b. Gas-powered generators*
   c. Air-powered generators *d. Water-powered generators*
7. What kind of fuel does this product use?
   a. electricity *b. water*
   c. diesel *d. bio-gas*
8. Why might he have more opportunity to use English?
   a. His family is planning to export to other EU countries.
   b. His family is planning to import from other EU countries.
   c. His company is planning to export to other EU countries.
   d. His company is planning to import from other EU countries.

PART 2: GRAMMAR

Choose the correct answer to complete the sentence.

9. Which manufacturer ……. these tables?
   a. is make *b. is made* *c. makes* *d. make*
10. I know that wind energy ……. be the answer to our energy needs.
   a. not *b. is* *c. will not* *d. not will*
11. CDs ……. by electroforming.
   a. produce *b. produces*
   c. are produced *d. are producing*
12. What is a football made ……. ?
   a. to *b. of* *c. by* *d. at*
13. Composites ……. constructing modern airplanes.
   a. is used for *b. is used to*
   c. are used for *d. are used to*
14. ……. you install it, you must read the instructions carefully.
   a. Which *b. For* *c. Before* *d. After*
15. These monitors are ……. sensing motion.
   a. as *b. which* *c. to* *d. for*
16. When she was attacked, she used her handbag ……. a weapon.
   a. as *b. when* *c. for* *d. to*
17. Sam thinks that, Technology is ……. Geography.
   a. interesting than *b. interesting more than*
   c. more than interesting *d. more interesting than*
18. Proton M is ……. than Ariane 5.
   a. more old *b. more older* *c. older* *d. oldest*
19. Electric engines are …….. petrol ones.
   a. more than efficient *b. more efficient than*
   c. efficient than *d. efficient more than*
20. The new operating system ……. expensive than the old one.
   a. much *b. more than* *c. is much more* *d. is very*
21. The Airbus was introduced ……. .
   a. most recent *b. most recently*
   c. recently more *d. more recently*

22. A: ……. B: She moved there in 2006.
    a. When did she move there? *b. When does she move there?*
    c. Who did she move there? *d. Who does she move there?*
23. A: ……. B: I work with a team.
    a. What are you working? *b. When do you work?*
    c. Who do you work with? *d. Where is your work?*

PART 3: VOCABULARY

Choose the correct word to complete the sentence.

24. A smoke ……. is a safety device.
    a. reactor *b. detector*
    c. hacker *d. manufacturer*
25. There seem to be new ……. every day in electronics and technology.
    a. innovations *b. radiations*
    c. entertainers *d. interests*
26. We …..….. a variety of possible solutions before making a decision.
    a. evade *b. evaluate*
    c. evict *d. evolve*
27. The ……. will make the product to sell in the department store.
    a. marketer *b. researcher*
    c. manufacturer *d. customer*
28. I will graduate next year but I haven't chosen a ……. yet, to use my degree.
    a. career *b. uniform*
    c. spouse *d. semester*
29. This ……. alloy is light and strong.
    a. aluminum *b. alumna* *c. wooden* *d. gold*
30. Some rural areas do not have ……. to maintain their agricultural activities.
    a. electrobiology *b. electrification* *c. electricity* *d. elections*
31. Don't tell anyone your ……., it will let them access your account.
    a. GPS *b. PIN*
    c. ATM *d. CD-ROM*
32. There are many stages in the ……. from beginning to end.
    a. process *b. problem*
    c. promotion *d. proletariat*
33. Bike bearings are made from steel because it's ……. .
    a. hard *b. light* *c. soft* *d. flexible*
34. Kevlar doesn't wear out easily. It's ……..… .
    a. weak kneed *b. wear-resistant*
    c. worn out *d. knitted wool*
35. GPS can be used to track ……., using satellites .
    a. varmints *b. vanity*
    c. vehicles *d. volcanoes*
36. LPG is ……. gas.
    a. liquefied *b. lemonized*
    c. lovable *d. luminous*

37. Electric motors are very ……. .

a. efficient *b. effluent*
c. illegal *d. illegible*

38. The sensor can ……. obstacles, so you have time to read.

a. delete *b. detect*
c. ditch *c. doubt*

PART 4: READING

A: Read the headlines then match the headlines to the correct branch of technology.

39. **Modern bank robbers play it safe using technology**

a. biotechnology *b. crime* *c. defense* *d. telecommunications*

40. Androids are a PC in your pocket

a. civil engineering *b. information technology*
c. manufacturing *d. transport*

41. SEALAND containers make moving products easier

a. civil engineering *b. information technology*
c. manufacturing *d. transport*

B: Read the description of how the device works to find the answer to the questions.

Reading 1

Smart Gun Recognizes its Owner

The New Jersey Institute of Technology has developed a new system for hand guns called dynamic grip recognition. Sensors are fitted into the handle of the gun and trained to recognize only the owner's grip. Hand grips, like fingerprints and iris patterns, are unique. The sensors read the pressure of the grip in the first second the trigger is pressed. If it doesn't match the owner's grip, the gun will refuse to fire.

The inventors say it will prevent incidents where police have been shot with their own guns or where children have been killed playing with parent's gun. Early results from trials with New Jersey police show the system works.

42. What does the device do?
    a. It helps anyone firing a gun to protect themselves.
    b. It helps someone firing a gun to prevent an accident.
    c. It stops anyone firing a gun who is not the owner of the gun.
    d. It stops the policeman firing a gun who is the owner of the gun.
43. How does it work?
    a. The handle of the gun is fitted with sensor which measure grip pressure. The pressure is then compared with the owner's.
    b. The handle of the gun is fitted with the fingerprint. The fingerprint is then compared with the owner's.
    c. It will prevent incidents where police have been shot with their own guns.
    d. It will prevent incidents where children have been killed playing with parent's gun.
44. Where is it used?
    a. Into the handle
    b. On fire
    c. At a police station
    d. In New Jersey
45. How successful is it?
    a. Early results show that it doesn't work.
    b. Early results show that it works.
    c. It helps to prevent an accident.
    d. It reduces crimes.

Reading 2

GPS Helps Track Offenders

Offender tracking consists of a small tracking unit worn on the belt or ankle. It uses the technology of Global Positioning System (GPS) to record the wearer's movements. This data is fed to a server which matches movements with places. Some offenders are restricted to an area around their home. If they move outside that area, this is reported by email to the police. Some offenders are forbidden to enter certain areas. If they go there, this is reported automatically to the police. The system also contains details of crimes. If an offender is near the scene of a crime at the right time, a report is sent directly to the police.

46. What is the device called?
    a. GPS
    b. Offender restrictor
    c. Police report
    d. Offender tracking

47. Who uses it?

a. police *b. parents* *c. politician* *d. teacher*

48. How does it work?

a. A tracking unit records an offender's movements via GPS.
b. It forces an offender to send an email.
c. It sends a text message to police.
d. It sends a small shock to offenders if they leave the area.

49. What does the acronym GPS stand for?

a. Global Police Sentry
b. Good People Sensor
c. Global Positioning System
d. General Police System

50. What details do the system contain?

a. technology
b. police
c. E-mail
d. crime

APPENDIX D

Item Analysis for the Proficiency Test

Item Analysis for the Proficiency Test

A) Item Analysis for Pre-test & Post-test 160 items

The item analysis results presenting the level of difficulty (p) and the discrimination index (r) of the Pre-test and Post-test on English for Careers in Technology.

Items	Level of Difficulty (p)	Discrimination Index (r)	Pre-test	Post-test
1	0.65	0.15	*	
2	0.94	0.14		
3	0.82	0.11		
4	0.73	0.21		*
5	0.79	0.01	*	
6	0.72	0.23	*	
7	0.56	0.11	*	
8	0.78	0.33		
9	0.86	0.18		
10	0.63	0.19		
11	0.78	0.38		*
12	0.65	0.07		*
13	0.44	0.03		*
14	0.32	0.10	*	
15	0.59	0.17	*	
16	0.97	-0.12		
17	0.79	0.29	*	
18	0.73	0.11	*	
19	0.45	0.37		
20	0.74	0.13		
21	0.88	-0.02		
22	0.49	0.05		
23	0.11	-0.18		
24	0.69	0.39		
25	0.91	0.12		
26	0.42	-0.09		
27	0.52	0.32		*
28	0.71	0.28		*
29	0.83	0.15		*
30	0.63	0.28		*
31	0.22	0.23	*	
32	0.37	0.18		
33	0.22	0.04	*	
34	0.93	0.09		
35	0.39	0.26		*
36	0.69	0.25	*	
37	0.38	0.31		*
38	0.69	0.18	*	
39	0.46	0.33		*
40	0.19	0.10		
41	0.51	0.07	*	
42	0.55	0.14		*
43	0.25	0.32	*	

