ผลของการเรียนการสอนอ่านภาษาอังกฤษบนเว็บโดยใช้กระบวนการเรียนภาษาผ่านโครงงานที่มีต่อความสามารถในการอ่านเพื่อความเข้าใจของนักศึกษามหาวิทยาลัยราชภัฏเพชรบุรี

นางสาวนันทรัตน์ คงคาเพชร

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาครุศาสตรมหาบัณฑิต
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ปีการศึกษา 2550
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

EFFECTS OF WEB-BASED ENGLISH READING INSTRUCTION USING PROJECT-BASED LANGUAGE LEARNING ON READING COMPREHENSION ABILITY OF PHETCHABURI RAJABHAT UNIVERSITY STUDENTS

Miss Nantarat Kongkapet

สถาบันวิทยบริการ
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นันทรัตน์ คงคาเพชร : ผลของการเรียนการสอนอ่านภาษาอังกฤษบนเว็บโดยใช้กระบวนการเรียนภาษาผ่านโครงงานที่มีต่อความสามารถในการอ่านเพื่อความเข้าใจของนักศึกษามหาวิทยาลัยราชภัฏเพชรบุรี.
(EFFECTS OF WEB- BASED ENGLISH READING INSTRUCTION USING PROJECT-BASED LANGUAGE LEARNING ON READING COMPREHENSION ABILITY OF PHETCHABURI RAJABHAT UNIVERSITY STUDENTS) อ.ที่ปรึกษา: ผศ.ดร. อาภัสรา ชินวรรโณ, 199 หน้า.

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาประสิทธิผลของโปรแกรมการเรียนการสอนอ่านภาษาอังกฤษบนเว็บโดยใช้กระบวนการเรียนภาษาผ่านโครงงานที่มีต่อความสามารถในการอ่านภาษาอังกฤษเพื่อความเข้าใจ 2) ศึกษาความคิดเห็นต่อโปรแกรมการเรียนการสอนอ่านภาษาอังกฤษบนเว็บโดยใช้กระบวนการเรียนภาษาผ่านโครงงาน กลุ่มตัวอย่างประกอบด้วยนักศึกษาวิชาเอกภาษาอังกฤษ-ธุรกิจ คณะมนุษยศาสตร์ มหาวิทยาลัยราชภัฏเพชรบุรี จำนวน 23 คน ที่ลงทะเบียนเรียนวิชาการอ่านอนุเฉท ในภาคการศึกษาต้น ปีการศึกษา 2551 การเก็บข้อมูลใช้การรวบรวมเชิงคุณภาพและเชิงปริมาณ สถิติที่ใช้ในการวิเคราะห์ความแตกต่างระหว่างความสามารถในการอ่านภาษาอังกฤษเพื่อความเข้าใจและการใช้กลวิธีการอ่านก่อนและหลังการทดลอง คือ สถิติทดสอบค่าที และ ขนาดอิทธิพล สำหรับข้อมูลเชิงคุณภาพใช้การวิเคราะห์เนื้อหาและนำเสนอในรูปแบบของความถี่และร้อยละ

ผลการวิจัยพบว่า (1) คะแนนเฉลี่ยการอ่านภาษาอังกฤษเพื่อความเข้าใจก่อนและหลังการทดลองของกลุ่มตัวอย่างมีความแตกต่างอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 (2) ผู้เรียนมีความคิดเห็นเกี่ยวกับประโยชน์ที่ได้รับ และอุปสรรคในการเรียนโดยใช้โปรแกรมการเรียนการสอนอ่านภาษาอังกฤษบนเว็บโดยใช้กระบวนการเรียนภาษาผ่านโครงงาน ดังนี้ ประโยชน์ที่ได้รับคือผู้เรียนได้พัฒนาทักษะการอ่านภาษาอังกฤษ พื้นฐานคอมพิวเตอร์ และ สร้างปฏิสัมพันธ์ของผู้เรียน อย่างไรก็ดี ผู้เรียนบางคนมีความเห็นว่ายังประสบปัญหาในการเรียนทักษะการอ่านภาษาอังกฤษและการทำโครงงาน ทักษะการใช้คอมพิวเตอร์ และ เวลาในการเรียนไม่เพียงพอ

ภาควิชา หลักสูตรการสอนและเทคโนโลยีการศึกษา ลายมือชื่อนิสิต นันทรัตน์ คงคาเพชร

สาขาวิชา การสอนภาษาอังกฤษเป็นภาษาต่างประเทศ ลายมือชื่ออาจารย์ที่ปรึกษา

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The objectives of this study were to: 1) investigate the effects of Web-based English reading instruction using Project-based language learning on students' reading comprehension abilities; and 2) explore students' opinions towards Web-based reading instruction using Project-based language learning. The samples were 23 undergraduate students majoring in Business English at Phetchaburi Rajabhat University. They were enrolled in Paragraph Reading (1553201) course in the first semester, academic year 2007. The data were collected quantitatively and qualitatively. A within-group paired-sample t-test, and effect size was used to investigate the differences between the mean scores from the pre and post reading comprehension test. The qualitative data were analyzed using content analysis and shown in frequency and percentage.

The findings of the study revealed that (1) there was a significant difference in students' mean scores on reading comprehension abilities before and after the students' participation in the Web-based English reading instruction using Project-based language learning at the significant level of .05; (2) students reflected towards the benefits and difficulties on the weblogs. They were able to practice their reading strategies, receive immediate feedback, and choose reading texts according to their needs. Students developed their computer skills that were necessary to create the projects. Additionally, students' interaction was increased because they had chances to interact with their teacher, peers, and online resources. For the difficulties found in this study, students reported that they had problems in selecting reading strategies for the project works and time management.

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CHAPTER I

INTRODUCTION

Background and Statement of the Problems

In many second or foreign language teaching situations, reading receives a special focus. Students in non-English speaking countries do not frequently have a chance to listen, speak, or write in English, they have more chances to use English in their reading (Piyanukool, 2001). They may read information on a variety of plain and online websites, in English newspapers, labels, instructions on merchandise media or in textbooks. Thus, good reading is an important skill that leads to improvements in literacy and academic achievement.

However, teaching reading at the university level in Thailand has been unsuccessful. Many research studies tried to find the causes of problems in English reading comprehension of Thai students. According to Chiramance (1992), the poor reading ability of Thai students might result from the fact that most of them lack of motivation to read the text because teachers used inadequate English reading instruction. Mora (2002), noted that Thai students may want to learn English but their teachers do not know the students' preferred way of learning English. They do not teach them in the way they like. Hence, students might feel bored and unmotivated or may not feel interested at all in reading English. Besides this lack of interest and motivation to read Alderson (2000), pointed out that the problems can be solved by using different kinds of instructional materials and reading instruction.

The integration of Web-based instruction and Project-based language learning into the EFL reading classroom maybe a solution to teach reading in Thailand. Due to the focus of Web-based instruction it will motivate students to read a lot by adding the web-based lesson to connecting the traditional classroom to the world. According to Warschauer (2000), Web-Based Instruction is one of the teaching instructions as it uses the Internet, the computer network and web-collaborative tool as a medium. Teacher can use Internet as a supplementary material to support students in that they may present information and activities to students, assess students' work, and respond to students work.

In reading class, Singhal (2001) studied the effects of computer assisted instruction and task specific reading strategies. The study examined the effects of a Web-based reading strategy instruction program on twenty-two ESL students at the University of Arizona. The results of the study indicated a significant improvement in students' reading comprehension and showed the beneficial effects of computer assisted instruction in teaching reading.

Despite the benefits of the computer and Internet in the reading class, the problem found in teaching reading by using the Web-based instruction is that students lack face-to-face communication with each other (Jung, Jun & Gruenwald, 2000) that can be harmful to a students' social development (Roblyer 2003). Thus, the integration between Web-based lessons with Project-based language learning (PBLL) into reading class may be an alternative way to promote social interaction through the process of individual and group project work in and outside of the reading classroom. During construct the project, students can work collaboratively in their group so they have to communicate with others

who have different background knowledge, resolve problems or sharing new information with their peers (Guarasa, Montero, San-Segundo, & Araujo, 2006).

In the Thai educational context, there is a lack of research which shows the positive effects of teaching reading by integrating the Web-based English reading instruction and Project-based language learning. There are only a few studies that have dealt with the effect of Project-based language learning on EFL learning. For example, Sudrung (2004) reported the improvement of students' English abilities among Thai upper secondary school students after they had learned English by using a Project-based language learning curriculum. However, there is no study explore the effect of Web-based English reading instruction using Project-based language learning. So, the researcher developed Web-based English reading instruction using Project-based language learning to teach reading strategies. The findings may provide useful implications for English teaching of reading and learning management, which will, in turn, result in more effective teaching of reading and learning to read in English.

Research Questions

This study sought to explore the following research questions based on examination of current studies about Web-Based Instruction, project-based language learning, and reading comprehension ability. The specific research questions for this study were:

1. To what extent does Web-based English reading instruction using Project-based language learning affect students' reading comprehension ability?
2. What are students' opinions towards Web-Based English Reading Instruction using Project-based language learning?

Objectives of the Study

The purposes of this study were:

1. To investigate the effects of Web-based English reading instruction using Project-based language learning on students' reading comprehension ability.
2. To explore students' opinions towards the Web-based reading instruction using Project-based language learning.

Statement of Hypothesis

Several research studies show evidence to support the effectiveness of Web-based instruction in teaching reading. For examples, Chun and Plass (1996), Hong (1997), and Lomicka (1998) found that the use of WBI facilitated overall reading comprehension, increased comprehension rates, and promoted a deeper level of reading comprehension. Additionally, Ewing (2000) reported that project-based language learning in an online class provided students with opportunities to develop linguistic skills that were not available in the traditional classrooms. Therefore, the statement of hypothesis in this study was set as follows:

Students who received Web-based English reading instruction using Project-based language learning will achieve significantly higher average scores on the post Web-based Reading Comprehension test than the pre Web-based Reading Comprehension test at the significant level of 0.05.

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Scope of the Study

1. The population for this study was undergraduate students of Phetchaburi Rajabhat University, Phetchaburi Province.
2. The sample of this study was 23 second-year Business English major students.
3. The variables in this study were as follows:
    a. The independent variable was Web-based Reading Instruction using Project-based language learning.
    b. The dependent variables were English reading comprehension pretest and posttest mean scores and students' opinion towards Web-based English reading instruction using Project-based language learning.
4. Assumptions of the study

All subjects participating in this study were assumed to have a basic competency level of computer literacy in using computer and the Internet; for example, students were able to use a mouse and type on the keyboard without becoming anxious. Students could also search for information via the Internet and find the information individually.

Definitions of Terms

1. Project-based Language Learning (PBLL) was an approach of instruction that focused on problem-solving and/or product development in the language classroom. Students generally worked collaboratively in groups to solve a problem, or accomplished a task or both.

2. Web-based English Reading Instruction using Project-based Language Learning refers to the English reading instruction that integrated the concept of Web-based English reading instruction and Project-based language learning. Students were used Internet, the

computer network, web-collaborative tools and the ten web-based lessons conducted by the researcher based on project-based language learning (PBLL). Students were able to read online through the web-based lessons during the class time and anytime that they wanted. The Internet was used to search for the reading texts. Additionally, web collaborative tools were used to develop students individual and group projects.

3. Reading Comprehension Ability refers to the ability in English reading included literal and interpretive comprehension levels. The students' reading comprehension ability was assessed by using Web-based Reading Comprehension Test before and after taking Web-based English reading instruction using Project-based language learning.

4. Phetchaburi Rajabhat University students refer to the undergraduate students studied at Phetchabui Rajabhat University who enrolled in a Paragraph Reading course (1553201) in the first semester of the academic year 2007.

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CHAPTER II

REVIEW OF LITERATURE

This study investigated effects of Web-based English reading instruction using Project-based language learning on reading comprehension ability of Rajabhat University students. Related literature and research were reviewed to obtain sufficient background information for the study. The topics discussed in this section include:

1. Web-based instruction
2. Project-based language learning
3. Reading comprehension

Web-based Instruction (WBI)

The widely used of World Wide Web (WWW) as a medium for sharing and distributing textual and graphic information has lead to increase numbers of instruction-oriented websites and Web-based instruction. Web-based instruction was used as an instructional material in this study, in order to help students develop their reading comprehension ability. There are five important points of Web-based instruction which are dealt with in this study: the definition of Web-based instruction, the types of Web-based instruction, the design of Web-based instruction, the advantages and disadvantages of Web-based instruction and research on Web-based instruction.

Definition of Web-based Instruction

Web-based instruction can be viewed as an innovative approach for delivering instruction to the audience using the Web as the medium. It is important to understand the

definition of Web-based instruction that many researchers have mentioned. Some of them are listed as follows:

Web-based instruction can be defined as a “hypermedia-based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported” (Khan 1996). Relan and Gillami (1997) defined Web-based instruction as teaching and learning supported by the attributes and resources of the World Wide Web. Moreover, Web-based instruction defined by Clark (1996) as “Individualized instruction delivered over public or private computer networks and displayed by a web browser”.

In summary, Web-based instruction was the teaching material that was best suited to support instructional development. Students in Web-based instruction course are required to use the resources of the World Wide Web such as Internet, computer network and web-collaborative tools to learn according to their individual needs. They can also use search engines to find relevant online resources related to course content and research projects.

Types of Web-based Instruction

The learning environment requires not only active, but interactive participation. Interactive learning includes an exchange of ideas with all students in a flexible and dynamic environment. Web-based instruction can be categorized into 2 types, namely web-based asynchronous learning and web-based synchronous learning.

Web-based asynchronous learning occurs when the students communicate at a different time. Asynchronous classes do not depend on location or time so the learning can takes place anytime anywhere over the Internet in a normal classroom. Like a

traditional classroom, Web-based asynchronous learning gathers teacher and students together to learn new knowledge. The students and teacher log on to the Internet at various times to work on assignments, read, and works on projects. The students share a group learning experience but do not meet in real time (Broadbent, 2002). The role of the teacher is to provide facilitation to support learners' exploration of new topics. It also allows peer-to-peer learning, group learning, and learner-instructor coaching (Driscoll, 1998).The advantages of Web-based asynchronous learning are "their ability to bring together a geographically diverse class" (Driscoll, 1998). In other words, the students from far apart can meet and learn as a group. Finlay (2000) points out that common forms of asynchronous interactions involve electronic mail, listserv, online forums, and online quizzes or tests, as well electronic mailing lists, e-mail based conferencing programs, UseNet newsgroups and messaging programs. In sum, Web-based asynchronous learning is one in which the instruction is delivered at one time and the work can be done at a different time. In asynchronous classes, students and teachers use e-mail, listservs or other technologies which allow them to communicate without having to be in the same place at the same time.