Items	Level of Difficulty (p)	Discrimination Index (r)	Pre-test	Post-test
44	0.56	0.14		*
45	0.41	0.14	*	
46	0.64	0.31		*
47	0.41	0.19		
48	0.56	0.23		
49	0.38	0.46		*
50	0.28	0.29		*
51	0.31	0.39		*
52	0.62	0.21		*
53	0.26	0.30	*	
54	0.34	0.34		*
55	0.24	-0.06		
56	0.49	0.48		
57	0.66	0.22	*	
58	0.19	0.32		*
59	0.69	0.28	*	
60	0.26	0.21		*
61	0.81	0.21	*	
62	0.67	0.30		*
63	0.79	0.30	*	
64	0.83	0.39		*
65	0.95	0.23	*	
66	0.92	0.11		
67	0.53	0.26	*	
68	0.39	0.17		
69	0.90	0.15		
70	0.76	0.26	*	
71	0.59	0.38	*	
72	0.40	0.16		*
73	0.83	0.20		
74	0.44	0.30	*	
75	0.38	0.40		*
76	0.24	0.20	*	
77	0.93	0.18		
78	0.42	0.00		*
79	0.47	0.35	*	
80	0.65	0.41		*
81	0.47	0.24	*	
82	0.60	0.36		*
83	0.41	0.38	*	
84	0.57	0.13		*
85	0.26	0.15	*	
86	0.43	0.08	*	
87	0.16	-0.03		
88	0.44	0.06		*
89	0.50	0.35	*	
90	0.56	0.27		*
91	0.32	0.31	*	
92	0.18	-0.12		
93	0.63	0.40		*
94	0.32	0.22	*	
95	0.44	0.23		*

Items	Level of Difficulty (p)	Discrimination Index (r)	Pre-test	Post-test
96	0.20	0.01	*	
97	0.31	0.20		
98	0.15	-0.30		
99	0.62	0.32	*	
100	0.44	0.25		*
101	0.81	0.40		
102	0.65	0.24		*
103	0.33	0.30	*	
104	0.51	0.17		*
105	0.73	0.20	*	
106	0.38	0.15		
107	0.61	0.25		*
108	0.74	0.16		
109	0.44	0.06		*
110	0.39	0.13		
111	0.75	0.15	*	
112	0.74	0.08	*	
113	0.42	0.12	*	
114	0.21	0.17		*
115	0.19	0.13		
116	0.51	0.24		*
117	0.44	0.28		*
118	0.53	-0.01		
119	1.00	0.00		
120	0.98	0.01		
121	0.99	-0.03		
122	0.97	0.15		
123	0.99	0.33		
124	0.97	0.04		
125	0.94	0.12		
126	0.91	0.20		
127	0.74	0.20		
128	0.50	0.15		
129	0.69	0.26		
130	0.88	0.37		
131	0.87	0.39		
132	0.44	0.27	*	
133	0.67	0.33	*	
134	0.74	0.19	*	
135	0.77	0.33	*	
136	0.87	0.25		
137	0.45	0.21		*
138	0.44	0.02		*
139	0.56	0.30		*
140	0.58	0.26		*
141	0.81	0.18		
142	0.94	0.22		
143	0.54	0.23		
144	0.86	0.26		
145	0.79	0.37		
146	0.64	0.20	*	
147	0.90	0.26	*	
148	0.39	0.30	*	

Items	Level of Difficulty (p)	Discrimination Index (r)	Pre-test	Post-test
149	0.78	0.30	*	
150	0.69	0.41	*	
151	0.23	0.07		*
152	0.80	0.04		*
153	0.37	0.19		*
154	0.78	0.32		*
155	0.56	0.07		*
156	0.64	0.18		
157	0.60	0.24		
158	0.38	0.13		
159	0.51	0.14		
160	0.51	0.20		
	Reliability (KR-20) = 0.71		**50 items**	**50 items**

B) Item Analysis for Pre-test 50 items

The item analysis results presenting the level of difficulty (p) and the discrimination index (r) of the Pre-test on English for Careers in Technology.

Items	Level of Difficulty (p)	Discrimination Index (r)	Reliability (KR-20)
1	0.65	0.15	
2	0.79	0.01	
3	0.72	0.23	**0.75**
4	0.56	0.11	
5	0.32	0.10	
6	0.59	0.17	
7	0.79	0.29	
8	0.73	0.11	
9	0.22	0.23	
10	0.22	0.04	
11	0.69	0.25	
12	0.69	0.18	
13	0.51	0.07	
14	0.25	0.32	
15	0.41	0.14	
16	0.26	0.30	
17	0.66	0.22	
18	0.69	0.28	
19	0.81	0.21	
20	0.79	0.30	
21	0.95	0.23	
22	0.53	0.26	
23	0.76	0.26	
24	0.59	0.38	
25	0.44	0.30	
26	0.24	0.20	
27	0.47	0.35	
28	0.47	0.24	
29	0.41	0.38	
30	0.26	0.15	

Items	Level of Difficulty (p)	Discrimination Index (r)	Reliability (KR-20)
31	0.43	0.08	
32	0.50	0.35	
33	0.32	0.31	
34	0.32	0.22	
35	0.20	0.01	
36	0.62	0.32	
37	0.33	0.30	
38	0.73	0.20	
39	0.75	0.15	
40	0.74	0.08	
41	0.42	0.12	
42	0.44	0.27	
43	0.67	0.33	
44	0.74	0.19	
45	0.77	0.33	
46	0.64	0.20	
47	0.90	0.26	
48	0.39	0.30	
49	0.78	0.30	
50	0.69	0.41	

C) Item Analysis for Post-test 50 items

The item analysis results presenting the level of difficulty (p) and the discrimination index (r) of the Post-test on English for Careers in Technology.

Items	Level of Difficulty (p)	Discrimination Index (r)	Reliability (KR-20)
1	0.73	0.21	
2	0.78	0.38	
3	0.65	0.07	**0.73**
4	0.44	0.03	
5	0.52	0.32	
6	0.71	0.28	
7	0.83	0.15	
8	0.63	0.28	
9	0.39	0.26	
10	0.38	0.31	
11	0.46	0.33	
12	0.55	0.14	
13	0.56	0.14	
14	0.64	0.31	
15	0.38	0.46	
16	0.28	0.29	
17	0.31	0.39	
18	0.62	0.21	
19	0.34	0.34	
20	0.19	0.32	
21	0.26	0.21	
22	0.67	0.30	
23	0.83	0.39	

Items	Level of Difficulty (p)	Discrimination Index (r)	Reliability (KR-20)
24	0.40	0.16	
25	0.38	0.40	
26	0.42	0.00	
27	0.65	0.41	
28	0.60	0.36	
29	0.57	0.13	
30	0.44	0.06	
31	0.56	0.27	
32	0.63	0.40	
33	0.44	0.23	
34	0.44	0.25	
35	0.65	0.24	
36	0.51	0.17	
37	0.61	0.25	
38	0.44	0.06	
39	0.21	0.17	
40	0.51	0.24	
41	0.44	0.28	
42	0.45	0.21	
43	0.44	0.02	
44	0.56	0.30	
45	0.58	0.26	
46	0.23	0.07	
47	0.80	0.04	
48	0.37	0.19	
49	0.78	0.32	
50	0.56	0.07	

APPENDIX E

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

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

Students' English learning achievement

Student	Pre-test	Post-test	Differences
1	38	47	9
2	27	39	12
3	28	45	17
4	24	43	19
5	29	41	12
6	32	39	7
7	35	42	7
8	26	36	10
9	33	43	10
10	34	48	14
11	21	31	10
12	42	49	7
13	39	48	9
14	22	42	20
15	26	40	14
16	27	37	10
17	29	41	12
18	25	39	14
19	28	48	20
20	23	33	10
21	26	46	20
22	25	42	17
23	26	42	16
24	35	46	11
25	39	45	6
26	35	48	13
27	40	47	7
28	38	48	10
29	42	49	7
30	41	49	8
31	26	36	10
32	32	45	13
33	28	40	12
34	42	50	8
35	30	47	17
36	31	46	15
37	31	41	10
38	29	40	11
39	32	48	16
40	33	47	14
$\bar{X}$	**31.23**	**43.33**	**12.1**
S.D.	**5.989**	**4.736**	**3.986**
N = 40	**Sig. = 0.000**	**Sig. = 0.000**	**Sig. = 0.000**

APPENDIX F

Lesson Plan

English for Careers in Technology

Lesson Plan
English for Careers in Technology

Course Description
English listening, speaking, reading and writing containing English for Specific Purposes contents.