Web-based synchronous learning is the other type of Web-based instruction that occurs in a real-time situation via discussion software on Local Area Network (LAN) or Internet chat sites with all participants at their computers at the same time (synchronously). Synchronous forms of web based learning are probably the best alternative way to stimulate a real classroom situation, as the student and teacher have communication through live chat, videoconference, and audio conference (It-analysis, 2001).The most important advantages of synchronous learning are immediate feedback

and more motivation and obligation to be present and participate (It-analysis, 2001; Hotcomm, 2003). In conclusion, web-based synchronous learning is one in which the instruction occurred in a real-time situation. Students and teacher have communication through live chat, videoconference, and audio conference.

In conclusion, Web-based asynchronous learning (e-mail, listservs, etc.) allows for time-independent interaction whereas Web-based synchronous learning (conferencing tools, live chat) allows for live interaction. In Web-based instruction environment, teacher can provide support, feedback and guidance via both Web-based asynchronous learning and Web-based synchronous learning

Components of Web-based Instruction

Web-based Instruction can be defined as teaching and learning supported by the resources of the World Wide Web. WBI design requires careful consideration of the Web's potential in relation to instructional design principles. In order to develop Web-based instruction, it is important to know the components of Web-based instruction. Khan (1997) explained the features and components associated with Web-Based learning environments as follows.

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Table 1.
Features and Components Associated with WBI Learning Environments (Khan, 1997).

Features	Components	Relationship to WBI
Interactive	Internet tools, hyperlinks, browsers, servers, authoring programs, instructional design, etc.	WBI students can interact with each other, with instructors, and online resources. Instructors and experts may act as facilitators. They can provide support, feedback, and guidance via both synchronous and asynchronous communication.
Multimedial	Browsers, authoring programs, Web-based conferencing tools, etc.	A WBI course can be designed to address all students' learning styles by incorporating a variety of multimedia elements, such as text, graphics, audio, video, animation, etc. For WBI course students can browse through libraries, museums, and archives.
Online Search	Search engines, gophers, etc.	Students in a WBI course can use a searchable course glossary. They can also use search engines to find relevant online resources related to course content and research projects. Students are able to link to Web site documents by indexing words found in the title, or the body of the text.

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Table 1.
Features and Components Associated with WBI Learning Environments (Khan, 1997).

Features	Components	Relationship to WBI
Authentic	Internet and World Wide Web.	WBI can be designed to promote authentic learning environments by addressing real world problems and issues relevant to the learner.
Collaborative Learning	Internet tools, instructional design, etc.	WBI facilitates cooperative learning, which extends beyond the classroom that is connected to the Internet.
Cross – cultural Interaction	Internet and World Wide Web	WBI provides a medium that allows students and instructors to communicate online with sources from all over the world.
Device, Distance and Time Independent	Internet and World Wide Web	Students can enroll in a WBI course from anyplace in the world (distance-independent) using any computer platform at any time of the day or night.
Electronic Publishing	E-mail, newsgroups, servers, HTML editor	The Web provides an easy mechanism for electronic publishing

Table 1.
Features and Components Associated with WBI Learning Environments (Khan, 1997).

Features	Components	Relationship to WBI
Convenient	Internet tools, hyperlinks, forms, browsers, modems, connections, Internet service providers, etc.	WBI course can be remarkably convenient for students, instructors and institutions. Students can register, do coursework, conduct research, and communicate with the instructor via the internet without having to physically travel. Instructors can update course materials, provide guidance and support, both synchronously and asynchronously
Online Evaluation	Form, e-mail, database, etc.	Online evaluation for WBI includes both assessment of learners and evaluation of the instruction. Individual testing, participation in group discussions, questions and portfolio development can be incorporated into a WBI course. The grades from students' quizzes, assignments, exams and projects can be stored on a database.

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In conclusion, an understanding of capabilities of Web-based instruction components and features can facilitate the design of meaningful learning environments. These features can include pedagogical, technological, and institutional issues as discussed by Hill (1997). The more components a WBI program integrates, the more features it is able to offer.

The Design of Web-based Instruction

Numerous researchers used different models to design the Web-based instruction. For example, Campbell, Hurley, Jones, and Stephens (1995) adopted the ASSURE model as a general framework for the Web-based instruction course or Hybrid model proposed by Park and Kim (2003). In this study, the ADDIE model adopted by Leshin, Polluck, and Reigeluth (1999) were used as a general framework for designing Web-based English reading instruction using Project-based language learning. The ADDIE model include analyzes need, design, development, implementation and evaluation.

1. Analyze need

In the analysis phase, the course developer will clarify the instructional problem, state the instructional goals and objectives and identify the learning environment and the student's existing knowledge and skills.

2. Design

The design phase should be systematic and specific. It deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection.

3. Development

The development phase is where the course developer creates the content. The course is reviewed and revised according to any feedback given.

4. Implementation

During the implementation phase, a procedure for training the facilitators and the student is developed. The facilitators' training should cover the course curriculum, learning outcomes, method of delivery, and testing procedures.

5. Evaluation

The evaluation phase consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for criterion-related referenced items and providing opportunities for feedback from the users.

In conclusion, the ADDIE model is a basic model that can be used to design Web-based English reading instruction using Project-based language learning because The ADDIE model seems to be the most straight forward and simple model to follow. Additionally, ADDIE model is a generic and systematic approach to the instructional design process which provides the course developer with a framework in order to make sure that the course is effective.

Advantages of Web-based Instruction

Web-based instruction is widely used as a supplementary material to support students learning. Several research studies show evidence to support claims of the effectiveness of Web-based instruction. Web-based instruction could be one teaching material that can be useful in instructional development because of the high potential and

speed of the Internet communication network. Moreover, the student has more interaction with a lesson that can support the learner-centeredness (Rattanapian, 1999).

Web-based instruction promotes individual learning because students can create their own learning to reach the desired goals, they can move at their own speed and retrieve additional information as needed (Hui & Chung, 1999). Students always have access to the Internet and get information whether they are working at home or in the classroom. In addition, Web-based instruction allows students to read course content through a computer network at anytime and in different places (Chung, 1999). Furthermore, Kruse (2004) stated that the benefit of Web-based instruction is that students can create their own learning and monitor their own progress. The students know their assessment scores; know detailed information including how they answered individual test questions and how much time they spent in each module. Furthermore, teachers can easily update the contents. Additionally, it is easy for teachers to upload files from a computer onto the server-computer.

The advantages of the Web-based instruction described above make it unique instructional materials with great potential for teaching and learning. This study was designed by integrating the Web-based instruction with Project-based language learning into reading class to provide students to engage in real-world tasks.

Disadvantages of Web-based Instruction

Despite these advantages, some disadvantages of using Web-based instruction have been occurred. Some of the main disadvantages regarding technology integration in language classrooms include; a few common pitfalls of Internet use include objectionable materials, copyright violations and plagiarism, viruses and hacking, netiquette behavior,

and privacy issues. In addition, the use of Roblyer (2003) stated that a child's development of relationships and social skills is thought to be harmed if the child spends too much time on computers. Teachers must be prepared to deal with these issues when they use technology in their classrooms (Wang Lee, 2004).

Warschauer and Meskill (2000) also stated that technology may not be good for every language at all levels. For logographic languages, computer typing may not help improve efficiency in composition, especially with lower level students. It also takes a long time for students to become familiar with computer typing; therefore, teachers should use technology creatively but not rely on it alone.

The review above showed that Web-based instruction has both advantages and disadvantages. That is why, the teacher who plans to use Web-based instruction to teach students have to take these disadvantages into consideration. In this present study, Project-based language learning was integrated with Web-based instruction to teach in reading class.

Research on the uses of Web-based Instruction

At present, Web-based instruction has influenced language teaching. Web-based instruction is used to create both independent and collaborative learning environment and provide students with language experiences as they move through the different stages of second language acquisition. There are many research studies related to the use Web-based instruction in teaching ESL/EFL that are reviewed below.

Autsaha (2006) used the Hybrid Course Approach for teaching EFL, which uses Web-based instruction (WBI) as an aid to the traditional classroom course. It provides a

classroom learning context and a virtual learning context on the Internet, which helps EFL students to study English anywhere at any time. The students can communicate with the teacher and other students both synchronously and asynchronously. The result showed that the Web-based instruction can increase student's autonomy, force student to be more responsible for their own language learning outside the classroom. To be able to use web-based instruction to teach EFL effectively, the teacher must be proficient in the English language, knowledgeable in pedagogy, and ICT literate.

Chun and Plass (1996) investigated how reading comprehension can be facilitated with a Web-based instruction for language learning. They conducted three studies involving a total of 160 students of German using CyberBuch, a multimedia software application. The results of these studies revealed that the use of multimedia facilitated overall reading comprehension.

In another study to improve reading comprehension of ESL students using computers, Aweiss (1994) explored the effect of web-based reading instruction on students' reading comprehension during independent reading. Students were exposed to four conditions for four different experimental electronic texts: text only, text with glossary, text with glossary and verb conjugation, and text with glossary, verb conjugation and background information about the text. The results of this study revealed that students with access to online reading course showed better scores on the reading comprehension test than those with no access to any reading aids.

The previous research clearly supported the effects of Web-based instruction on teaching a foreign language. It was found that Web-based instruction was very useful in many aspects. In this study, Web–based instruction was used as an instructional material

to enhance students' reading comprehension ability by using various kinds of online texts and learning activities. They can do the exercises in a Web-based English reading instruction program.

Project based Language Learning (PBLL)

In order to understand how the Project-based language learning in Web-based instruction class affects student reading comprehension ability, it is necessary to explain the concept of this teaching approach. As Legutke and Thomas acknowledge, in the modern era, PBLL was developed as practice by Dewey (1916) and Kilpatrick (1918). The theory and practice of PBLL has been most influenced by Vygotsky, whose ideas were developed in the 1920s and 1930s. However, it did not appear in English until the late 1970s, when Cole applied it to the translation his works (Vygotsky & Cole, 1978).

Even though assigning projects to students in traditional classrooms is not a new phenomenon, project-based learning is quite different from the usual application. Thomas (2000) proposes five criteria to encompass the method of learning to be called project-based learning:

1. Projects are central, not peripheral to the curriculum. Thus, students can learn the main topic of the lesson via the project.
2. Projects are focused on questions or problems that "drive" students to encounter and struggle with the central concepts and principles of a discipline.
3. Projects involve students in a constructive investigation. An investigation is a goal- directed process that involves inquiry, knowledge building, and resolution.

4. Projects are student-driven to some significant degree. PBL projects incorporate a good deal more student autonomy, choice, unsupervised work time, and responsibility than traditional instruction.

According to Thomas (2000), projects are realistic, not school-like. Projects embody characteristics that give them a feeling of authenticity for students. These characteristics can include the topic, the tasks, the roles that students play, the context within which the work of the project is carried out, the collaborators who work with students on the project, the products that are produced, the audience for the project's products, or the criteria by which the products or performances are judged.

A Definition of Project-based Language Learning (PBLL)

Project-based language learning is an approach designed to engage students in the investigation of real life problems. It also provided opportunities for students to work on their own interests, questions and make decisions about how they will find answer and solve problems. In order to integrate the use of Project-based language learning with Web-based instruction, it is important to understand the definition of Project-based language learning that many authors have mentioned. Some of them are listed as follows:

Legutke and Thomas (1991: 160) presented what they call a definition of project work in “Process and Experience in Language Classroom”. It identifies a number of features considered by proponents of the PBLL approach to lead to the enhancement of learning in language classrooms, and hence it provides a starting point for this examination of PBLL. The authors define project work as a “theme and task-centered mode of teaching and learning which results from a joint process of negotiation between all participants. It allows for a wide scope of self-determined action for both the

individual and for small groups of students", and according to Legutke and Thomas (1991: 160) PBLL can hold the balance between process and product orientation.

Project-based learning defined by Gubacs (2004) as an approach that focuses on student centered and involves instructional strategies that engage students in "real world" tasks. Project-based learning begins with a preconceived idea of an end product, which can be achieved through student mastery of specific knowledge and skills.

PBLL can be defined as a set of teaching strategies which enable teachers to guide students through studies of authentic and real world problems (Buck Institute of Education, Slavin 1995; Moss and Duzer 1998). The PBLL is a complex but flexible framework with features that characterize teaching-learning interactions. When teachers implement PBLL successfully, students can be highly motivated, feel actively involved in their own learning, and produce work of a high quality.

In conclusion, PBLL can be described as an approach to language instruction that focuses on problem-solving and/or product development in language classroom. Students work collaboratively in groups to solve the problem, or accomplish a task or do both. In project work, the students become responsible for their own learning. They select and devise the project, with the teacher acting as co-coordinator, facilitator or consultant.

Types of Project-based language learning

Stoller (1997) cited that project work in language class can take on diverse configurations. The most suitable format for a given context depends on a variety of factors including curricular objectives, course expectations, students' proficiency levels, student interests, time constraints, and availability of materials.

Legutke and Thomas (1991) use data from case studies of project work in the UK, USA and Germany to suggest three types of project:

1. *Encounter projects* enabled students to make contact with native speakers, for example, American, or British visitors to their country.
2. *Text projects* encourage students to use English language texts, either a range of them to research a topic or one text studied more intensively, for example, a play to read, discuss, dramatize, and rehearse.
3. *Class correspondence projects* involve letters, audiocassettes, photographs, etc. for exchanges between school students in different countries.

Henry (1994) divided project according to the degree to which the teacher and students decide on the nature and sequencing of project-related activities as follows; *Structured projects* are determined, specified, and organized by the teacher in terms of topic, materials, methodology, and presentation; *unstructured projects* are defined largely by students themselves; and *semi-structured projects* are defined and organized in part by the teacher and in part by students.

According to Haines (1989), projects can also differ in data collection techniques and sources of information. Haines identified types of projects namely research project, text project, correspondence project, survey project and encounter project. *Research projects* are gathered information through library research. Similarly, *text projects* are involved encounters with "texts" for example literature, reports, video and audio materials, or web-based information rather than people. *Correspondence projects* are required communication with individuals to get the information. *Survey projects* are created a survey instrument and then collecting and analyzing data from "informants."

Encounter project are organized by contact with guest speakers or individuals outside the classroom.

The Stages of Project-based language learning

Implementing Project-based language learning into language course requires a number of steps as well as carefully thought out lesson plans. The following steps or elements proposed by many researchers can be useful for teacher when designing effective project-based language learning. Challenge 2000 Multimedia Project (1999) presented a multimedia project that is designed to encourage Project-based learning. The following three stages can serve as a guide for those wishing to conduct PBL.

Step 1: Define the project idea

At the beginning of the process, teachers should clearly define the specific project and products. Students who participate in the project must have a clear sense of the direction that they are to follow. There are three criteria that should be used to define the project. The project must be central to the discipline, important to the students, and a challenge to the students.

Step 2: Determine the Availability of Equipment and Facilities

The second major step in conducting a PBLL initiative is to assess the need for and the availability of facilities and equipment such as a computer lab, a website, etc.

Step 3: Implementing the Process

The basic principles of PBLL as a student-centered, constructivist approach to teaching were followed during the process. Thus, while the teacher candidates were provided with a list of basic topics and a set of general guidelines, they were entrusted with most of the design. The instructor mainly facilitated the activities to ensure that the

project would be educationally sound and nonjudgmental.

Fried-Booth (1986) said that Project-based language learning involves three stages namely classroom planning, carrying out the project and reviewing and monitoring.

The first stage is *classroom planning.* The students, in collaboration with the teacher and peers discuss the content and scope of their project, and predict their specific language needs. In this stage the skills used during project work are:

1. Stimulus when the teacher stimulates students to do the project work by initial discussion of the idea.

2. Definition of the project objective when the students and teacher discuss the content and scope of the project, and their needs.

3. Practice of language skills. This includes the language the students feel is needed for the initial stage of the project, e.g. for data collection. It also introduces a variety of language functions, e.g. introducing, suggesting, and asking for information.

4. Design of written materials. The students will create the material that required for data collection such as questionnaires, maps, grids, etc.

The second stage is *carrying out the project.* The students now move out of the classroom to perform whatever tasks they have planned. In this stage the skills used during project work are:

1. Group activities. Students may work individually, in pairs or in small groups to find the sources to complete their planned tasks both inside and outside the classroom (e.g. conducting interviews, collecting information, searching for the information on the Internet).

2. Collating information. Probably in groups, students will read notes, give an explanation of visual material.

The last stage is *reviewing and monitoring the work*. This includes discussion and feedback sessions, both during and after the project. This stage includes the organization of materials and students' final presentation.

1. Organization of materials. Students will work cooperatively to develop the end- product of the project. They need to discuss, negotiate, read for cross-reference and verify.

2. Final presentation. The manner of presentation will depend largely on the form of the end product - charts, booklet, video display or oral presentation - and on the manner of demonstration. After the project presentation, the teacher and participants will discuss and give feedback to the project group

For the full-scale project, Fried-Booth (1986) suggested three stages that can be matched with Legutke and Thomas' (1991) project structures which is illustrated in Table 2.

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Table 2.

Structures for Projects (cited in Finch, 2000 : 396)

Fried-Booth (1986) (project stages)	**Legutke and Thomas (1991) (project structure)**
1. Classroom based • Provision of stimulus material • Definition of project objectives • Analysis and practice of language skills • Design of written materials	1. opening 2. topic orientation
2. Carrying out of project • Group activities • Collation of information	3. research and data collection 4. preparing data presentation
3. Reviewing/monitoring • Organisation of material • Final presentation	5. Presentation 6. Evaluation

In this study, the stages of Project-based language learning proposed by Fried-Booth (1986) were used for conducting the students' individual and group project. Because of the project stages aimed to promote students authenticity, learner autonomy, and motivation while creating project. Additionally, the project stages also encourage students to bridge the gap between language study and language use.

The Advantages of Project-based language learning

Several research studies covering different aspects of Project-based language learning in L2 and FL settings revealed five commonly reported benefits as follows.

The most commonly reported an advantage of project work is linked to the authenticity of students' experiences and the language they are exposed to and use. While engaged in project work, students participate in authentic tasks for authentic purposes (Allen, 2004; Levine, 2004; Catter and Thomas, 1986; Gu, 2004; Legutke, 1985; Sheppard and Stoller, 1995). For example, students conduct interviews, not for the sake of listening and speaking practice, but rather to gain access to information that can be used in meaningful ways to complete the project. Similarly, when students write letters as part of their projects, they expect actual responses from real people and real institutions.

Another commonly reported benefit of project-based language learning is the intensity of students' motivation, involvement, engagement, and participation. The previous studies reported that students' motivation was increased when they create the project work that can lead to students more engagement and participation (Catter and Thomas (1986), Coleman (1992), Ferragatti and Carminati (1984), Fried-Booth (1982), Gu (2004), Stoller (1997)). In addition, Willis (1996) pointed out that Project-based language learning (PBLL) can enhance student motivation. It can offer English students exposure to authentic materials, opportunities to use the target language, and motivation to learn, which are all considered to be essential conditions for language learning. Similarly, Thomas (2000) defined the main positive side effects of project-based language learning for students as the development of positive attitudes toward their learning process, work routines, abilities on problem-solving, and self-esteem.

The third most commonly reported advantage of project work is students' enhanced language skills. Students have reported improved reading, writing, speaking, listening, vabulary and grammar abilities. Due to the fact that project-work facilitates

repeated opportunities for interaction, modified input and negotiate meaning. Catter and Thomas (1986), Coleman (1992), Padgett (1994), Alan and Stoller (2005), Stoller (1997), and Gardner (1995) found that students are engaged in authentic tasks that require they read to write, write to speak, listen to write, and so forth, lending to meaningful language use and the important recycling of vocabulary and grammar form. Similarly, Mueller-Hartmann (2000) found that project-oriented learning allowed students to develop and express their views and made meaningful communication possible. In addition, Moss and Duzer (1998) reported that PBLL helped ESL students develop various skills because PBLL creates situations where students need to communicate to get the job done.

Another reported benefit of project work is students' improved social cooperative and collaborative skills. These skills were occurred when students work with classmates to gather, process, synthesize, and report information related to their projects (Coleman (1992), Fried-Booth (1982), Gardner (1995), Gu (2002), and Padgett (1994)). Additionally, Wilson (1995) mentioned that Project-based language learning can help students to work cooperatively and support each other as they learn to use a variety of tools and information resources in their pursuit of learning goals and problem-solving activities.

Finally, the review of literature reported that project work results in improved abilities to make decision, be analytical, think critically, and solve problems (Allen (2004), Alan and Stoller (2005), and Gardner (1995)). According to Rogers (2002), the benefits of PBLL using technology was to promote students' critical thinking, a self-reflective tool which can aid students in developing a sense of trust and interdependence.

Students had opportunities to collaborate, and opportunities to share successes and difficulties with others.

In conclusion, the benefits of using PBLL in class will support students to work cooperatively, provide opportunities to use the target language, enhance language skills, improve abilities to make decision, and think critically and motivate them to learn. While doing the project, students can use language to discuss, share ideas and information that can promote students' critical thinking, cooperative learning, and communicative skill. Additionally, students can develop their self-esteem and positive attitudes towards their learning process.

The Disadvantages of Project-based language learning

In noting the positive effects of the language classroom, however, authors such as Legutke and Thomas (1991) have not mentioned elements concerning the more negative aspects of dealing with the individual student. Firstly, while a difference between individual students is well recognized, ways of catering for these differences have been little discussed. Yet for project-based language learning to be fully effective, the learner-centered classroom requires more than differentiated tasks: it requires a negotiated curriculum (Candlin & Murphy, 1987:1) as well as '*differentiated curricula for different learners*' (Nunan, 1988:3). Another element is the problem that not all students are likely to respond to the learner-centered approach and the personal responsibility it involves in the same positive manner: and with this comes the problem that students cannot be expected to be equally successful in the learner-centered environment (Candlin & Murphy, 1987).

Blumenfeld (1991) showed that the weakness of Project-based language learning is that there is often a poor fit between the activities that focus on day-to-day tasks and the underlying subject matter concepts that gave rise to the project. Projects sometimes go off track, with teachers and students pursuing questions that are peripheral to the subject matter under discussion.

The solution, according to Blumenfeld (1991) and Barron et al. (1998) is to find ways for projects to center on "learning appropriate goals." For Blumenfeld (1991), an appropriate strategy is to help teachers develop "driving questions," that will ensure that students encounter and struggle with complex concepts and principles.

Assessing Project Work

Project-based language learning process involved identifying specific tasks and responsibilities so that the team members know their roles and what was expected of them.

Moss & Duzer (1998) mentioned that Project-based language learning can evaluate employability skills and language skills. Teachers should introduce students to self-evaluation and peer evaluation prior to embarking on a project. Students can evaluate themselves and each other through role plays, learner-to-learner interviews, and writing activities. They can become familiar with completing evaluation forms related to general class activities, and they can write about their learning in weekly journals where they reflect on what they learned, how they felt about their learning, and what they need to continue to work on in the future. They can even identify what should be evaluated and suggest how to do it.

Lawrence (1997) said that project assessment can be done by teachers, peers, or oneself. Teacher can observe and assess the language skills that students exhibit through the use of checklists, analysis of student logs and diaries, and analysis of the texts that students produce in the process of project work. Students can reflect on their own work and that of their peers, how well the team works, how they feel about their work and progress, and what skills and knowledge they are gaining. Reflecting on work, checking progress, and identifying areas of strength and weakness are part of the learning process. Assessment can also be done through small-group discussion with guided questions. Questionnaires, checklists, a dialogue journal, portfolios or essays can help students do this by inviting them to reflect critically on the skills and knowledge they are gaining.

Research on Project-based Language Learning

Many studies on Project-based language learning found that when doing the project work students to work cooperatively, provide opportunities to use the target language, enhance language skills, and provide authentic interaction. The results of research studies related to the present study were reviewed below.

Eguchi Mariko (2006) taught English by using magazine projects to Japanese students. The results showed that the project was an enjoyable experience for the students, but the projects did not have a significant effect on English learning for low level students. The reasons of the projects' failure were discussed in terms of issues of CLT in EFL: the priority of task over tools in the same L1 classroom and lack of natural contact with L2 speakers outside the classroom.

Gu (2002) reported that Project-orient Computer Assisted Language Learning (PrOCALL) classes in an EFL tertiary setting in China have provided students with

authentic interaction with a variety of audiences, increased their levels of input and output, and enhanced motivation, engagement, and willingness to learn collaboratively. PrOCALL can be seen as a holistic learning approach aimed at employing modern technology to trigger students' ability to act with words and create social realities in and out of the classroom, and thus to facilitate learning.

Ljung and Blackwell (1996) describe Project OMEGA, a program for at-risk teens that combines traditional instruction with problem-based learning (part of the Illinois Network of Problem-based Learning Educators) that constitutes a school-within-a-school. The authors report positive transfer following enrollment in Project OMEGA. Graduates of the program all passed their English, US history, and mathematics courses in the year following exposure to the program, although the authors fail to provide sufficient information to allow one to evaluate the meaning or significance of this outcome.

In conclusion, Project-Based Language Learning is an approach that relies on a concept of the classroom as student-centered and the teacher as facilitator of knowledge. Students can work cooperatively, share ideas and information with each others that can enhance students’ motivation.

Project-based language learning could be evaluated by individuals, peers and teacher. Students can assess their own work, how they feel about their project work, and knowledge they are gaining. In addition, they can work collaboratively and consider their peers work. Teachers can observe the knowledge or skill that the students use and the ways they use language during the process of the project.

Reading Comprehension

Reading comprehension is an active process in which a reader plays a very active role in constructing meaning based on their background, purposes for reading, and the overall setting. In this study, reading comprehension was a key skill. Definitions of reading comprehension levels of reading comprehension as well as the methods of teaching reading were reviewed in this part.

Definition of Reading Comprehension

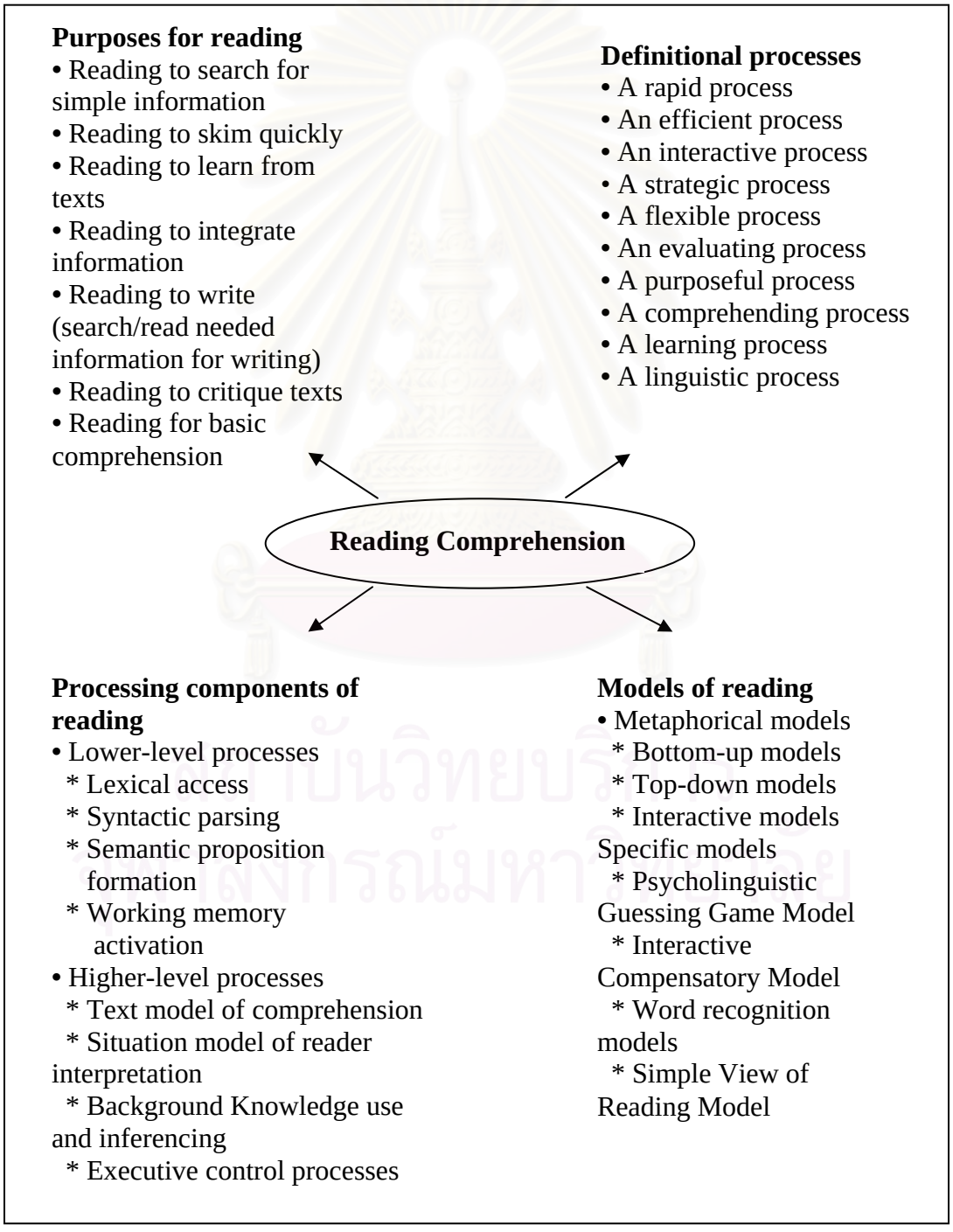
Nuttal (1996:4) defines the term “reading” as “a process to get meaning from a text”. According to Sheng (2000), the process of reading includes the process of recognition, interpretation, and perception of written or printed material. Rubin (1993) and Burns (1999) suggest that reading comprehension refers to an ability to get the meaning of what is read, which requires the comprehending of meaning on the part of the reader. Therefore, teachers of reading need to understand the nature of reading comprehension in order to enable their students to comprehend texts and to teach reading more efficiently and effectively.