CLASS 1: PRE-TEST

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 1-3	PRE-TEST	Introduction to LMS	

CLASS 2
UNIT 1: Technology and Society

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 4-6	**SWITCH ON** 1. Encourage a short discussion about each picture, and how the technology affects our lives. 2. Refer students again to Picture A, the rocket. Ask: Does this have a mainly positive or negative effect on our lives? 3. Encourage a short discussion, and get students to consider both sides, see example: Positive effect: Space exploration Negative effect: nuclear missiles 4. Get students to do the	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to	

	matching exercise. 5. Encourage stronger students to produce fuller answers. (See presentation) **LISTENING** *Technology & Work* 6. Before listening, discuss the meaning of the following terms with students: Internet and Intranet. Show a credit or debit card to elicit credit card and debit card. 7. Play the whole recording through once 8. Ask students to match the people to the jobs. 9. Tell students to listen again and decide if the speaker thinks the technology is positive, or negative, or both 10. Play the recording for "shop owner" again. 11. Put students in pairs to write down what he says. 12. Then let them check their answers with the Listening Script **LANGUAGE SPOT** *Comparisons with adjectives and adverbs* 13. Check students' understanding the difference between adjectives and adverbs. 14. Ask them to make simple sentences using "fast, early, high and late" as both adverbs and adjectives. For example: This is a fast train (adjective), The train goes very fast (adverb). 15. Check students' understanding to the information given in the table. 16. Get students to make some sentences orally comparing the two planes using comparative adjective.	demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

	17. Ask students to do exercise in pair. **READING** *Branches of technology* 18. Check students' understanding of the new words. 19. Put students to work in pair. **PRONUNCIATION** Word stress 20. Get students to listen to the words and mark the stress syllables.		

CLASS 3
UNIT 2: Studying Technology

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 7-9	**SWITCH ON** *The Course of Alec Hammond* 1. Give students limit time to read the text quickly, then answer the questions. 2. Discuss the answers with students **LISTENING** *The Course* 3. Do the exercise before listening. 4. Suggest students that the exercise will help familiarize them with the timetable. 5. Play Part 1 of the interview. 6. Play Part 2 of the interview. 7. Before playing Part 3, get students to predict the answer first. 8. Play Part 3 of the interview. 9. Get students to write their own timetable in English. **LANGUAGE SPOT** *Present Simple & Present Continuous* 10. Before doing the exercise, check that students know which tenses to use. 11. Get students to write down the answer to the questions based on their own timetables.	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each	

	PRONUNCIATION *Strong and weak forms of auxiliary verbs* 12. Play the recording and discuss the examples. 13. Ask students to work in pair, to ask and answer each other. 14. Make sure that students use the weak form in the questions, and the strong form in the answers. **PROBLEM-SOLVING** *Branches of Technology* 15. Get students to do the exercise individually first, then discuss their decisions with their group. 16. Encourage students to use the sentences as model for their explanations.	exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 4
UNIT 3: Design

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 10-12	**SWITCH ON** *Products* 1. Get students to discuss the products in pairs. 2. Get the pairs to report their ideas to the class. **LISTENING 1** *The Design Process* 3. Discuss an item from Switch on before listening. 4. Ask students how they would design it. 5. Ask students to predict some of the answers to the exercise. 6. Play the recording and check their answers. **LANGUAGE SPOT** *Yes/No Questions* 7. Get students to look at the questions in Listening. 8. Get students to ask Yes/No	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:***	

	questions about the items. 9. Point out that the Wh- question word comes at the beginning, even where it is the object of the sentence. 10. Ask students to complete the questions and ask them to say them out loud. **IT'S MY JOB** *Furniture Designer* 11. Remind students of the design brief from Listening. 12. Explain each the item. 13. Check that students understand the terms. 14. Get students to do exercise. **LISTENING 2** *Working with Design* 15. Get students to do the exercise individually, using Glossary to check their answers. 16. Play the recording to the class and get students to note down the answers.	1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 5
UNIT 4: Technology in Sport

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 13-15	**SWITCH ON** *A Mountain Bike* 1. Put students into small groups to do the exercise. 2. Make sure students understand the words in the table. 3. Explain or ask students to guess any unknown items. 4. Suggest students to use Glossary to help during doing the exercise. **IT'S MY JOB** *Bike Maker* 5. Put students into pairs to discuss the questions, then get students to read the text. 7. After students finish reading individually, they can complete the table individually or in pairs.	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise	

	LANGUAGE SPOT *Used to, Used for & Made of, Made from* 8. Get students to work in pair to discuss the mistakes in the structures used in the sentences and correct them. 9. Students make sentences from the table. 10. Ask students to use their own knowledge to complete the chart individually. **PRONUNCIATION** *Intonation for questions* 11. Remind students of the difference between Wh- questions and Yes/No questions. 12. Get students to mark the correct arrows on the emphasized word in the questions. **VOCABULARY** *Describing materials* 13. Before doing the exercise, refer back to the terms in previous exercises. 14. Suggest students to check their work using the Glossary. **LISTENING** *Exchanging Information* 15. Get students to listen to the conversation and do the exercise.	individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 6
UNIT 5: Appropriate Technology

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 16-18	**SWITCH ON** *Mechanism* 1. Encourage students to discuss the diagram in pairs. 2. Ask them to write down their answers. 3. Play the recording, students use their notes to answer the questions. **READING** *The Inventor* 4. Get students to read the text. 5. Discuss about what they have already known about the inventor.	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic	

	6. Ask students to read the text again individually and label the diagram. **LANGUAGE SPOT** *Time Clauses* 7. Discuss and point out the rules of Time Clauses 8. Get students to do exercise individually or in pairs. **PROBLEM-SOLVING** *The Stirling Engine* 9. Ask students to do the exercise individually. 10. Get students to discuss the question in pairs. **PRONUNCIATION** *Numbers and Quantities* 11. Play the recording after getting students read out each item. 12. Play the recording again and get students to write them down. 13. Play the recording one more time, and let students to finish their exercise. **VOCABULARY** *Describing Motion* 14. Discuss and point out the rules of using adjectives describing direction of motion from the reading text. 15. Get students to practice the words in pairs.	they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 7
UNIT 6: Crime-fighting and Security

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 19-21	**SWITCH ON** *Police Equipment* 1. Ask students to attempt to name items of police officer's equipment from their knowledge. **LISTENING** *Crime-fighting Equipment*	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students	

	2. Ask students to complete column A while playing the recording once without pausing. 3. Discuss their answer and check that they have the correct items of equipment. 4. Play the complete text again while students complete column B. **LANGUAGE SPOT** *Describing Function* 5. Refer students to the Grammar Reference in the book for language points. 6. Discuss the examples with the class. **VOCABULARY** *-proof, -resistant, -tight* 7. Discuss the examples with students. 8. Get students to do the exercise and check their answers in small groups. **READING** *Crime-fighting Device* 9. Get students to work in pairs. 10. Ask students to discuss the titles of the text without looking at the texts. 11. Get each student to read the text and do the exercise in pairs.	review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 8
UNIT 7: Manufacturing

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 22-24	**SWITCH ON** *Materials & Process* 1. Discuss about the difference between a process and a product.	1. Present the unit on LMS UBRU using projector to the class.	

	2. Get students to write materials from the list in the center column. 3. Discuss their answers. **IT'S MY JOB** *(Listening)* *A Manufacturing Engineer* 4. Before listening, get student to answer the questions from their general knowledge. 5. Play the recording and get students to do exercises in pairs. 6. Play the recording again, and students complete their table individually. **LANGUAGE SPOT** *Present Passive (How to make bread)* 7. Check students' understanding by doing item 1 together. 8. Get students to write a sentence for each stage in the form of a simple paragraph based on the information given earlier. **READING** *Modern Manufacturing Processes* 9. Ask students to work in group of three. 10. Get each student to read a different text, then tell the rest of the group how their process works. 11. Get students to work individually and complete the tables for the three texts.	2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the notes should be taken for future development.	