According to Carrell (1988), reading comprehension is an interactive process between the reader’s background knowledge and the text. Accordingly, comprehension requires an ability to relate the text materials to the reader’s own knowledge. The reader plays a very active role in constructing meaning based on his purpose in reading, background knowledge, and the overall setting.

Grabe and Stoller (2002) suggested that comprehension is one of the purposes that encourage people to read. Comprehending a text is the common and basic purpose in reading and it is more complicated than other kinds of reading. They also stated that

"reading for general comprehension requires very rapid and automatic processing of words, strong skills in forming a general meaning, presentation of main ideas, and efficient coordination of many processes under very limited time constraints" (p.14). An overview of the reading comprehension is summarized in Figure1.

Figure 1. The overview of reading comprehension (Grabe and Stoller, 2002: 38)



Levels of Reading Comprehension

Readers are expected to read at different levels of comprehension to help them understand the text they are reading. However, numerous researchers use slightly different labels to identify and discuss these levels. Mainly, however, researchers focus on three comprehension levels, with designations varying from “Literal, Interpretive, Applied” (Herber, 1978), to “Text-Explicit, Text-Implicit, Experience-Based” (Readence, Bean, &Baldwin, 1989), to “Literal, Interpretive, Critical and Creative” (Roe, Stoodt, & Burns, 1995). Differences in these labels showed the fact that everyone is talking about essentially the same thing but only the labeling terminology changes.

Alderson (2000) pointed out that there are three levels of reading comprehension. The first one is literal understanding. Another is “an understanding of meaning that is not directly stated in the text” which can be termed “referred meaning.” The last level is “an understanding of the main implications of the text” in which the readers employ critical thinking about the text being read.

In 1978, Herber proposed that reading comprehension can be classified into three different types according to the reader’s purposes in reading and the level of comprehension that were (a) literal comprehension, (b) interpretive comprehension, and (c) applied comprehension. The three levels of comprehension are presented in the following hierarchy from the least to the most complex level of reading comprehension.

The first level, *literal comprehension,* is the most obvious. Meaning at this level is derived from “reading the line”. Literal comprehension is reading in order to understand, remember, or recall the information explicitly contained in the passage. Questions of literal comprehension can be answered directly and explicitly from the text. For example,

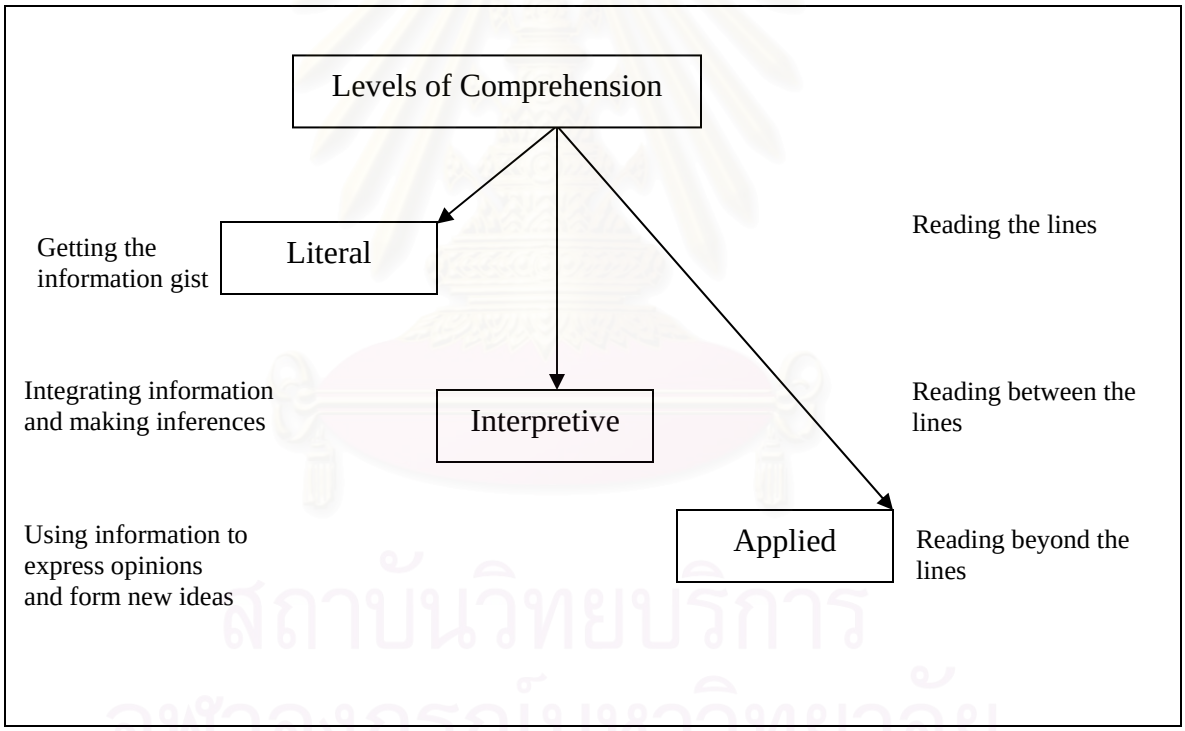
readers are asked to recall facts explicitly stated in the text about a character (name, feelings, variables), the setting of the story, the time the story takes place, a single action or event, and actions. In addition, it is also appropriate to test vocabulary. According to Karlin(1971), “being able to read for literal meanings i.e. stated ideas is influenced by one's mastery of word meanings in context”.

The second level or strand is *interpretive or referential comprehension.* At this level, meaning is derived by reading “between the lines”, in which readers are required to think and go beyond what they have to read. They must be able to read critically and analyze carefully what they have read. Readers need to be able to see relationships between ideas, for example how ideas go together and also see the implied meanings behind these ideas. It is also obvious that before readers can do this, they have to first understand the ideas that are stated (literal comprehension). Interpretive or referential comprehension includes thinking processes such as drawing conclusions, making generalizations and predicting outcomes. Readers may initially have a difficult time answering inference questions because the answers are based on material that is in the text but not explicitly stated. At this level, teachers can ask more challenging questions such as asking students to re-arrange the ideas or topics discussed in the text, paraphrase, explain the author's purpose in writing the text, summarize the main idea when this is not explicitly stated in the text, and select conclusions which can be deduced from the text they have read.

Finally, the third level of comprehension is *applied comprehension***.** At this level, meaning is derived by reading “beyond the lines” here the reader understands unstated relationships between information in text and information in his/her prior knowledge.

Applied questions utilize the readers' background knowledge and lead them to evaluate, elaborate, predict, or solve problems based on information implicit in the text from which ideas and information are evaluated. Applied evaluation occurs only after readers have understood the ideas and information that the writer has presented. At this level, readers can be tested on their ability to differentiate between facts and opinions, recognize persuasive statements, and judge the accuracy of the information given in the text. Vacca and Vacca (1989) proposed the levels of comprehension given in Figure 2.

Figure 2. Major Aspects of Levels of Comprehension. (Vacca & Vacca, 1989: 155)



More recently, Day and Park (2005), reflecting on the works of Pearson and Johnson (1972) and Nuttall (1996) proposed taxonomy of reading comprehension. They suggest that there are six levels of comprehension: literal, reorganization, inference, prediction, evaluation, and personal response. In Day and Park (2005)'s description of

reading comprehension, *literal comprehension* involves understanding and obtaining explicit information presented in the text, such as facts, vocabulary, dates, and times. The next type of comprehension is *reorganization,* which is based on literal comprehension; students need to make use of their comprehension from different parts of the text and combine it for additional understanding. An *inference* requires students to identify meaning that is in the text but not explicitly stated. This involves combining what is provided with personal experience and intuitions. The fourth comprehension type discussed by Day and Park is *prediction*, which involves being able to determine what might happen next in the flow of the text. To do this, readers are supposed to use both their understanding of the text and their personal background knowledge. An *evaluation* involves being able to make a judgement about the entirety or some aspect of the text. Finally, *personal response* necessitates a level of comprehension that enables readers to express a personal opinion about the text and subject.

In conclusion, reading comprehension can be described as an act to extract meaning from a text and integrate that meaning with various sources of knowledge such as cultural knowledge, schema, and linguistic knowledge of the language of the text. Individuals may comprehend the same text differently because of the influences of their background knowledge. So, it can be said that reading comprehension occurs in a continuum.

The Methods of Teaching Reading

To encourage students to use effective strategies when reading in a second or foreign language, there are many educators proposed the method for teaching reading such as KWL (What I Know?, What I Want to know?, and What I Learned?), SQ3R

(Survey, Question, Read, Recite, and Review) or PQRST (Preview, Question, Read, Self-recitation, Test) method. Barnett (1989) proposed a reading method that can develop simple exercises to elicit information via targeted strategies. The reading method contains four phases that are pre-reading, while reading, post-reading and follow-up.

Barnett's pre-reading activities were designed to activate relevant background knowledge, encourage students to predict content, give necessary cultural information, stimulate student interest, and provide them with a purpose for reading the text. Activities that Barnett suggest include brainstorming about ideas and vocabulary that will likely appear in the text, using titles, photos, and graphics to predict text topics and activate background knowledge, developing vocabulary through semantically-based activities, reviewing text types to help students identify text structure, practicing skimming and scanning, and encouraging students not to read word by word.

During reading, exercises help students acquire reading strategies, improve their command of the linguistic features of the target language, and decode difficult passages. At this stage, activities should help students to learn to infer word meanings from context, give them practice in recognizing cognates, prefixes, suffixes and word families, grammatical structures, and function words, and teach them when and how to use a dictionary effectively. Students can also identify items or facts which are confusing by rereading.

The purpose of postreading exercise is to verify that students can create a final summary of what they have learned, state how to use the information they get, revisit text for clarification and respond to questions. Types of comprehension check activities will vary depending on the text type and the amount of comprehension required by the

reading objectives the instructor has established. For example, Barnett points out that one reads classified ads in order to buy or sell something, a bus schedule to see bus arrival and departure times, and a short story for pleasure or to gain a new perspective on life.

Barnett's follow-up activities provided students with opportunities to go beyond the text either by learning strategies that they can then apply to other texts, and by developing student creativity and high order thinking skills. To help students learn to transfer strategies from one text to another, Barnett suggested that instructors provide follow-up readings to which previously learned strategies can be applied. Follow-up activities also encourage students to think creatively and critically about what they have read. Such activities might include comparing one's own point of view with that presented in the text, recreating the theme of a story in a new context, and writing about a topic from a variety of points of view.

Summary

This chapter presented related literature and research on web-based instruction, project-based language learning, and reading comprehension. The review began with definition of web-based instruction, types of web-based instruction, the design of web-based instruction, advantages and disadvantages of web-based instruction, and research on web-based instruction were discussed. Web-based instruction can be described as teaching and learning supported by the resources of the World Wide Web. Students in a WBI course can use the Internet, computer network and web collaborative tools to learn according to their individual needs. It can be categorized into two types namely Web-based asynchronous learning and Web-based synchronous learning. This study applied the ADDIE model proposed by Leshin, Polluck, and Reigeluth (1999) to design the Web-

based instruction. The ADDIE model included analyzes needs, design, development, implementation and evaluation.

The literature review also included the concept of a project-based language learning approach. Project-based language learning can be described as an approach to language instruction that focuses on problem-solving and product development in language classroom. Project-based language learning promoted collaborative learning when students worked in group to solve the problems or accomplish a task.

The last issues focused on reading comprehension. The definition of reading comprehension, levels of reading comprehension and reading method was reviewed. Reading comprehension refers to the ability to understand information presented in written form. Students may comprehend the same text differently because of the influences of their background knowledge. Reading comprehension can be categorized into three levels according to Herber (1978) that were literal, interpretive and applied comprehension. The literal comprehension level requires the reader to recall or recognize information explicitly presented in the reading materials. In addition, the meaning of interpretive comprehension level derives by reading between the lines. Reader can integrate information and make inference. Additionally, the meaning of applied comprehension level derives by reading beyond the lines. Reader should use information from the reading text to express opinions and form new ideas. In this study the process of lesson plans were based on Barnett (1989) contained four phases that were prereading, while reading, postreading, and follow-up activities.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

This chapter describes: (1) setting, (2) population and samples of the study, (3) the design of Web-based English reading instruction using Project-based language learning, (4) research procedure, (5) research instruments. It ended with data collection and data analysis. The research objectives of this study are:

1. To investigate effects of Web-based English reading instruction using Project-based language learning on students' reading comprehension ability.

2. To explore students' opinions towards Web-based English reading instruction using Project-based language learning.

Setting

Phetchaburi is located in the central district of Thailand. The setting chosen for this study was Phetchaburi Rajabhat University. The original goal of the university was to train pre-service teachers. Students from the local community of Phetchaburi Province and other nearby provinces are given priority for admission. There are six faculties in the university; Education, Humanities and Social Sciences, Management, Sciences and Computer Sciences, Industrial Technology, and Agriculture.

Population and Samples

Population

The population involved in this study was 1,482 second-year undergraduate students at Phetchaburi Rajabhat University, Phetchaburi Province, Thailand. They were from 6 faculties; Humanities and Social Science, Education, Management,

Sciences and Computer Sciences, Industrial Technology, and Agriculture who were studying in the first semester of the academic year 2007.

Samples

The samples in this study were 23 second-year students in the Faculty of Humanities and Social Sciencess, Phetchaburi Rajabhat University. They were majoring in Business English and enrolled in the Paragraph Reading course (1553201) in the first semester of the academic year 2007.

23 students in this study consisted of 21 females and 2 males between the ages of 17 and 19. Most of them were born in Phetchaburi and Prachuap Khiri Khan Province. They were selected by purposive sampling.

Selection criteria

The selection criteria of the population and samples of this study were due to the suitability of the samples and the completion of English two core courses and Computer core course.

1) The suitability of the samples

The population of this study was undergraduate students at Rajabhat University. According to Rajabhat University Act 2004, it is states Rajabhat University should promote local wisdom, improve, transfer, and develop technology into the local community. In order to develop Web-based English reading instruction using Project-based language learning, the use of computer and technology in class might support the Rajabhat University Act 2004. For these reasons, the selection of undergraduate students from Phetchaburi Rajabhat University was in the line with Rajabhat University Act 2004 in that the university should promote the use of computer and technology.

2) The completion of English two core courses and Computer core course

In this study, undergraduate students majoring in English were selected as samples. There were 2 English major groups at Phetchaburi Rajabhat University: one group was from the Faculty of Education and the other group from the Faculty of Humanities and Social Sciences. In this study, students from the Faculty of Humanities and Social Sciences were selected because they had completed two English core courses and one Computer core course.

The undergraduate students who passed Foundation English (1550101) and English for Communication I (1550103) were selected. The information gained from the course description and objectives of the course found that students had basic English competency skills such as; grammar usage, and communicative skills. Additionally, it was assumed that vocabulary level is about 1,500 words.

Since the purpose of this study aimed to investigate the effects of Web-based English reading instruction using project-based language learning, the participants need to have basic skills in computer and Internet. From the English curriculum, the first-year students had to enroll in Computer Hands-on Techniques (4120102) course. The objectives of the course required students to learn basic skills in computer and Internet. So, it was assumed that the undergraduate students had basic skills in computer and Internet. Also, 23 second-year Business English major students who completed two English courses, already had basic computer skills. They took Computer and Computer Skills Inventory questionnaire prior to the instruction and were selected as samples of the study.

The Design of Web-based English Reading Instruction using Project-based Language Learning

The Web-based English reading instruction using Project-based language learning were used as the instructional materials. The website was constructed using Macromedia DreamweaverMX 2004, Macromedia FlashMX 2004, Macromedia CourseBuilder, Adobe PhotoshopCS and Macromedia Authorware. The link to the Web-based English reading instruction using Project-based language learning website was http://161.200.155.9/paragraph/. In sum, the design of Web-based English reading instructional materials was as follows.

1. *The main page.* The main page of the website provided the links to the course syllabus, websites, project work, and lesson and activities section.

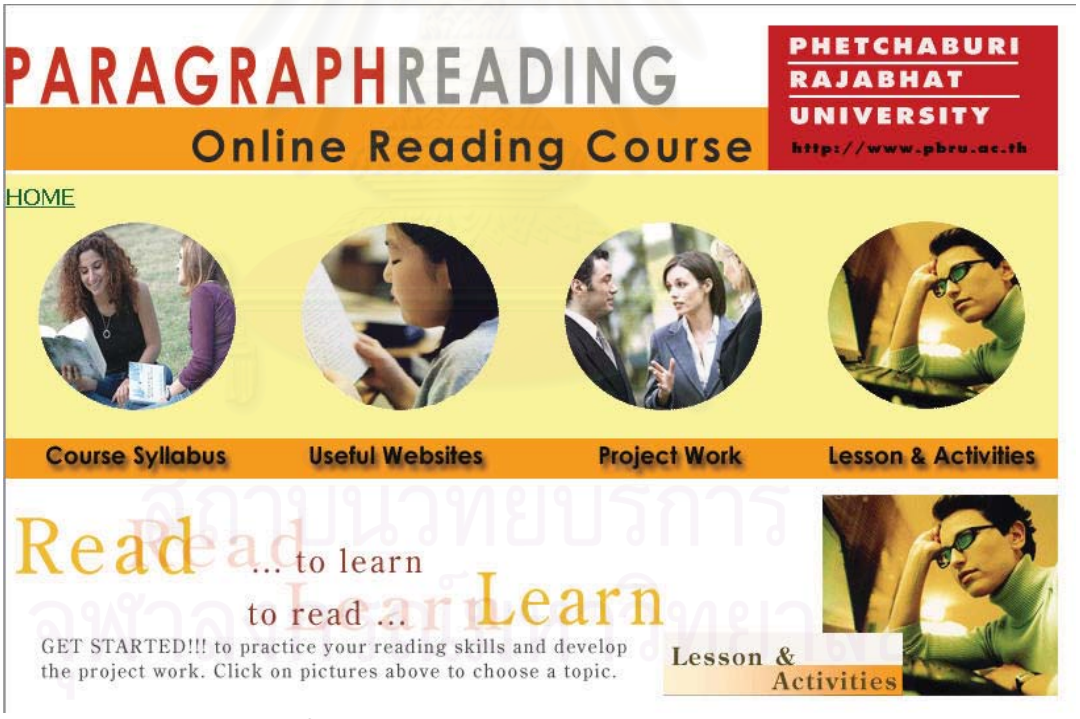


Figure 3. The example of the main page on the course website

2. *Course Syllabus*. In this section, students could read the course syllabus and course schedule.

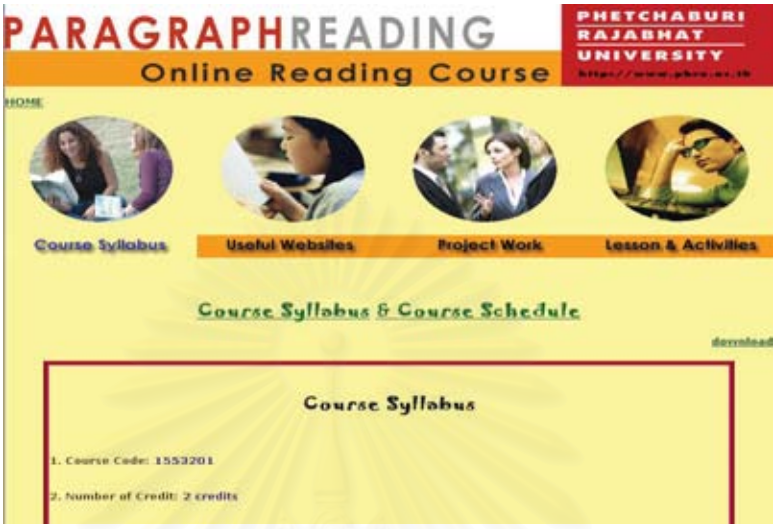


Figure 4. The example of the course syllabus page on the course website

3. *Useful Websites*. The websites related to the themes of reading project were prepared in order to facilitate students and let them have choices to choose the reading texts.

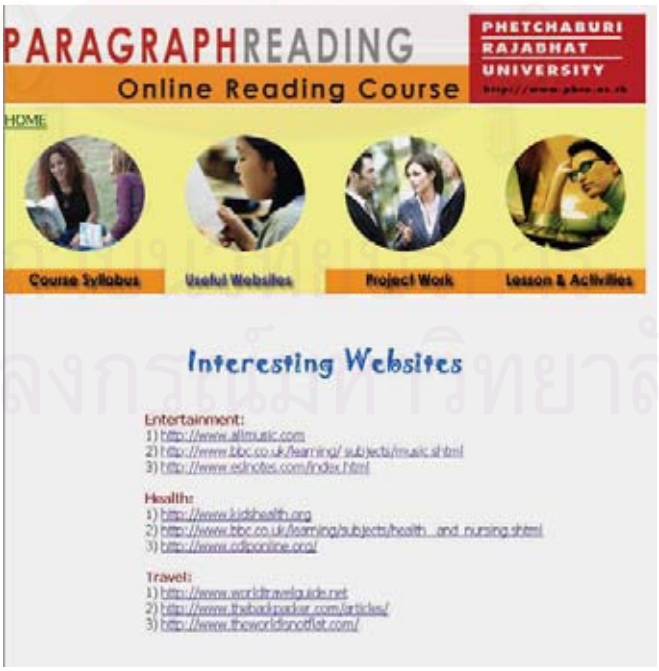


Figure 5. The example of the useful websites section on the course website

4. Lesson and Activities. The reading strategies, reading texts, and in class and out of class activities were uploaded to the website in the *Lesson & Activities* section. In addition, students could download PowerPoint Presentation that teacher taught in each chapter. (See Appendix C, p. 137).

Figure 6. The example of the lessons and activities section on the course website

5. *Student Project Work*. The projects that students construct while studying this course were uploaded to the weblog. In this section, the links to students' weblog were prepared. Thus, students could link to individual and group weblog. The example of students' online project work was illustrated in Appendix K (p. 176).

Figure 7. The example of the students' project section on the course website

The process of Project-based language learning (PBLL) in this study was based on Fried & Booth (1986) consisted of three stages namely classroom planning, carrying out the project, and reviewing and monitoring the project. In this study, the individual and group project was created by using the Multiply weblog (http://multiply.com).

For the individual project activities, teacher was assigned the activities that related to the reading strategy that students learnt in each week. The reading strategies that teacher taught were predicting the content of the text, finding the general and specific idea, finding the main idea and supporting details, making references and inferences, and summarizing the content of the text. Then, the reading text was chosen according to student individual needs under the topic of their group project. The student's individual project activities in each week were summarized in Table 3 (See Appendix L, p.178).

Table 3.
Student's individual project activities

Week	Individual Project Activities
3	**Predicting the content of the text and setting goals for reading:** Activity Search a text that related to the student's individual project, predict the content of the text and set goal for reading
4	**Finding the main idea and supporting details:** Activity Search a text that related to the student's individual project, draw a concept mapping of the general and specific idea.

Table 3.
Student's individual project activities (cont.)

Week	Individual Project Activities
5	**Finding the main idea and supporting details:** Activity 1. Search a text that related to the student's individual project 2. Find key words from the text and use key words to write the main idea of the text. 3. Find two or three details from the text that support the main idea.
7	**Making references and inferences:** Activity 1. Quote one paragraph that relate to students' group topic. 2. Make inferences of the paragraph in their own words by using at least 3 out of 7 clues.
8	**Summarizing the content of the text:** Activity Search a text that related to the student's individual project, summarize the content of the text by following the steps for summarizing a paragraph.

For the group project activities, students worked collaboratively in groups to create their group project. The first stage was classroom planning. The aim of this stage was to stimulate students to choose the theme and topic of the project by discussion of the idea. The group project activities in this study were selecting the group topic, making project plan and timetable and designing the project of group

weblog. The topic and assignments of the first stage is presented in Table 4 (See Appendix L, p.178).

Table 4.
The topic and assignments of classroom planning stage

Week	Topic and Assignment List
3	**Classroom Planning : Choosing a group topic for the project** 1. Work through the orientation materials. 2. Read the syllabus, course calendar, and course requirements information. 3. Select the group topic and present it in front of the class
4	**Classroom Planning : Drafting a project plan** 1. Making a project plan and timetable
5	**Classroom Planning: Designing and Drafting group web log.** 1. Modifying project plans and timetable 2. Design format of the group web log.

The second stage was carrying out the project. The activities used during this stage were draft and compose the project, and produce group project. In this stage, students worked in pairs or in small groups to find the sources to complete their planned tasks both in and out of class. The topic and assignments for the second stage is presented in Table 5 (See Appendix L, p.178).

Table 5.
The topic and assignments of carrying out the project stage

Week	Topic and Assignment List
6	**Carrying out the project : Draft and compose the project** 1. Finalize group web log design 2. Sign up the group web log. 3. Add group contacts.
7	**Carrying out the project : Produce group project** 1. Share the individual project within group. 2. Upload 3 reading strategies from the individual project to the group project. o Predicting the content of the text o General and specific idea o Main idea and supporting details 3. Submit the following tasks to the multiply weblog located in the blog area for this week: o Group topic o Group project planning

The last stage was reviewing and monitoring the project. This stage included the organization of materials and students' final presentation. Students were worked collaboratively to develop the end-product of the project. After the project presentation, the teacher and students were discussed and give feedback to the project group. The topic and assignments of reviewing and monitoring stage is presented in Table 6 (See Appendix L, p.178).

Table 6.
The topic and assignments of reviewing and monitoring stage

Week	Topic and Assignment List
8	**Reviewing and Monitoring: Peer Review** 1. Prepare to present group project in front of the class. 2. Post your project to the web log for review and evaluation. 3. Present group project in front of the class. 4. Give peer feedback to the other group web log 5. Summarize the feedback from peer review
9	**Reviewing and Monitoring: Revision Group Project** 1. Make change to final version of group project. 2. Share and discuss the individual project within group 3. Upload 2 reading strategies from the individual project to the group project. o Making References and Inferences o Summarizing the content of the text
10	**Reviewing and Monitoring: Prepare the presentation** 1. Summarize the ways to improve the project 2. Prepare group project for final presentation
11	**Reviewing and Monitoring: Presentation and Evaluate the Project** 1. Present the group project to the whole class with individual member explaining the page they contribute. 2. Give peer feedback to the project work. 3. Evaluate your project using the tool for peer review

To conclude, Figure 8 is presented the outline of students' individual and group project in each stage namely classroom planning, carrying out the project, and reviewing and monitoring.