CLASS 9
UNIT 8: Transport

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 25-27	**SWITCH ON** *Transportation* 1. Get students to identify the forms of transport. 2. Discuss about some of their interesting features. 3. Ask students to work in small group to brainstorm a list of other type of transport. 4. Get each group report back to the class. **READING** *The Car of the Future* 5. Before student look at the reading text, get them to study the diagram and discuss the questions. 6. Ask students to note down their answers. 7. After students read the text, get them to check their answers to the pre-reading question. 8. Get students to do the exercise individually, and compare their answers in pairs. **IT'S MY JOB** *(Listening)* *A Mechanical Engineer* 9. Play the recording once and get students to note down as many answers as possible. 10. Play the recording again and get them to complete the exercise. **LANGUAGE SPOT** *Prediction: will, may, might* 11. Refer to the information in the Grammar Reference. 12. Discuss about their usage. 13. Get students to do the exercise individually. 14. Encourage students to check their answers in group of three. **PRONUNCIATION** *Corrective stress*	1. Present the unit on LMS UBRU using projector to the class. 2. While teaching in class, teacher can refer back to the unit on LMS UBRU to help students review knowledge they have already studied. 3. Teacher will pick one exercise on LMS UBRU related to the topic they are studying to demonstrate to class. 4. Assign students to finish each exercise individually as homework. ***Suggestion:*** 1. If computer room is available, move students there, then teacher can get students to do each exercise on LMS UBRU after practicing orally in class. 2. If computer room is not available, teacher should prepare a laptop with projector to display and demonstrate each exercise regularly during teaching. 3. After class, teacher should request feedback and discuss issues and utilization of LMS UBRU with students and the	

	15. Play the example, then ask students to answer in pairs. 16. Get students to correct the statement individually. 17. Get students to listen and practice where necessary. **PROBLEM-SOLVING** *Less Common Forms of Transportation* 18. Get students to discuss the exercise in pairs. 19. Get students to continue discussing in pairs.	notes should be taken for future development.	

CLASS 10: POST-TEST

Class/ Activities	Regular Class Activities	Online Activities	Teacher's Notes
Period 28-30	POST-TEST		

APPENDIX G

Questionnaire of Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology

(English Version)

Questionnaire of Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology

This questionnaire is designed to gather information about students' satisfaction toward learning English via Nutprapha BOLA packages. The questionnaire is divided into 2 parts.

Part 1: Personal Information

Part 2: Satisfaction toward learning English using Nutprapha BOLA package

<u>Part 1</u>: Personal Information
Instruction: Please put a tick (✓) in the box provided for the item you choose.

1. Name ……

2. Gender ☐ Male ☐ Female

3. Major ……..

4. Year of study ☐1st year ☐ 2nd year ☐ 3rd year ☐ 4th year ☐ Others ……..

<u>Part 2</u>: Satisfaction toward learning English using Nutprapha BOLA packages
Instruction: Read each item in the questionnaire, then make a check mark (✓) in a rating box which best describes your opinion about each statement.

5 = Strongly agree
4 = Agree
3 = Neutral
2 = Disagree
1 = Strongly disagree

Statements		Rating Scales				
		5	4	3	2	1
1	Learning English via Nutprapha BOLA packages help create an independent learning atmosphere.					
2	Learning English via Nutprapha BOLA packages have no limit of places. You can learn anywhere.					
3	Learning English via Nutprapha BOLA packages have no limit of time. You can learn anytime.					
4	Learning English via Nutprapha BOLA packages can save time and cost in traveling to the learning place.					
5	Learning English via Nutprapha BOLA packages help enhance learner-teacher interaction.					
6	Learning English via Nutprapha BOLA packages help learner-learner interaction.					
7	Learning English via Nutprapha BOLA packages can help getting academic information from teacher and university quickly.					
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.					
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.					
10	Learning English with Nutprapha BOLA packages are contemporary.					
11	Nutprapha BOLA packages have clear contents on the website.					
12	Nutprapha BOLA packages have compatibility of contents and exercises.					
13	Learning via Nutprapha BOLA packages are convenient for choosing each lesson to learn.					
14	Learning via Nutprapha BOLA packages are convenient to review the lesson outside the classroom.					
15	Learning via Nutprapha BOLA packages are convenient to download and turn-in assignment.					
16	Learning via Nutprapha BOLA packages are convenient to communicate with teachers and classmates outside the classroom.					
17	Nutprapha BOLA packages are suitable for student-centered learning.					
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.					

Thank you for your cooperation.

APPENDIX H

Questionnaire of Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology

(Thai Version)

แบบสอบถามความพึงพอใจของนักศึกษาที่มีต่อการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ สำหรับการเรียนภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

แบบสอบถามนี้เป็นแบบสอบถามเพื่อรวบรวมข้อมูลเกี่ยวกับความพึงพอใจของนักศึกษาต่อการเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ แบบสอบถามแบ่งออกเป็น 2 ส่วน คือ ตอนที่ 1: ข้อมูลส่วนตัว

ตอนที่ 2: ความคิดเห็นต่อการเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ

<u>ตอนที่ 1</u>: ข้อมูลส่วนตัว

คำชี้แจง: ให้นักเรียนเลือกข้อที่ถูกต้องกับความเป็นจริงที่สุด

1. ชื่อ ……..

2. เพศ ☐ชาย ☐หญิง

3. วิชาเอก …….

4. ชั้นปี ☐ ชั้นปีที่ 1 ☐ ชั้นปีที่ 2 ☐ ชั้นปีที่ 3 ☐ ชั้นปีที่ 4

☐ อื่น ๆ .....

<u>ตอนที่ 2</u>: ความพึงพอใจต่อการเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ

คำชี้แจง: ให้ทำเครื่องหมาย (✓) ในข้อที่นักเรียนเห็นด้วยมากที่สุด

5 = เห็นด้วยมาก

4 = เห็นด้วย

3 = เป็นกลาง

2 = ไมเห็นด้วย

1 = ไม่เห็นด้วยน้อย

ข้อความ		ระดับความเห็น				
		5	4	3	2	1
1	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยสร้างบรรยากาศการเรียนรู้อิสระ					
2	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ไม่จำกัดสถานที่เรียน สามารถเรียนได้ทุกที่					
3	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจไม่จำกัดเวลาเรียนรู้ สามารถเรียนรู้ได้ทุกเวลา					
4	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยประหยัดเวลาและค่าใช้จ่ายในการเดินทาง					
5	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้ผู้สอนและผู้เรียนมีปฏิสัมพันธ์กันมากขึ้น					
6	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาและเพื่อนร่วมชั้นมีปฏิสัมพันธ์กันมากขึ้น					
7	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาสามารถรับข้อมูลข่าวสารจากผู้สอนเกี่ยวกับบทเรียนที่กำลังศึกษาอยู่ได้สะดวกรวดเร็วขึ้น					
8	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักเรียนสามารถแบ่งปันความรู้กับเพื่อนร่วมชั้นได้อย่างมีประสิทธิภาพและสะดวกรวดเร็วขึ้น					
9	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะสำหรับสภาพสังคมและเศรษฐกิจในปัจจุบัน					
10	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีความทันสมัย					
11	ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีเนื้อหาที่ชัดเจน					
12	ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีความสัมพันธ์กับแบบฝึกหัดเพื่อการฝึกทักษะทางภาษาเป็นอย่างดี					
13	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ สามารถเลือกบทเรียนที่ต้องการศึกษาก่อนหลังได้ตามความพอใจ					
14	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ สามารถทบทวนบทเรียนนอกชั้นเรียนได้สะดวก					
15	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ สามารถดาวน์โหลดแหล่งความรู้หรือแบบฝึกหัดและส่งการบ้านผ่านระบบได้สะดวก					

ข้อความ		ระดับความเห็น				
16	นักเรียนสามารถติดต่อสื่อสารกับครูผู้สอนและเพื่อนร่วมชั้นนอกเวลาเรียนปกติผ่านระบบของ ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ได้สะดวก					
17	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะกับการเรียนรู้ด้วยตนเอง					
18	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะกับการเรียนภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี					

ขอขอบคุณที่ให้ความร่วมมือ

APPENDIX I

Questionnaire of Teachers' Satisfaction toward Students' Learning English for Careers in Technology using Nutprapha BOLA Packages

(English Version)

Questionnaire of Teachers' Satisfaction toward Students' Learning English for Careers in Technology using Nutprapha BOLA Packages

This questionnaire is designed to gather information about teachers' satisfaction toward students' learning English for Careers in Technologoy using Nutprapha BOLA packages. The questionnaire is divided into 2 parts.

Part 1: Personal Information

Part 2: Satisfaction toward student's learning English using Nutprapha BOLA packages

<u>Part 1</u>: Personal Information
Instruction: Please put a tick (✓) in the box provided for the item you choose.

1. Name ……

2. Gender ☐ Male ☐ Female

3. Education Degree …….

4. Teaching Experiences ☐ Less than 1 year ☐ 1-5 years
☐ 6-10 years ☐ More than 10 years

<u>Part 2</u>: Satisfaction toward students' learning English using Nutprapha BOLA packages

Instruction: Read each item in the questionnaire, then make a check mark (✓) in a rating box which best describes your opinion about each statement.