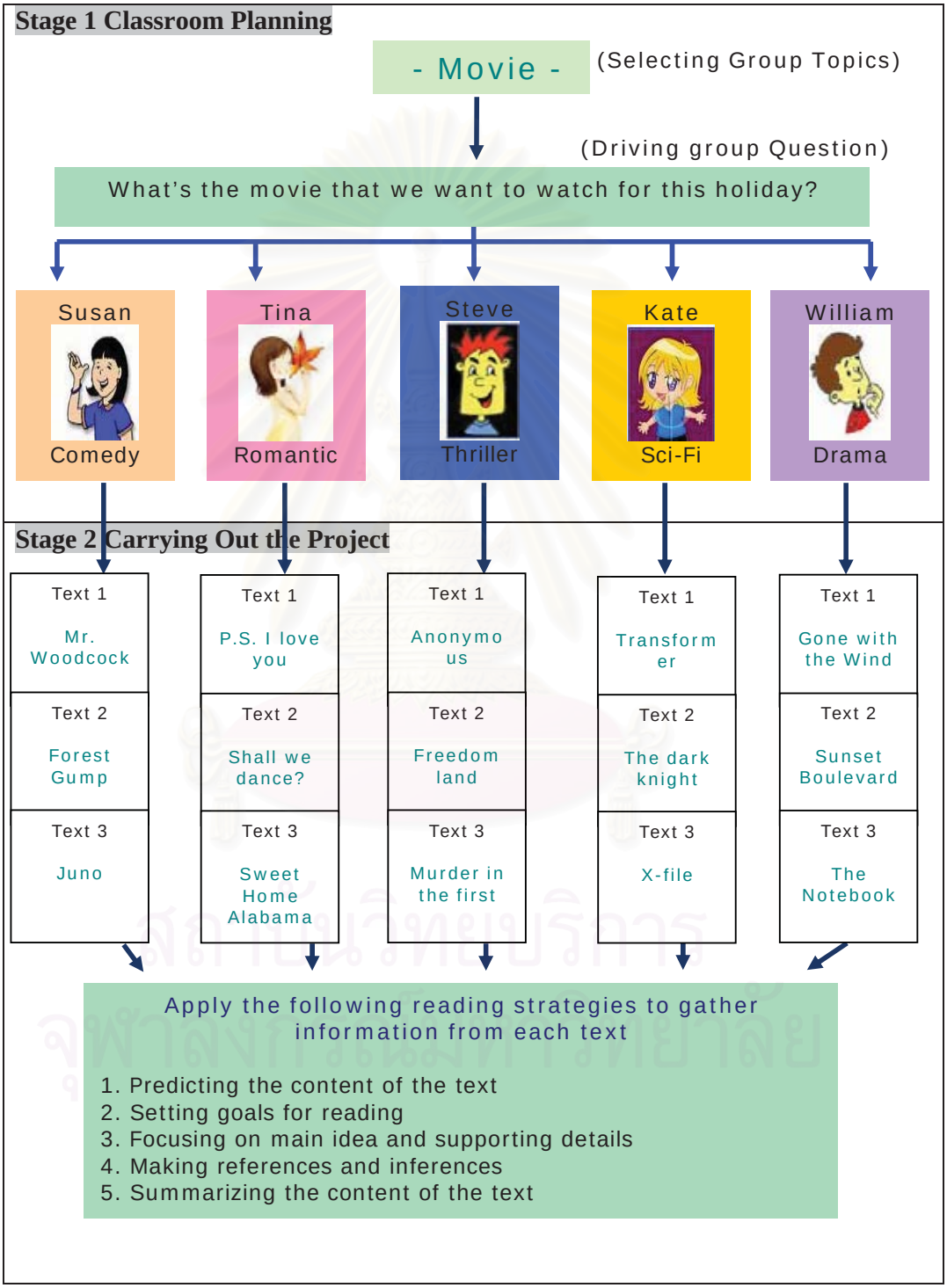


Figure 8. The outline of students' individual and group project

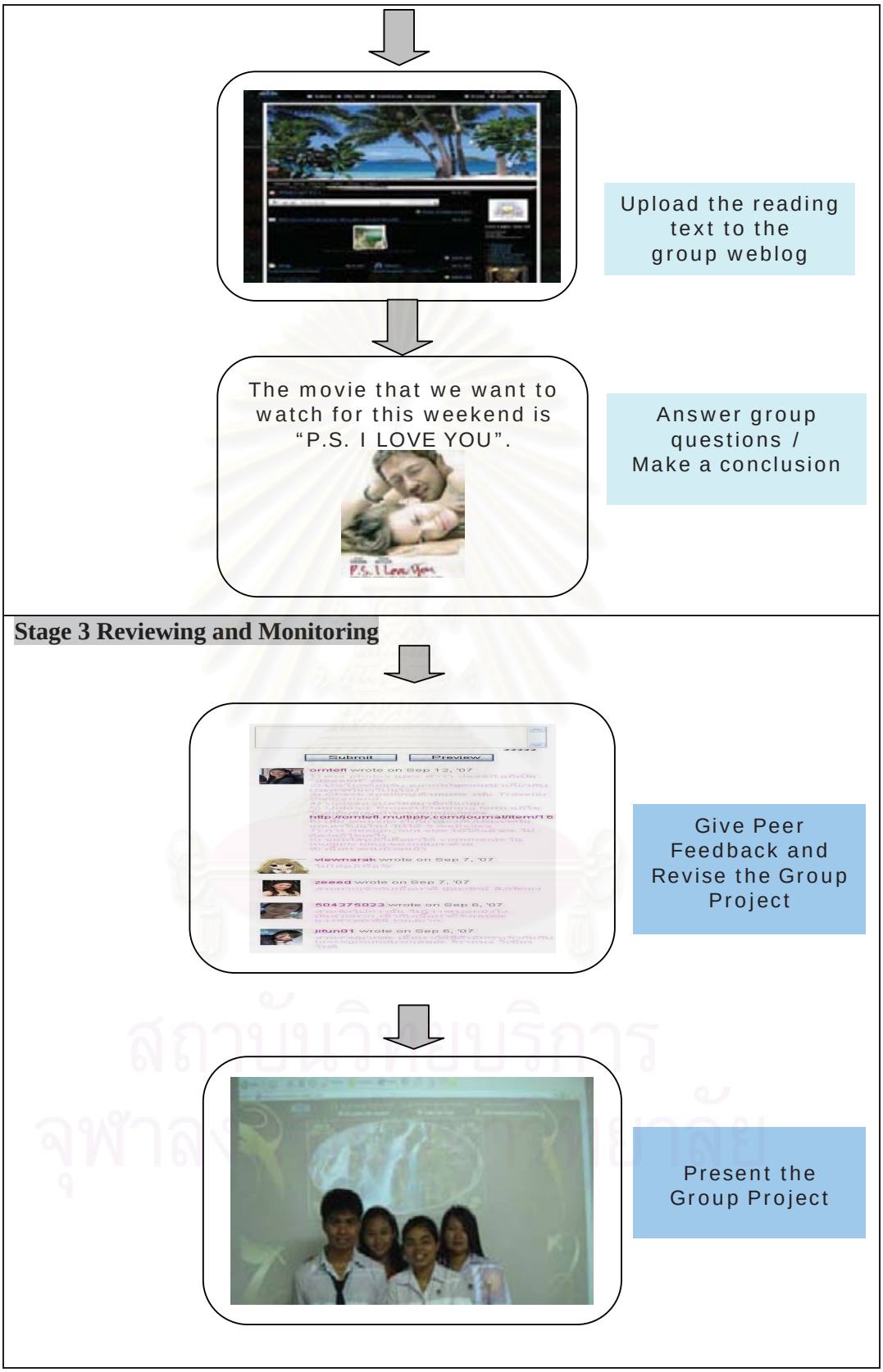


Figure 8. The outline of students' individual and group project *(cont.)*

The final grade students received for the course was based on their performance in the following assessment tasks and weighting:

1) Group Project (web magazine)	30%
2) Individual Project	20%
3) Mid-term examination	15%
4) Final examination	25%
5) Class participation	10%

For the individual and group project, teacher evaluated student's project activities by using "Assessment rubric for participation in Project-based language learning" (See Appendix N, p. 193). The Assessment Rubric for Participation in Project-based language learning evaluated students' project in the following topic 1) drafting the project plan, 2) collecting data, 3) producing group project, 4) posting questions, 5) applying reading strategies, and 6) presenting.

Research Procedure

Results derived from related documents and questionnaires were used to develop Web-based English Reading Instruction using Project-based language learning. The research was conducted in 3 main phases.

Phase I – Study the basic concepts and related document.

Phase II – Conduct a needs analysis to investigate the theme of reading project.

Phase III – Develop lesson plans and Web-based English reading instructional materials based on the information obtained from a needs analysis.

The development of Web-based English reading instruction using Project-based language learning for Rajabhat University students comprised three phases illustrated in Figure 9.

The Development of Web-based English reading instruction using Project-based language learning

Phase I: Explore theoretical framework (See p. 58)

1.1 Web-based instruction

1.2 Project-based language learning

1.3 Reading comprehension

Phase II: Conduct needs analysis (See p. 59)

2.1 Specify the population and samples in needs analysis phase

- 25 students from Phetchaburi Rajabhat University

2.2 Instruments in needs analysis phases

2.2.1 Documents analysis

- English Curriculum (Faculty of Humanities and Social Science)
- Paragraph Reading course description

2.2.2 Project Interest Survey Questionnaire

Phase III: Develop lesson plans and Web-based English reading instructional materials (See p. 62)

3.1 Analyze data obtained from the needs analysis

3.2 Develop lesson plans and Web-based English reading instructional materials

3.2.1 The process of lesson plans is based on Barnett (1989) including prereading, while reading and postreading.

3.2.2 The instructional materials were Web-based reading instructional materials using Project-based language learning.

- Web-based instruction was designed based on ADDIE Model Leshin, Polluck, and Reigeluth(1999).
- Project-Based Language Learning was applied based on Fried and Booth (1986) including classroom planning, carrying out the project, and reviewing and monitoring.

Figure 9. Development of Web-based English reading instruction using Project-based language learning

The Development of Web-based English reading instruction using Project-based language learning
3.3 Validate the lesson plans and Web-based instructional materials 3.3.1 Lesson plans are validated by 3 experts in English language teaching. 3.3.2 The Web-based instructional materials are validated by 3 experts in computer education. 3.4 Pilot the lesson plans and Web-based English reading instructional materials 3.4.1 23 Phetchaburi Rajabhat University students from the Faculty of Humanities and Social Sciences were pilot tested prior to the instruction.

Figure 9. Development of Web-based English reading instruction using Project-based language learning *(cont.)*

Details of each phase are presented to describe the process of Web-based English reading instruction using Project-based language learning as follows.

Phase I: Explore the theoretical framework

This phase aimed at studying and exploring the basic concepts of the relevant documents. The relevant documents were (1) Web-based reading instruction, (2) Project-based language learning, and (3) reading comprehension.

1.1 Web-Based Reading Instruction

Web-based instruction can be defined as a way of organizing and sequencing information in order to maximize the transfer of information from teacher to students. In theory, students have more opportunities to explore, discover, and learn according to their own individual needs. Students can create individualized learning to reach the desired goals, move at their own speed and get the information as needed (Hui & Cheung, 1999).

1.2 Project -Based Language Learning

Project-based language learning can be defined as a set of language teaching strategies which enable teachers to guide student through studies of real-world topics. When teachers implemented Project-based language learning successfully, students can be highly motivated, feel actively involved in their own learning, and produced work of a high quality (Moss and Duzer 1998).

1.3 Reading Comprehension

Reading comprehension is an interactive process between the reader's background knowledge and the text. According to Herber (1987) reading comprehension can be classified into three levels namely literal, interpretive and applied comprehension.

Phase II: Conduct needs analysis

This phase consists of two parts, namely population and samples, and instruments in a need analysis phase.

2.1 Specify the population and samples in the needs analysis phase

The population in the needs analysis phase consisted of first year students studying at Phetchaburi Rajabhat University, in the second semester of the academic year 2006. The samples were 25 first year students majoring in English who plan to enroll in the Paragraph Reading in the following semester of which the Web-based English reading instruction using Project-based language learning was experimented.

2.2 Instruments in needs analysis phase

The information from various sources was used to conduct the needs analysis. The documents analysis and Project-Interest Survey Questionnaire were two main sources for analyzing needs.

2.2.1 Documents Analysis

Before conducting the needs analysis, the relevant documents were studied to provide information for needs assessment. Relevant documents consisted of the English curriculum of the Faculty of Humanities and Social Sciences and the Paragraph Reading course description.

2.2.1.1 Faculty of Humanities and Social Sciences curriculum

The objectives of the English curriculum of the Faculty of Humanities and Social Sciences aimed to promote students' moral and artistic skills, English communication skills, critical thinking and problem-solving skills. In addition, students are expected to have a positive attitude towards the English language.

The English curriculum of the Faculty of Humanities and Social Science, majoring in Business English had 5 courses which focus on teaching reading, namely, Paragraph Reading (1553201), A Discourse Approach in Reading (1551104), Reading English for General Purposes (1551110), Reading Business English (1551610), and Reading for Text Interpretation (1552105).

2.2.1.2 Paragraph Reading course description

The Paragraph Reading course (1553201) is the core course for English major students. This course aims to teach students basic reading strategies at the complex sentence level, including embedded forms, and at the paragraph level. Students also learned how to identify ideas on organization patterns in paragraphs, use context clues and word-study skills to discover the meaning of new words, identify the topic, the topic sentence, the main idea, and important supporting details as well as make references and inferences.

2.2.2 Project Interest Survey Questionnaire

The Project Interest Survey Questionnaire was used to discover the theme of the reading project that the students liked most. Textbooks on reading from various resources were studied to construct the Project Interest Survey Questionnaire.

A total of 15 question items were distributed to 25 students. The Project-Interest Survey Questionnaire asked about the theme of the reading project that the students liked most. The range of scores, for the interest was rated using a Likert scale from (5) for very interested to (1) for not interested in the theme. The Project-Interest Survey is illustrated in Appendix A (p. 135).

The data was processed and analyzed using SPSS for Windows. Results were presented in the form of frequency, percentage, and arithmetic means, and standard deviation. The results of the Project-Interest Survey were shown in Appendix B (p. 136).

The data from the Project Interest Survey questionnaire was analyzed using arithmetic means and standard deviation. the results of the questionnaire showed that the most preferable themes were “entertainment”, “travel” and “health” with average scores of 4.38 ($\overline{X}$ = 4.38, S.D. = 0.576), 4.21 ($\overline{X}$ = 4.21, S.D. = 0.779), and 4.08 ($\overline{X}$ = 4.08, S.D. = 0.717) respectively. On the other hand, the topic “science fiction” was a topic that students were interested the least with the average score of 2.75 ($\overline{X}$ = 2.75, S.D. = 0.944).

In conclusion, this phase is the stage of needs analysis. The findings from the documents analysis and the Project Interest Survey questionnaire were used to develop Web-based English reading instruction using Project-based language learning. The findings from the Project Interest Survey questionnaire revealed that students interested in “entertainment”, “travel” and “health.”

Phase III – Develop lesson plans and Web-based English reading instructional materials

The Web-based English reading instruction using Project-based language learning was developed based on the following steps: 1) Analyze data from a needs analysis procedure, 2) Develop the lesson plans and Web-based English reading instructional materials, 3) Validate the lesson plans and Web-based English reading instructional materials and 4) Pilot the lesson plans and Web-based English reading instructional materials. The following sections described the process of developing lesson plans and Web-based English reading instructional materials.

3.1 Analyze data from a needs analysis procedure

Data received from a needs analysis was useful to develop Web-based English reading instruction using Project-based language learning. In this study, the results from the needs analysis revealed that there are 4 goals in an English curriculum: communication, moral, critical thinking and problem-solving skills. The Paragraph Reading course (1553201) aimed to teach the students about basic strategies for reading efficiency at the paragraph level. According to the Project Interest Survey questionnaire, the results revealed that students were interested in the themes “entertainment”, “travel” and “health.”

3.2 Develop lesson plans and Web-based English reading instructional materials

3.2.1 Lesson Plans

Based on data from the needs analysis, the most preferred themes were selected to develop the contents. In other words, the scope and sequence of the Web-based English reading instruction using Project-based language learning was organized around to the 3 selected themes. The scope and sequence of Web-based

English reading instruction using Project-based language learning was showed in Appendix C (p.137).

(1) The themes and topics of the lesson plans were based on the Project Interest Survey Questionnaire. The students' preferred themes were: entertainment, travel, and health. According to the result of needs analysis, a scope and sequence of the Web-based English reading instruction using Project-based language learning was developed. The scope and sequence of the course included reading skills, PBLL procedure, in class and out of class activities and evaluation instruments.

(2) Then, reading texts that related to the theme from the various websites were selected. In Table 7, the theme "entertainment" had 3 reading texts, theme "Health" had 2 reading texts, and theme "Travel" had 2 reading texts. The reading texts were illustrated in Table 7.