5 = Strongly agree
4 = Agree
3 = Neutral
2 = Disagree
1 = Strongly disagree

	Statements	Rating Scales				
		5	4	3	2	1
1	Learning English via Nutprapha BOLA packages help students to create an independent learning atmosphere.					
2	Learning English via Nutprapha BOLA packages have no limit of places. Students can learn anywhere.					
3	Learning English via Nutprapha BOLA packages have no limit of time. Students can learn anytime.					
4	Learning English via Nutprapha BOLA packages help students to save time and cost in traveling to the learning place.					
5	Learning English via Nutprapha BOLA packages help students to enhance learner-teacher interaction.					
6	Learning English via Nutprapha BOLA packages help learner-learner interaction.					
7	Learning English via Nutprapha BOLA packages help students getting academic information from teacher and university quickly.					
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.					
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.					
10	Learning English with Nutprapha BOLA packages are contemporary.					
11	Nutprapha BOLA packages have clear contents on the website.					
12	Nutprapha BOLA packages have compatibility of contents and exercises.					
13	Learning via Nutprapha BOLA packages are convenient for choosing each lesson to learn.					
14	Learning via Nutprapha BOLA packages are convenient for students to review the lesson outside the classroom.					
15	Learning via Nutprapha BOLA packages are convenient for students to download and turn-in assignment.					
16	Learning via Nutprapha BOLA packages are convenient for students to communicate with teachers and classmates outside the classroom.					
17	Nutprapha BOLA packages are suitable for student-centered learning.					
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.					

Thank you for your cooperation.

APPENDIX J

Questionnaire of Teachers' Satisfaction toward Students' Learning English for Careers in Technology using Nutprapha BOLA Packages

(Thai Version)

แบบสอบถามความพึงพอใจของอาจารย์ผู้สอนต่อการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ของนักศึกษา ในวิชาภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี

แบบสอบถามนี้เป็นแบบสอบถามเพื่อรวบรวมข้อมูลเกี่ยวกับความพึงพอใจของอาจารย์ผู้สอนต่อการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจของนักศึกษา ในวิชาภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี แบบสอบถามแบ่งออกเป็น 2 ส่วนคือ

ตอนที่ 1: ข้อมูลส่วนตัว

ตอนที่ 2: ความพึงพอใจต่อการใช้ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจของนักศึกษา

<u>ตอนที่ 1</u>: ข้อมูลส่วนตัว

คำชี้แจง: โปรดเลือกข้อที่ถูกต้องกับความเป็นจริงที่สุด

1. ชื่อ ……..

2. เพศ ☐ชาย ☐หญิง

3. วุฒิการศึกษา ……..

4. ประสบการณ์การสอน ☐น้อยกว่า 1 ปี ☐ 1-5 ปี ☐ 6-10 ปี ☐ มากกว่า 10 ปี

<u>ตอนที่ 2</u>: ความพึงพอใจต่อการเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ

คำชี้แจง: ให้ทำเครื่องหมาย (✓) ในข้อที่นักเรียนเห็นด้วยมากที่สุด

5 = เห็นด้วยมาก

4 = เห็นด้วย

3 = เป็นกลาง

2 = ไมเห็นด้วย

1 = ไม่เห็นด้วยมาก

ข้อความ		ระดับความเห็น				
		5	**4**	**3**	**2**	**1**
1	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยสร้างบรรยากาศการเรียนรู้อิสระให้กับนักศึกษา					
2	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ไม่จำกัดสถานที่เรียน นักศึกษาสามารถเรียนได้ทุกที่					
3	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ไม่จำกัดเวลาเรียนรู้ นักศึกษาสามารถเรียนรู้ได้ทุกเวลา					
4	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาสามารถประหยัดเวลาและค่าใช้จ่ายในการเดินทาง					
5	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้ผู้สอนและผู้เรียนมีปฏิสัมพันธ์กันมากขึ้น					
6	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาและเพื่อนร่วมชั้นมีปฏิสัมพันธ์กันมากขึ้น					
7	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาสามารถรับข้อมูลข่าวสารจากผู้สอนเกี่ยวกับบทเรียนที่กำลังศึกษาอยู่ได้สะดวกรวดเร็วขึ้น					
8	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ช่วยให้นักศึกษาสามารถแบ่งปันความรู้กับเพื่อนร่วมชั้นได้อย่างมีประสิทธิภาพและสะดวกรวดเร็วขึ้น					
9	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะสำหรับสภาพสังคมและเศรษฐกิจในปัจจุบัน					
10	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีความทันสมัย					
11	ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีเนื้อหาที่ชัดเจน					
12	ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ มีความสัมพันธ์กับแบบฝึกหัดเพื่อการฝึกทักษะทางภาษาเป็นอย่างดี					

ข้อความ		ระดับความเห็น				
13	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ นักศึกษาสามารถเลือกบทเรียนที่ต้องการศึกษาก่อนหลังได้ตามความพอใจ					
14	การเรียนภาษาอังกฤษด้วยชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ นักศึกษาสามารถทบทวนบทเรียนนอกชั้นเรียนได้สะดวก					
15	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ นักศึกษาสามารถดาวน์โหลดแหล่งความรู้หรือแบบฝึกหัดและส่งการบ้านผ่านระบบได้สะดวก					
16	นักศึกษาสามารถติดต่อสื่อสารกับครูผู้สอนและเพื่อนร่วมชั้นนอกเวลาเรียนปกติผ่านระบบชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ ได้สะดวก					
17	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะกับการเรียนรู้ด้วยตนเอง					
18	การเรียนภาษาอังกฤษด้วย ชุดแบบเรียนออนไลน์แบบผสมผสาน: นุชประภาโบลาแพคเกจ เหมาะกับการเรียนภาษาอังกฤษในงานอาชีพด้านเทคโนโลยี					

ขอขอบคุณที่ให้ความร่วมมือ

APPENDIX K

An Evaluation Form of

Blended Online Learning Approach (BOLA) Model:

Nutprapha BOLA Model for the Experts in

Educational Technology and English Language Teaching

An Evaluation Form of
Blended Online Learning Approach (BOLA) Model:
Nutprapha BOLA Model for the Experts in
Educational Technology and English Language Teaching

Instruction*: Please read each item in the form, then make a check mark (/) in a rating box which best describes your opinion about each statement.*

5 = strongly agree

4 = agree

3 = neutral

2 = disagree

1 = strongly disagree

Statements	Rating Scales				
	5	4	3	2	1
1. Each component in Nutprapha BOLA model has clear function and connection to overall system.					
2. The 5 steps of Nutprapha BOLA model; Analysis, Design, Development, Implementation, Evaluation phase are clear and easy to implement in teaching English for Careers in Technology. (Please comments to each steps below, if any)					
3. Nutprapa BOLA model is appropriate to use in teaching English for Careers in Technology.					
4. Nutprapha BOLA model is appropriate to use in Blended Online Learning classroom setting.					
5. Nutprapha BOLA model has sufficient flexibility to be effective in teaching and/or learning at university level.					

Comments ……..

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(…….)

……./ ……../ …….

APPENDIX L

An Evaluation Form of Questionnaires for Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology by the Experts in English Language Teaching Field

An Evaluation Form of Questionnaires for Students' Satisfaction toward using Nutprapha BOLA Packages for Learning English for Careers in Technology by the Experts in English Language Teaching Field

Instruction: *Please read each item in the form, then make a check mark (✓) in a rating box which best describes your opinion about each statement*

+1 = Acceptable

0 = Questionable

-1 = Unacceptable

Item	Evaluation List	Correctness			Appropriateness			Relevant		
		+1	0	-1	+1	0	-1	+1	0	-1
1	Learning English via Nutprapha BOLA packages help create an independent learning atmosphere.									
2	Learning English via Nutprapha BOLA packages have no limit of places. You can learn anywhere.									
3	Learning English via Nutprapha BOLA packages have no limit of time. You can learn anytime.									
4	Learning English via Nutprapha BOLA packages can save time and cost in traveling to the learning place.									
5	Learning English via Nutprapha BOLA packages help enhance learner-teacher interaction.									
6	Learning English via Nutprapha BOLA packages help learner-learner interaction.									
7	Learning English via Nutprapha BOLA packages can help getting academic information from teacher and university quickly.									
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.									
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.									
10	Learning English with Nutprapha BOLA packages are contemporary.									
11	Nutprapha BOLA packages have clear contents on the website.									
12	Nutprapha BOLA packages have compatibility of contents and exercises.									
13	Learning via Nutprapha BOLA packages are convenient for choosing each lesson to learn.									
14	Learning via Nutprapha BOLA packages are convenient to review the lesson outside the classroom.									

Item	Evaluation List	Correctness			Appropriateness			Relevant		
		+1	0	-1	+1	0	-1	+1	0	-1
15	Learning via Nutprapha BOLA packages are convenient to download and turn-in assignment.									
16	Learning via Nutprapha BOLA packages are convenient to communicate with teachers and classmates outside the classroom.									
17	Nutprapha BOLA packages are suitable for student-centered learning.									
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.									