Table 7.
The themes and reading texts of the lesson plans

Themes	**Reading Texts**
1. Entertainment	1. Legally Blonde (Appendix D, p.144 & Appendix E. p. 153)
	2. Mass Media
	3. Wolfgang Amadeus Mozart
2. Health	4. University students not allowed to drink alcohol
	5. Sleep: An Important part of Life
3. Travel	6. On the beach in Cha-Am
	7. Maruekkhathayawan Palace (Palace of Love and Hope)

(3) Each lesson plan included the title of the unit and lesson, rationale, objectives, instructional media, vocabulary, and teaching procedures. The teaching steps in the procedures for each lesson plan were developed based on Barnett (1989) included prereading, during reading, postreading and follow-up.

The first step was the pre-reading stage, the teacher provided students with a purpose for reading the text, encouraged them to predict the reading strategy they learned in class and explicitly taught reading strategies. The reading strategies that teacher taught in this study were predicting the content of the text, finding the general and specific idea, finding the main idea and supporting details, making references and inferences, and summarizing the content of the text.

In the next step, during reading, there were exercises which encouraged students to read the paragraph for themselves by using the reading strategy that the teacher had taught in class. After that they did the reading activities to check their understanding. Students also identified confusing items or facts by rereading.

Then, the post-reading exercise was done to verify that students could create a final summary of what they had learned, could state how to use the information they retrieved, could revisit the text for clarification and work in groups to share their information about the paragraph.

The last step was the follow-up activities which provided students with opportunities to go beyond the text either by implementing learning strategies that they could apply to other texts, or by developing their creativity and high order thinking skills. Project activities were assigned to students to transfer learned reading strategies such as predicting the content of the text, summarizing, and finding the main idea and supporting details.

For the Web-based English reading instruction using Project-based language learning activities, the teacher assigned students the task of creating individual and group project activities. The individual projects assigned to the students every week were related to the reading strategy they had learned such as predicting the content of the text, setting goals for reading, making references and inferences. In the 6th and 9th weeks, they worked in groups and selected texts from individual projects within their group to become a group project. A sample of lesson plan is illustrated in Appendix D (p.144).

3.2.2 Web-based English reading instructional materials

The instructional materials for the Web-based English reading instruction using Project-based language learning were Web-based English reading instructional materials. Students had access to various kinds of online texts in their reading class to promote students' autonomous learning and to find out how helpful the students thought the web-based language learning activities in a web-based reading course really was.

According to the ADDIE model and Project-based language learning procedure, the Web-based English reading instructional materials were developed in order to use in the Web-based English reading instruction using Project-based language learning. The framework of the Web-based English reading instruction using Project-based language learning is illustrated in Figure 10.

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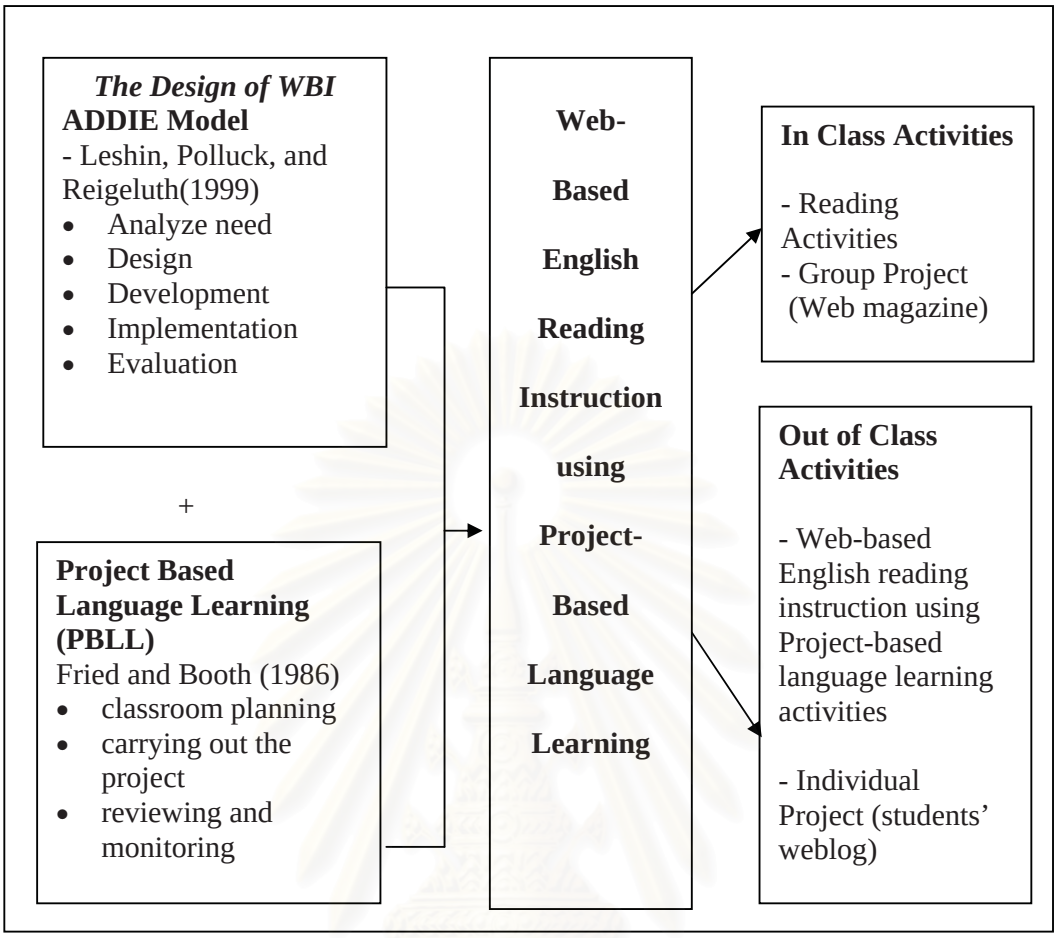

Figure 10. The framework of Web-based English reading instruction using the Project-based language learning

As illustrated in Figure 10, the goal of Web-based English reading instruction using Project-based language learning in this study included lesson design model and Project-based language learning.

1) The lesson design in Web-based English reading instruction based on the ADDIE model of Leshin, Polluck, and Reigeluth (1999) included analyzing need, design, development, implementation and evaluation.

2.) Project-based language learning (PBLL) based on Fried and Booth (1986) consisted of three stages namely classroom planning, carrying out the project, and reviewing and monitoring the project.

3.3 Validate the lesson plans and Web-based English reading instructional materials

The checklists were constructed and three experts in English language teaching evaluated and commented on the lesson plans (See Appendix G, p. 165). In addition, three experts in computer education evaluated the Web-based English reading instructional materials (See Appendix F, p. 163).

3.3.1 Lesson Plans

Three experts in English language teaching evaluated and suggested on the lesson plans using the following criteria:

4.00 – 3.50 = Excellent

3.49 – 2.50 = Good

2.49 – 1.50 = Average

1.49 – 1.00 = Revise

3.3.1.1 Revise the lesson plans according to experts' suggestions

After, three lesson plans had been validated, the theme, reading strategies, objectives, in class and out of class activities were revised according to the experts' suggestions. The experts' validation of three lesson plans is illustrated in Table 8 (See Appendix F, p. 163).

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Table 8
The experts' validation of three lesson plans

	Entertainment	Health	Travel	Total	Results
1. Theme	3.67	3.67	4.00	3.78	excellent
2. Objectives	4.00	3.67	3.67	3.78	excellent
3. Reading strategies	3.67	3.67	3.67	3.67	excellent
4. In class activities: individual project	3.67	3.00	3.33	3.33	good
5. In class activities: group project	4.00	3.33	3.67	3.67	excellent
6. Out of class activities	3.00	3.33	3.33	3.22	good

Note: Grade 3.50-4.00= Excellent,2.50-3.49= good,1.50-2.49= average,1.00-1.49= revise

In addition, experts provided very useful suggestions to develop Web-based English reading instruction using Project-based language learning to be more effective. Experts' suggestions in each theme were as follows:

Entertainment: "Legally Blonde" lesson plan

The aims of the lesson plan focused on designing the group topic, predicting and setting goal before reading the entire text. The results of experts' validation indicated that the average scores of all items were between 3.33 and 4.00 (See Appendix G, p.165). It implied that the lesson plan and project-based activities has very good characteristics. Some suggestions for further revision provided by experts were the following topics: The objectives should be more observable, the prediction

handout should allow students to write in English and Thai, and additional suggestions from the experts.

1) Objectives

Expert A suggested that the terminal and enabling objectives should be more observable. The objectives were rewritten following this advice.

Enabling Objectives

1. Students should be able to choose a group topic.

   ↓ modified

   Students should be able to discuss and make a decision on their group topic. (modified)

2. Students should be able to set a goal for reading before they read the entire text.

   ↓ modified

   Students should be able to answer questions concerning how they will set their goal before reading. (modified)

2) In class and out of class activities

Expert B suggested that the prediction handout is too difficult for students to write in English. As a result, the teacher should allow them to write both English and Thai.

3) Additional suggestions

Expert C suggested that the tentative weekly schedule should help the experts to know the topics and reading strategies the teacher taught each week. Moreover, the expert would like to know what progress the research expected in students' projects each week. So, the scope and sequence of this course was given to the experts.

In conclusion, to the Legally Blonde lesson plan, the terminal and enabling objectives and the prediction handout from the in class and out of class activities were revised (See Appendix G, p. 149).

Health: “University students not allowed to drink alcohol” lesson plan

The aims of the lesson plan focused on designing the group project and making inferences from the text. The results of experts’ validation indicated that the mean scores of all topics were between 3.00 and 3.67. It implied that the lesson plan and project-based activities contained very good characteristics. Additionally, experts provided very useful suggestions to develop the lesson plan to be more effective comments were summed up in the following topic: in class and out of class activities, and additional suggestions.

1) In class and out of class activities

Expert A suggested teacher’s role should be included while students were working on their project. As a result, a sentence to explain the teacher’s role in the lesson plan was added.

2) Additional suggestions

Expert C suggested specifying whether the worksheet in the lesson plan would appear on paper or on the computer screen. So, the word “(On the computer screen)” to each worksheet was added. In conclusion, the teacher’s role and the worksheet were added to “University students not allowed to drink alcohol” lesson plan.

Travel: “On the beach in Cha-Am” lesson plan

The lesson plan and activities used in class were validated by three experts. The objectives of the lesson plan focused on revising the group project and summarizing the content of the text.

The results of experts' validation indicated that the mean scores for all topics were between 3.33 and 4.00(See Appendix G, p.151). It implied that the lesson plan and project-based activities contained very good characteristics. However, the experts gave the following suggestions for revising the instruction manual and lesson plans.

1) In class and out of class activities

Expert B suggested that students may take too much time to find the paragraph they really like and perhaps the text might be too difficult for their level. So, the teacher asked students to select the paragraph as homework.

Expert C suggested that there were too many activities in the "follow up" stage which might take too much time. As a result, individual activities were changed to group activities.

Comments and suggestions from the experts were useful to revise the Web-based English reading instruction using the Project-based language learning. Experts' comments on three lesson plans were summed up in the Table 9.

Table 9.
Experts' comments on lesson plans in Web-based English reading instruction using Project-based language learning

Lessons	Topic	Revised
Lesson 1: Legally Blonde	1. Objectives	1. The terminal and enabling objectives
	2. In class and out of class activities	2. The prediction handout from the in class and out of class activities
Lesson 4: University students not allowed to drink alcohol	1. In class and out of class activities	1. Teacher's role 2. Worksheet
Lesson 6: On the beach in Cha-Am	1. In class and out of class activities	2. Individual activities

3.3.2 The Web-based English reading instructional materials: Web-based English reading instruction using Project-based language learning

The Web-based English reading instructional materials in this study refer to Web-based English reading instruction using Project-based language learning. The Web-based English reading instruction using Project-based language learning created after the revision of the lesson plans. The Web-based English reading instruction using Project-based language learning was constructed using Macromedia DreamweaverMX 2004, Macromedia FlashMX 2004, Macromedia CourseBuilder, Adobe PhotoshopCS and Macromedia Authorware. Three experts in computer education visited the following website http://161.200.155.9/paragraph/ to evaluate and approve the 3 web-based lessons (See Appendix F, p. 149).

The checklists were constructed to evaluate the Web-based English reading instruction using Project-based language learning activities using the following criteria:

4.00 – 3.50 = Excellent

3.49 – 2.50 = Good

2.49 – 1.50 = Average

1.49 – 1.00 = Revise

3.3.2.1 Revise the Web-based English reading instructional materials according to experts' suggestions.

The Web-based English reading instructional materials were revised according to the experts' suggestions. The results from the checklists showed the mean scores of all items were between 3.17 and 3.27. In other words, the Web-based English reading instructional materials were of good level. The results are shown in Table 10.

Table 10.
Validation of the Web-based English reading instructional materials

	Expert D	Expert E	Expert F	Total	Result
1. Content and Ideas	3.40	2.80	3.40	3.20	good
2. Readability and Language	3.20	3.00	3.60	3.27	good
3. Technicality	2.75	3.50	3.25	3.17	good
4. Layout, Design and Navigation	3.20	3.40	3.00	3.20	good

Note: Grade 3.50-4.00= Excellent, 2.50-3.49= good, 1.50-2.49= average, 1.00-1.49= revise

The experts also gave some suggestions and comments for adapting the Paragraph Reading website. Thus, the Paragraph Reading website was revised according to the experts' suggestions and prepared for the pilot study. The experts' comments on the following topic: content, ideas, readability, language, conventions, technical, layout, design and navigation.

1) Content and Ideas

Expert D suggested that more information be given to make the site worth visiting. As a result, the researcher included more useful websites to provide the students with greater chances to use other kinds of resources.

Expert E commented that the website was quite intuitive and beautifully designed. It offered what it aimed to deliver. However, as it was developed as a web-based learning system, it should provide more navigational strategies. That is, the site should not only provide the students with the standard means of navigation, but should also offer students some tools to help them in navigation. In addition, these tools could save students from disorientation or 'lost in hyperspace' problem.

Expert F suggested that more information or guidelines be added to let students know what the website had to offer. For example, adding a site map, a side navigation panel, a table of contents, or a topic map, would make the website more useful.

Following the suggestions of Expert E and F, the researcher revised the webpage by including the title of the webpage and preparing a navigation bar on each webpage. So, the user had the option to go back and forth to view the webpage easily.

Expert F also commented that the interactive quizzes/exercises were useful as they could help students check and assess their understanding. In addition, they could motivate and prolong students' learning activities. However, the repeated use of 'next', 'back', and 'submit' buttons, used in Flash components, and the ordinary hyperlinks, may confuse students. In addition, too many interactive features may distract students' attention. So, the researcher deleted the 'next', 'back', and 'submit' buttons used on this website.

2) Readability, Language, and Conventions

Expert E commented that there were some grammatical errors in the website. So, the researcher rechecked the website to make sure that there were no grammatical errors.