Comments

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(…….)

……/……/……

APPENDIX M

An Evaluation Form of Questionnaires for Teachers' Satisfaction toward Students' Learning English using Nutprapha BOLA Packages for English for Careers in Technology by the Experts in English Language Teaching Field

An Evaluation Form of Questionnaires for Teachers' Satisfaction toward Students' Learning English using Nutprapha BOLA Packages for English for Careers in Technology by the Experts in English Language Teaching Field

Instruction: *Please read each item in the form, then make a check mark (✓) in a rating box which best describes your opinion about each statement*

+1 = Acceptable

0 = Questionable

-1 = Unacceptable

Item	Evaluation List	Correctness			Appropriateness			Relevant		
		+1	0	-1	+1	0	-1	+1	0	-1
1	Learning English via Nutprapha BOLA packages help students to create an independent learning atmosphere.									
2	Learning English via Nutprapha BOLA packages have no limit of places. Students can learn anywhere.									
3	Learning English via Nutprapha BOLA packages have no limit of time. Students can learn anytime.									
4	Learning English via Nutprapha BOLA packages help students to save time and cost in traveling to the learning place.									
5	Learning English via Nutprapha BOLA packages help students to enhance learner-teacher interaction.									
6	Learning English via Nutprapha BOLA packages help learner-learner interaction.									
7	Learning English via Nutprapha BOLA packages help students getting academic information from teacher and university quickly.									
8	Learning English via Nutprapha BOLA packages, students can distribute knowledge to classmates more quickly and effectively.									
9	Learning English via Nutprapha BOLA packages are suitable for social conditions and current economic situation.									
10	Learning English with Nutprapha BOLA packages are contemporary.									
11	Nutprapha BOLA packages have clear contents on the website.									
12	Nutprapha BOLA packages have compatibility of contents and exercises.									
13	Learning via Nutprapha BOLA packages are convenient for choosing each lesson to learn.									

Item	Evaluation List	Correctness			Appropriateness			Relevant		
		+1	0	-1	+1	0	-1	+1	0	-1
14	Learning via Nutprapha BOLA packages are convenient for students to review the lesson outside the classroom.									
15	Learning via Nutprapha BOLA packages are convenient for students to download and turn-in assignment.									
16	Learning via Nutprapha BOLA packages are convenient for students to communicate with teachers and classmates outside the classroom.									
17	Nutprapha BOLA packages are suitable for student-centered learning.									
18	Nutprapha BOLA packages are suitable for learning English for Careers in Technology.									

Comments

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(…….)

……/……../……

APPENDIX N

The Guided Questions of Semi-structured Interview

The Guided Questions of Semi-structured Interview

Questions for students

1. Do you like Nutprapha BOLA packages? If you like it, what do you like most during learning English via Nutprapha BOLA packages?
2. Do you think Nutprapha BOLA packages help to improve your English learning skills? Why? Why not?
3. What do you not like the most during learning English via Nutprapha BOLA packages?
4. Would you like to learn other English course through any E-learning system that similar to Nutprapha BOLA packages next time? If so, what contents or subjects you would like to learn?

Questions for teachers

1. Do you like Nutprapha BOLA packages? Why? Why not?
2. Do you think Nutprapha BOLA packages help students to improve their English learning skills? Why? Why not?
3. What do you not like the most about Nutprapha BOLA package?
4. Would you like to use Nutprapha BOLA packages in your classroom? If yes, which class or subject you want to use with?

APPENDIX O

Interview Scripts

Semi-structured Interview (STUDENTS)

1. Do you like the Nutprapha BOLA packages? If you like it, what do you like most while learning English via the Nutprapha BOLA packages?

A. Using the Nutprapha BOLA packages to learn English is fun.

Students	Answers
S1	Yes, I like Nutprapha BOLA packages. I like using the package to learn English very much. I've never experienced an E-learning system like this before. It's new for me but it's also fun and very useful. What I like most about Nutprapha BOLA packages are the images in the lessons because they helped me to understand more about new vocabulary.
S2	Yes, I like Nutprapha BOLA packages for practicing English. I have never used an E-learning system to learn English like this before. I like that I can download learning resources from the system anytime. It's fun and very useful for my learning. It's a very useful English learning tool.
S3	Yes, I like Nutprapha BOLA packages. It is fun to use and very useful for English learning. I have never used the system to learn English like this before. I can listen to audio online and download to my computer to practice later.
S4	Yes, I like Nutprapha BOLA packages. The system is new for me. It's really fun to use it to learn English. Learning English is boring sometimes, but I didn't feel bored when I studied English via Nutprapha BOLA packages.
S5	Yes, I like Nutprapha BOLA packages. It's a new learning system for me. I have never used a system like this to learn English before. It's fun and useful. I like that I can download learning resources to my computer and review the lesson at home.
S6	Yes, I like Nutprapha BOLA packages. I think it's very useful because I can download audio to practice listening or I can listen online. And I like that we can practice exercises repeatedly. The whole system is new for me but it is fun to learn English via Nutprapha BOLA packages.
S7	Yes, I like Nutprapha BOLA packages. I've never experienced an E-learning system like this before. It's fun to use the package to practice listening skills. I like the listening exercises because after we submit the answer of each exercise, we can review the audio with both original sound from the speaker and another accent. (She meant original audio that came with the textbook and text-to-speech that the researcher created later and put them in the review part after students submit the answer.)
S8	Yes, I like Nutprapha BOLA packages. I like that the system allows students to download learning resources via the system very easily. The learning system is new for me, but it's easy to use. I have a lot of fun learning English via Nutprapha BOLA packages.

Students	Answers
S9	Yes, I like Nutprapha BOLA packages. It's new for me. It's fun for learning English. I like that the package contains both audio and beautiful images.
S10	Yes, I like Nutprapha BOLA packages very much because it's fun and very useful for this English course. There are many difficult English vocabulary words in this course. Learning via Nutprapha BOLA packages helped me to learn and understand how to use those words more correctly.
S11	Yes, I like Nutprapha BOLA packages very much because it's fun and easy to use. I like that there are no complicated instructions and it's easy to choose a topic to study.
S12	Yes, I like Nutprapha BOLA packages very much because it's very useful for my English learning. I like that I can download learning resources to practice offline. I like that I can do the exercises repeatedly. It's also fun using it to learn English, it's not boring.
S13	Yes, I like Nutprapha BOLA packages. It's fun and very useful. I like that we can listen to the paragraph reading which the textbook didn't prepare the audio for us. I think that listening and reading the paragraph at the same time helps us to concentrate and understand the context better.
S14	Yes, I like using Nutprapha BOLA packages because it's fun. It contains very useful English learning tools. I like that we can practice listening with audio for both online and offline format. I like that I can download the audio file very easily.
S15	Yes, I like Nutprapha BOLA packages because it's fun and very easy to use. It's also very useful for practicing English with both audio and graphics. It helped me to understand the lesson better.

B. Using the Nutprapha BOLA packages to learn English is convenient.

Students	Answers
S16	Yes, I like to use Nutprapha BOLA packages because it's fast and convenient. I can download learning resources and turn in assignments online. I also like that we can access the course and exercises without the Internet connection if we use the computer inside the university.
S17	Yes, I like Nutprapha BOLA packages because it's convenient for learning English. Sometimes I leave my textbook at home , but I still can download learning resources from the system. I also like the Intranet system when we use the computer inside the university. This system allows us to access the course without an Internet connection.
S18	Yes, I like using Nutprapha BOLA packages so much. It's useful and convenient for learning English. It's easy for me to practice listening through the system. And I also can download audio as an offline version into my computer.
S19	Yes, I like Nutprapha BOLA packages. It's useful and convenient. I like that there are many options to access the lessons. We have a textbook and we also have the course online that we can download more learning resources. Moreover, we have many options for contacting our teachers such as a message module in the website and the Facebook page. I feel that teachers can assist and help us anytime and anywhere we can access the course. I really love this learning system. I want to be able to do every course just like this.
S20	Yes, I like to use Nutprapha BOLA packages because it's useful for studying English and convenient to get learning resources. I like that I can download learning resources through the system easily. I also like that I can access the course and exercises with the Intranet.

Students	Answers
S21	Yes, I like Nutprapha BOLA packages because it's fast and convenient. I like that I can turn in assignments online very easily. I also can download audio for listening from the system to my computer and practice at home.
S22	Yes, I like Nutprapha BOLA packages. It's fast and convenient. I can download learning resources and turn in assignments online. I was excited to use it because I've never studied online with this system before.
S23	Yes, I like Nutprapha BOLA packages because it's useful and convenient for learning English. If I forget to bring my textbook to the classroom, I still can practice and do the exercises online at the university. I also like that I can download learning resources to my computer.
S24	Yes, I like Nutprapha BOLA packages. I like that we can save our answers and come back to finish the exercise later. If I used the Internet at a shop and the time is up before I finish the lesson, I can save the answers and finish the rest of the exercise at school.
S25	Yes, I like Nutprapha BOLA packages. It's convenient for learning English. I like that I can access the course without an Internet connection, if I use a computer at the university. I also like that I can practice listening with both online and offline resources.
S26	Yes, I like Nutprapha BOLA packages because it's very convenient. I like that we still can access the course and exercises without the Internet, if I use a computer at the university. I like this system very much.

C. Using the Nutprapha BOLA packages helps students to improve English learning skills.

Students	Answers
S27	Yes, I like Nutprapha BOLA packages very much because this system helped me to do better in English as you can see from my test scores. I did much better after studying with this E-learning system. I think I learned more English vocabulary.
S28	Yes, I like Nutprapha BOLA packages very much because it helped me to be better in English. I think I did grammar exercises much better after studying this English course using the package.
S29	Yes, I like Nutprapha BOLA packages very much because I think I'm better in English listening skills after studying English using the package.
S30	Yes, I like using Nutprapha BOLA packages to learn English very much. It's very useful for me to practice and improve my English listening skills. I can practice listening exercises repeatedly, until I am satisfied with the scores.
S31	Yes, I like using Nutprapha BOLA packages because it's very useful to use for improving my English listening and speaking skills. Maybe because I can use the audio to practice listening many times, then I practice saying some sentences after the audio. When we were studying in the regular classroom I was better able to answer the teacher in English.
S32	Yes, I like using Nutprapha BOLA packages very much. It's a great English learning system for this course because there are many difficult technical terms in each unit. Nutprapha BOLA packages helped me to understand more of those terms from the audio and images.

D. The Nutprapha BOLA packages promotes autonomous learning.

S33	Yes, I like Nutprapha BOLA packages very much because I like that after class we can practice the exercises by ourselves more than one time. It's also enjoyable listening to the audio and seeing the colorful images in the course.
S34	Yes, I like Nutprapha BOLA packages very much because I can study and review the lesson by myself after class and at home. It's also easy to turn in assignments and download learning resources.
S35	Yes, I like Nutprapha BOLA packages very much because I can practice the lessons that we've already studied in the regular classroom again at home. And I can practice more than one time. I like that I can study by myself at home or at the library.
S36	Yes, I like Nutprapha BOLA packages. I like that I can study and review the lesson by myself after I've already studied in the regular classroom. It's also easy to access the course to practice before the exam.

E. Students get immediate feedback while learning English via the Nutprapha BOLA packages.

S37	Yes, I like Nutprapha BOLA packages very much because I can review the lesson outside the classroom and I can also contact my teacher via the system anytime.
S38	Yes, I like Nutprapha BOLA packages very much because I can review the lesson outside the classroom and I can also communicate with my classmates and teacher via the system anytime.
S39	Yes, I like Nutprapha BOLA packages very much because I don't have to study by myself all the time. I can consult with classmates and my teacher whenever I have a problem.
S40	Yes, I like Nutprapha BOLA packages. I like that the system provides correct answers after we complete the exercises. This lets us know what we did wrong, and we can go back and do the exercise again. This helped me to understand the lesson better.

2. What do you not like most while learning English via Nutprapha BOLA packages?

A. No Internet connection

Students	Answers
S4	I don't like when we have to turn in assignments online and the Internet connection doesn't work.
S5	I don't like when the Internet connection is down and I can't access the course.
S6	I don't like when both the Internet and Intranet connections don't work at the same time while I am trying to study using Nutprapha BOLA packages inside the university.
S1	I don't like that when I'm learning and doing exercises in the course and the Internet disconnects while I'm studying outside the university.
S2	I don't like that when I try to access the course from outside the university and the Internet doesn't connect.
S7	I don't like when the Internet connection is down and I can't access the course.
S8	I don't like when I have to download the audio before listening because I can't listen to the audio online when the Internet connection doesn't work.

Students	Answers
S9	I don't like when we have to turn in assignments online and the Internet connection doesn't work.
S10	I don't like when the Internet connection is down and I can't access the course.
S3	I don't like when I try to turn in an assignment outside the university and the Internet doesn't work.
S11	I don't like when both the Internet and Intranet connections doesn't work at the same time while I'm trying to study using Nutprapha BOLA packages inside the university.
S12	I don't like when we have to turn in assignments online and the Internet connection doesn't work.
S13	I don't like when the Internet connection is down and I can't access the course.
S14	I don't like when both the Internet and Intranet don't work at the same time while I'm trying to study using Nutprapha BOLA packages inside the university.
S15	I don't like when I'm learning and doing exercises in the course and the Internet disconnects while I'm studying outside the university.
S16	I don't like when I try to access the course from outside the university and the Internet doesn't connect.
S17	I don't like when the Internet connection is down and I can't access the course.
S18	I don't like when I have to download the audio before listening because I can't listen to the audio online when the Internet connection doesn't work.
S19	I don't like when we have to turn in assignments online and the Internet connection doesn't work.
S20	I don't like when the Internet connection is down and I can't access the course.
S21	I don't like that when I try to turn in an assignment outside the university and the Internet doesn't work. [Very good!]
S22	I don't like when we have to turn in assignments online and the Internet connection doesn't work.
S23	I don't like when the Internet connection is down and I can't access the course.
S24	I don't like when both Internet and Intranet don't work at the same time while I'm trying to study using Nutprapha BOLA packages inside the university.
S25	I don't like that when I'm learning and doing exercises in the course and the Internet disconnects while I'm studying outside the university.
S26	I don't like that when I tried to access the course from outside the university and the Internet doesn't connect.
S27	I don't like when the Internet connection is down and I can't access the course.

B. Low-speed of the Internet connection

Students	Answers
S29	I don't like when I can't listen to the audio online.
S30	I don't like when the images don't appear on the page due to a slow Internet connection.
S28	I don't like when I can't access the course when I want to practice before taking a test, because there are too many students accessing the system at the same time.

Students	Answers
S31	I don't like when there are too many students accessing the course at the same time making the system too slow to listen to the audio online.
S32	I don't like when the images don't appear on the page due to a slow Internet connection.

C. Insufficient learning tools

Students	Answers
S33	I don't like when I can't use a computer in the computer room because there are not enough computers for all the students who want to use.
S40	I don't like when I can't get into the course at the university in the computer room.
S34	I don't own a laptop or personal computer, so it's difficult for me to access the course if I don't use a computer at the university.
S39	I don't like when I can't use a computer in the computer room because there are not enough computers for all the students who want to use.
S35	I don't own a laptop or personal computer, so it's difficult for me to access the course if I don't use a computer at the university.
S36	I don't like when I can't use a computer in the computer room because there are not enough computers for all the students who want to use.
S37	I don't own a laptop or personal computer, so it's difficult for me to access the course if I don't use a computer at the university.
S38	I don't like when I can't use a computer in the computer room because there are not enough computers for all the students who want to use.

3. Would you like to learn other English courses through an E-learning system that is similar to Nutprapha BOLA packages next time? If so, what contents or subjects you would like to learn?

A. English for Communication

Students	Answers
S1	Yes, I want to learn English with E-learning like this again. I want to use it with the English for Communication course, because I can practice online as many times as I want.
S2	Yes, I want to learn English via an E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in the English for Communication course. I think this system will help me to improve my listening skill by listening and reading the text repeatedly.
S3	Yes, I want to use E-learning to learn English again. Next time, I want to learn more vocabulary for the English for Communication course.
S4	Yes, I want to learn English with this system again. I want to use it with the English for Communication course because this course requires many basic English skills. I think this learning system will help students to learn better.
S5	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in the English for Communication course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.
S6	Yes, I want to use E-learning like Nutprapha BOLA packages to learn English again. Next time, I want to practice with new vocabulary in the English for Communication course.

Students	Answers
S7	Yes, I want to learn English with this learning system again. I like that we can use both textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the English for Communication course.

B. English for Specific Purposes

Students	Answers
S8	Yes, I want to learn English with E-learning like this again. I want to use it with the English for Specific Purposes course, because I can practice online as many times as I want.
S9	Yes, I want to learn English via E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in English for the Specific Purposes course. I think this system will help me to improve my listening skills by listening and reading the text repeatedly.
S10	Yes, I want to use E-learning to learn English again. Next time, I want to learn more vocabulary in the English for Specific Purposes course.
S11	Yes, I want to learn English with this system again. I want to use it with the English for Specific Purposes course because this course requires many basic English skills. I think this learning system will help students to learn better.
S12	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in the English for Specific Purposes course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.
S13	Yes, I want to use E-learning like Nutprapha BOLA packages to learn English again. Next time, I want to practice with new vocabulary in the English for Specific Purposes course.
S14	Yes, I want to learn English with this learning system again. I like that we can use both the textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the English for Specific Purposes course.

C. English for Computer Science

Students	Answers
S15	Yes, I want to learn English with E-learning like this again. I want to use it with the English for Computer Science course, because I can practice online as many times as I want.
S16	Yes, I want to learn English via E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in the English for Computer Science course. I think this system will help me to improve my listening skills by listening and reading the text repeatedly.
S17	Yes, I want to use E-learning to learn English again. Next time, I want to learn more vocabulary in the English for Computer Science course.
S18	Yes, I want to learn English with this system again. I want to use it with the English for Computer Science course because this course requires many basic English skills. I think this learning system will help students to learn better.
S19	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in the English for Computer Science course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.

Students	Answers
S20	Yes, I want to use E-learning like Nutprapha BOLA packages to learn English again. Next time, I want to practice with new vocabulary in the English for Computer Science course.
S21	Yes, I want to learn English with this learning system again. I like that we can use both the textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the English for Computer Science course.

D. English for Information Technology

Students	Answers
S22	Yes, I want to learn English with E-learning like this again. I want to use it with the English for Information Technology course, because I can practice online as many times as I want.
S23	Yes, I want to learn English via E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in the English for Information Technology course. I think this system will help me to improve my listening skills by listening and reading the text repeatedly.
S24	Yes, I want to use E-learning to learn English again. Next time, I want to learn more vocabulary in the English for Information Technology course.
S25	Yes, I want to learn English with this system again. I want to use it with the English for the Information Technology course because this course requires many basic English skills. I think this learning system will help students to learn better.
S26	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in English for the Information Technology course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.
S27	Yes, I want to use E-learning like Nutprapha BOLA packages to learn English again. Next time, I want to practice with new vocabulary in the English for Information Technology course.
S28	Yes, I want to learn English with this learning system again. I like that we can use both the textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the English for Information Technology course.

E. Business English

Students	Answers
S29	Yes, I want to learn English with E-learning like this again. I want to use it with the Business English course, because I can practice online as many times as I want.
S30	Yes, I want to learn English via E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in the Business English course. I think this system will help me to improve my listening skills by listening and reading the text repeatedly.
S31	Yes, I want to use E-learning to learn English again. Next time, I want to learn more about vocabulary in the Business English course.
S32	Yes, I want to learn English with this system again. I want to use it with the Business English course because this course requires many basic English skills. I think this learning system will help students to learn better.

Students	Answers
S33	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in the Business English course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.
S34	Yes, I want to learn English with this learning system again. I like that we can use both the textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the Business English course.

F. English for Engineering

Students	Answers
S35	Yes, I want to learn English with E-learning like this again. I want to use it with the English for Engineering course, because I can practice online as many times as I want.
S36	Yes, I want to learn English via E-learning system like Nutprapha BOLA packages again. Next time, I want to improve my listening skills in the English for Engineering course. I think this system will help me to improve my listening skills by listening and reading the text repeatedly.
S37	Yes, I want to use E-learning to learn English again. Next time, I want to learn more vocabulary in the English for Engineering course.
S38	Yes, I want to learn English with this system again. I want to use it with the English for Engineering course because this course requires many basic English skills. I think this learning system will help students to learn better.
S39	Yes, I want to study English with this E-learning system again. Next time, I want to improve my reading skills in the English for Engineering course. I think this system will help me to improve my reading skills by reading the text and doing the exercises repeatedly.
S40	Yes, I want to learn English with this learning system again. I like that we can use both the textbook and online resources both inside and outside the classroom. I also like that we can do online exercises with the teacher's assistance. Next time, I want to use this system with the English for Engineering course.

Semi-structured Interview (TEACHERS)

1. Do you like Nutprapha BOLA packages? If you like it, what do you like most about Nutprapha BOLA packages?

Teachers	Answers
T1	Yes, I like Nutprapha BOLA packages very much. I like that we can edit and update the course very easily. Sometimes, if we mistype something in the course then we can go back to edit immediately when we see it or our colleague reminds us. I also like that it's easy to access the course to update resources for students even though the Internet doesn't work. We can access both the Internet and Intranet if we are on campus. It's faster than accessing the course from outside the university. Moreover, I like that the course can be updated anytime we need. Also I like that we can update announcements everyday so that students can follow the instructions each day and can keep up with others if they missed the regular class.

Students	Answers
	I think learning via Nutprapha BOLA packages will help students to improve their English because I noticed that some students who used Nutprapha BOLA packages gained better scores on their grammar and vocabulary.
T2	Yes, I like Nutprapha BOLA packages for English teaching very much. I like that we can use this online course inside the regular classroom. I can bring my own laptop to the class and can access the Internet or Intranet while teaching with projector. It would help me to save time preparing lessons before class. Everything has been set up inside the course, both presentation and exercises. I can spend more time with individual students who really need help on language practice. I have more time to concentrate on weak students and guide them individually to learn more effectively. Yes, I think their English skills will improve after using Nutprapha BOLA packages because I noticed that students, who used Nutprapha BOLA packages this semester, gained better scores on their proficiency post-tests.
T3	Yes, I like Nutprapha BOLA packages because the system can store teaching resource files that I can use again next semester. It's very easy to update the information in the system anytime I want. Moreover, I like that we can create a lesson in advance and put it in the system, then we can make it invisible until its time comes. Then we can make it visible to students to study at the current week. I think students have improved their English because they used Nutprapha BOLA packages to practice. Most students who study online daily can answer questions better when they participate inside the regular classroom.

2. What do you not like about Nutprapha BOLA packages?

Teachers	Answers
T1	Even though we can use the Intranet when the Internet was not available, however, if the university server is down, we can't do anything at all. This happens quite often at the beginning of the semester. Right now everything seems to be back to normal. I hope it will maintain good like this until the end of the semester.
T2	I don't like when we can't connect to the Internet to use audio online because we have to spend more times to download the file before listening.
T3	I don't like when we can't access the system to update teaching materials when we need to due to a poor or non-existent Internet connection.

3. Would you like to use an E-learning blended with your English classroom that is similar to Nutprapha BOLA packages?

Teachers	Answers
T1	Yes, I would like to blend an E-learning to teach every course I teach such as Grammar I, II, and III, and Listening I and II. Moreover, I would like to use Nutprapha BOLA packages to create and store language tests as a test bank for every subject I teach.
T2	Yes, I would like to blend an E-learning system similar to Nutprapha BOLA packages to teach English Foundations to weekend students. This group of students can study at the university only on weekends, so if they can access Nutprapha BOLA packages during the weekdays before they come to regular class on the weekends. I believe that they can improve their English much faster and easier.
T3	Yes, I would like to blend educational technology similar to Nutprapha BOLA packages to teach every subject I teach. I also want every subject that other teachers teach in the English Department to use Nutprapha BOLA packages in their teaching.

APPENDIX P

List of Experts

List of Experts

Name	Position	Instruments Examined
1. Prof. Dr. Chaiyong Brahmawong	Vice-President of the Distance Education, Bangkokthonburi University, Thailand	- The Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model - The Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages
2. Dr.Suksan Suppasetseree	A lecturer, Suranaree University of Technology, Thailand	- The Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model - The Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages - Proficiency test - Lesson plan - Questionnaires - Interview questions - Statistical Analysis
3. Dr. Peerasak Siriyothin	- Dean of Institute of Social Technology, Suranaree University of Technology, Thailand - A lecturer, Suranaree University of Technology, Thailand	- The Blended Online Learning Approach (BOLA) Model: Nutprapha BOLA Model - The Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages
4. Dr. Dhirawit Pinyonatthagarn	A lecturer, SuranareeUniversity of Technology, Thailand	- The Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages
5. Dr. Sirinthorn Seepho	A lecturer, Suranaree University of Technology, Thailand	- The Blended Online Learning Approach (BOLA) Packages: Nutprapha BOLA Packages
6. Dr. Narumon Duangsaeng	A lecturer, Ubon Ratchathani Vocational College, Thailand	- Lesson plan - Questionnaires - Statistical Analysis

CURRICULUM VITAE

Ms. Nutprapha Kongphet Dennis was born in February 23, 1976 , Ubon Ratchathani. She received a Bachelor of Education in English from Ubon Ratchathani Rajabhat University in 1997. After that, she continued to study in English Department, Ubon Ratchathani University for a Master's Degree in Teaching English as a Foreign Language. Her special interests are E-learning, Blended Learning and Blended Online Learning.