Expert F said that the use of background and colors was fine, but the body of the text could be resized to make it more readable. So, the researcher increased the font size from 12 to 16.

3) Technicality

Expert D said that some external links (e.g. BBC links) did not work properly. So, the researcher rechecked the links. In addition, the researcher changed the BBC link to http://www.bbc.co.uk/worldservice/learningenglish/.

4) Layout, Design and Navigation.

The experts commented that the design of background and graphic elements was beautifully implemented, and the elements were used consistently throughout the web site. However, there were some suggestions from the experts.

Expert D commented that graphics might enhance the content of the website. However, issues such as the speed of navigation, file opening speed, bandwidth etc. had to be taken into consideration. Too many graphics employed may slow down the site's access time. So, the researcher deleted some flash files to raise the speed of navigation.

Expert E suggested that navigation links between pages were fine. The interface was intuitive. However, the site needed to be more user-friendly, and provide more robust navigation back to the main outline or index page. So, the researcher put a "table of contents" on the first page of each lesson. Comments and suggestions from the experts were useful to revise the Web-based English reading instructional materials. Table 11 was concluded experts' comments on Web-based English reading instructional materials.

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Table 11.
Experts' comments on Web-based English reading instructional materials

Topic	Comments
1. Content and Ideas	1. The website should include more useful website that related to the project's theme. 2. The website should offer students some tools to help them in navigation.
2. Readability, Language, and Conventions	1. There were some grammatical errors. 2. The text could be resized for a more readability purpose.
3. Technical	1. Some external link did not work properly.
4. Layout, Design, and Navigation	1. There were too many graphics that can slow down the website's access time. 2. The website should provide more robust navigation back to the main page.

3.4 Pilot test the lesson plans and Web-based English reading instructional materials

The purposes of the pilot study were to prepare the teacher and the Web-based English reading instruction using Project-based language learning for the instruction, and to identify what part of the course needed to be revised prior to the instruction.

After the revision of the lesson plans and Web-based English reading instructional materials by six experts, the lesson plans and Web-based English reading instructional materials were pilot tested with 23 second year students who formed the parallel group of the instruction group. They were studied in the Faculty of Humanities and Social Sciences and passed two English core courses and one Computer course namely Foundation English (1550101), English for Communication

(1550103) and Computer Hands-on Techniques (4120102). A pilot study was carried out for three weeks before the instruction. Based on the results gained from the pilot study, the lesson plans and Web-based English reading instructional materials were revised.

The lesson plans and Web-based English reading instructional materials were altered according to the results of the pilot study. The results stated that there were too many activities in one class period, so some activities were omitted. Another problem found in the pilot study was that the introductory part did not help students to link text and reading skill that they should learn. The introduction part was revised. For example, the introduction to “Legally Blonde” lesson, aimed to teach students to predict the content of the text. In the introduction part, the teacher asked students to see the picture and discuss the question. “Can you guess what the text will be about after you see this picture?” but students could not predict from the picture what topic they would learn. So, the teacher played the movie “Love Story in Harvard” to build students background knowledge in the prereading stage.

To conclude, after the pilot testing Web-based English reading instructional materials, some activities were omitted and introductory part was changed to help students link between the text and the reading strategy that they would learn.

Research Instruments

The instruments used in this study were (1) Web-based reading comprehension test, and (2) weblog. The aims of research instruments were to assess students’ reading comprehension ability and to collect students’ opinions towards Web-based English reading instruction using Project-based language learning. The research instruments of this study were illustrated in Table 12.

Table 12
Research instruments of Web-based English reading instruction using Project-based language learning

Instrument	Aim	Time of distribution
1. Web-Based Reading Comprehension Test	1. To assess students' reading comprehension ability. 2. To compare students' reading comprehension ability before and after the instruction.	Before and after the instruction
2. Weblog	To collect students' opinions on Web-based English reading instruction using Project-based language learning	on the 5th , 7th, and 11th week

1) Web-based Reading Comprehension Test

The Web-based Reading Comprehension Test involved two phases: before and after the instruction. The example of Web-based Reading Comprehension Test was illustrated in Appendix H (p. 153).

The topics of the test were based on themes of the course that were "entertainment", "health" and "travel" and in similar to reading texts presented in the classroom. Based on the reading strategies taught in class, the test was 30 multiple-choice questions in order to assess two different levels of reading comprehension ability namely literal comprehension and interpretive comprehension. The time allowed for the test was 90 minutes. The test consisted of 3 parts as follows:

Part I: Vocabulary comprehension test contained 10 items that measured students' literal comprehension by guessing word meaning from context in sentences.

Part II: Cloze test contained 8 items measuring students' literal comprehension by previewing and predicting the content of the text and selecting words using context.

Part III: Reading comprehension contained 12 items measuring students' interpretive comprehension by determining the meaning of words from context, selecting the topic sentence of a paragraph, identifying the main idea and supporting detail of a text, making references and inferences, and summarizing the content of the text.

After the pilot study, the Web-based reading comprehension test was analyzed for content validity, construct validity, and test reliability. To analyze the test validity, the scores on the Web-based reading comprehension test were analyzed using Item-Object Congruence Index (IOC). In addition, *Cronbach Alpha Coefficient* (α) was used to calculate the reliability of the Web-based reading comprehension test.

Test Validity

Three experts in reading and language education were asked to validate the content validity and construct validity of the test (See Appendix I, p. 174) There were 3 experts, who validated the content and construct validity of the test. The experts validated each item of the instruments by rating the objective of each item. The range of the score for an item was -1 to 1 where a value of 1 indicated that all experts agreed that the item clearly measured the objective as hypothesized. A value of -1 indicated that the experts believed the item measured an objective that was not defined to measure. A value of 0 indicated that it was unclear which content the item measured.

Content Validity

The *content validity* of the test aimed to validate how well the instrument measures the objectives of the test. To establish content validity, the Item-Objective Congruence Index (IOC) developed by Rovinelli and Hambleton (1977) was applied.

IOC (Item-Objective Congruence Index)

$$IOC = \frac{(M-1)S_i - S_t}{2N(M-1)}$$

where

M = the number of objectives

N = the number of expert judges

S_i = the summation of scores for objective i

S_t = the summation of scores for total objectives except i

Item-Objective Congruence Index (IOC) could be interpreted in two ways; with a score higher than or equal to 0.5 an item was considered acceptable to measure the objective and with the score less than 0.5 was considered unacceptable to measure the objective. The content validity of the Web-based Reading Comprehension Test was illustrated in Table 13.

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Table 13.
The content validity of the Web-based Reading Comprehension Test

	Expert			IOC	Result
	G	H	I		
1. The content of the test reflects the objectives of the test.	+1	+1	+1	1.00	acceptable
2. The test is appropriate for assessing the reading comprehension ability of second year students at Phetchaburi Rajabhat University.	+1	+1	+1	1.00	acceptable
3. The language used in the test is appropriate for second year students at Phetchaburi Rajabhat University.	0	+1	+1	0.67	acceptable
4. The time allotment is appropriate	+1	+1	+1	1.00	acceptable

Note: +1 = Yes, 0 = Not sure, -1 = No

* acceptable (IOC >= 0.5): Acceptable for measuring the objective of the test

* unacceptable (IOC<0.5): Unacceptable for measuring the objective of the test

In Table 13, the results from the checklists showed that the content of the Web-based reading comprehension test was acceptable. However, the experts gave some suggestions for further revision. Some are listed as follows:

Expert H suggested that the researcher make the test format more consistent because the researcher used “Part A”, “Part B”, and “Part C” on the cover of the test. while “Part I”, “Part II”, and “Part III” were listed in the test. Therefore, the words

"Part A", "Part B", and "Part C" on the cover sheet were changed to "Part I", "Part II", and "Part III".

It was suggested that the items of the test should be arranged according to the letters of the alphabets. In addition, the word "synonym" in Part I should be printed in bold font for reading ease.

Expert I suggested that the researcher reconsider the number of test items and score allocation. Thus, the researcher added the total scores allocated to each part of the test.

The expert suggested adding the word "Directions" in front of the directions and cutting some redundant words in the directions for Part I. Thus, the directions for Part I were changed from "Look at the word and work out which of the word below is the synonym of the underlined word" to "Directions: Which of the words below is the synonym of the underlined word?"

Construct Validity

The *construct validity* used to validate the items in the test reflected the essential aspects of the theory on which the test is based through the Item-Objective Congruence Index (IOC) developed by Rovinelli and Hambleton (1977). The construct validity of the Web-based reading comprehension test was shown in Appendix I (p.174).

After analyzing the test items, items No 5, 8 and 13 were discarded and some items were revised according to the suggestions of the experts. The experts' comments for developing the test were as follows.

Expert G suggested that some words were too difficult, for example "eclipsed and "superficial". Actually, these two words would be taught in Lesson 3. Thus, these

two words were not changed, but the researcher clarified them with more sample sentences in the test.

In Part I, vocabulary comprehension, the experts suggested that the context did not imply the meaning of the words. So, the sentences were changed to help the test-taker guess the synonym from context clues.

Test Reliability

After the pilot study, the posttest was administered to the students and posttest scores were used to find the reliability of the test. In order to ensure the reliability of the Web-Based Reading Comprehension Test, Cronbach's *alpha Coefficient* (α) was calculated. Cronbach's alpha Coefficient was commonly used to establish internal consistency reliability. The Cronbach's alpha Coefficient could be define as follows: the value of 0.60 was considered acceptable for exploratory purposes, 0.70 considered adequate for confirmatory purposes, and 0.80 considered good for confirmatory purposes. In this study, the Cronbach's alpha Coefficient of the Web-Based reading comprehension test was 0.732 which was considered adequate for confirmatory purposes.

$$\alpha = \frac{N}{N-1}\left(\frac{\sigma_x^2 - \sum_{i=1}^{N}\sigma_{Y_i}^2}{\sigma_x^2}\right)$$

where

N = the number of components (items),

σ_x^2 = the variance of the observed total test scores,

$\sigma_{Y_i}^2$ = the variance of component *i*.

The item analysis was used to evaluate the effectiveness of test items and the validity of test scores. The test in each item was analyzed according to 2 main points: 1) the level of difficulty of the items (p), and 2) the discrimination power of the items (r). The Test Analysis Program (TAP) was used to explore the level of difficulty of the items (p), and the discrimination power of the items (r). The results were illustrated in Appendix J (p.175).

When the test had been modified according to the suggestions of three experts, PHP and MySQL programs were used to develop the Web-based Reading Comprehension Test. PHP or Hypertext Preprocessor was a widely-used general-purpose scripting language that was especially suited web development and can be embedded into HTML. The main goal of the language was to allow web developers to write dynamically generated web pages quickly. In addition, MySQL was well known for web application that acts as the database component. In this study, MySQL program were used to collect students' raw scores (See Appendix H, p.167).

Since the test was a web-based test, consultation with experts in computer education was crucial. The three experts were asked to validate various aspects such as quality, design of the web, user friendliness, components etc. The scores are shown in Table 14.

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Table 14
The validation of Web-Based Reading Comprehension Test

	Expert A	**Expert B**	**Expert C**	**Total**	**Result**
1. Technical	3	3	3	3.00	good
2. Layout, Design, and Navigation	4	3	4	3.67	excellent
3. User friendliness	3	4	4	3.67	excellent
4. Overall	3	3	4	3.33	good

Note: Grade 3.50-4.00= Excellent, 2.50-3.49= good, 1.50-2.49= average, 1.00-1.49= revise

According to overall design of the Web-based reading comprehension test, it was of good quality ($\overline{X}$ = 3.33). However, some items had been revised according to comments from the experts; for example, the test should have a bigger font size and there should be a button which linked to the answer sheet page.

2) Weblog

After the end of each stage of Web-based English reading instruction using Project-based language learning in the 5th, 7th and 11th weeks, students were asked to post their opinions to the teacher weblog. It was a forum where students reflect their opinions towards this course. The weblog consisted of two questions namely, “What were the benefits you found on Web-based English reading instruction using Project-based language learning course?” and “Did you encounter any problems during the process of Web-based English reading instruction using Project-based language learning?”

Data Collection

The Web-based English reading instruction using Project-based language learning was launched in the first semester of the academic Year 2007. It was designed for Business English major students who enrolled in Paragraph Reading course and comprised ten units. The duration of the instruction was 12 weeks and the class met once a week for two hours.

The data collection method that was used to assess the students' reading comprehension ability was one group pretest-posttest quasi-experimental design. The changes in students' reading comprehension ability were observed by a comparison of Web-based reading comprehension test pre and post-test mean scores. This study did not have any control or comparison group. The data were collected in three phases; before, during and after the instruction.

Before the instruction

1. Web-based Reading Comprehension Test

Web-based reading comprehension test was administered to the students to measure students' reading comprehension ability. The Web-based reading comprehension test was 30 multiple-choice questions in order to assess two different levels of reading comprehension ability namely, literal and interpretive comprehension.

2. The Use of a Computer and Computer Skills Inventory

Prior to the instruction, a computer tutoring guide was given to them one week to ensure their familiarity with the use of computers and the Internet. So, the students had the basic competence level of computer literacy in using computers and Internet. In order to measure students' computer competency and the use of a computer and the internet in their daily lives, the use of computer and computer skill inventory were

distributed to the students. The questionnaire was adapted from “Use of technology survey” (Murray, 2007) and Information Competency Assessment” (Cal Poly Pomona University, 2002).

A total of 23 questionnaires were distributed to students. The questionnaires contained closed questions and students were required to mark their responses on a scale (See Appendix M p.191). The questionnaire included four types of questions: The first set of questions asked where students accessed and used computer applications. The second set of questions asked why students visited websites. The third set asked students to rate their skills in using various computer applications. The last set contained 12 multiple choice questions that measured students’ computer skills.

During the instruction

1. Web-based English reading instruction using Project-based language learning

During the instruction, Web-based English reading instruction using Project-based language learning were taught to 23 second-year students for ten weeks. Students had to do both individual and group project activities that were related to the themes of their reading. Students’ were monitored while doing the Web-based English reading instruction using Project-based language learning activities. And if they needed more assistance, they would consult the teacher.

2. Weblog

After the end of each stage of Web-based English reading instruction using Project-based language learning on the 5th, 7th and 11th weeks, students’ project activities were assessed using a Project-based language learning rubric. In addition, students were asked to post their opinions and comments regarding the benefits and

limitations of Web-based English reading instruction using Project-based language learning on the weblog.

After the instruction

1. Web-based Reading Comprehension Test

The students were post-tested with the Web-Based Reading Comprehension Test on the 12th week. This posttest was similar to the pretest. The pretest and posttest was used to compare the students' reading comprehension ability before and after taking Web-Based Reading Instruction using Project-Based Language Learning. In conclusion, the data was collected in three phases: before, during and after the instruction. The outline of data collection was summed up in Figure 11.

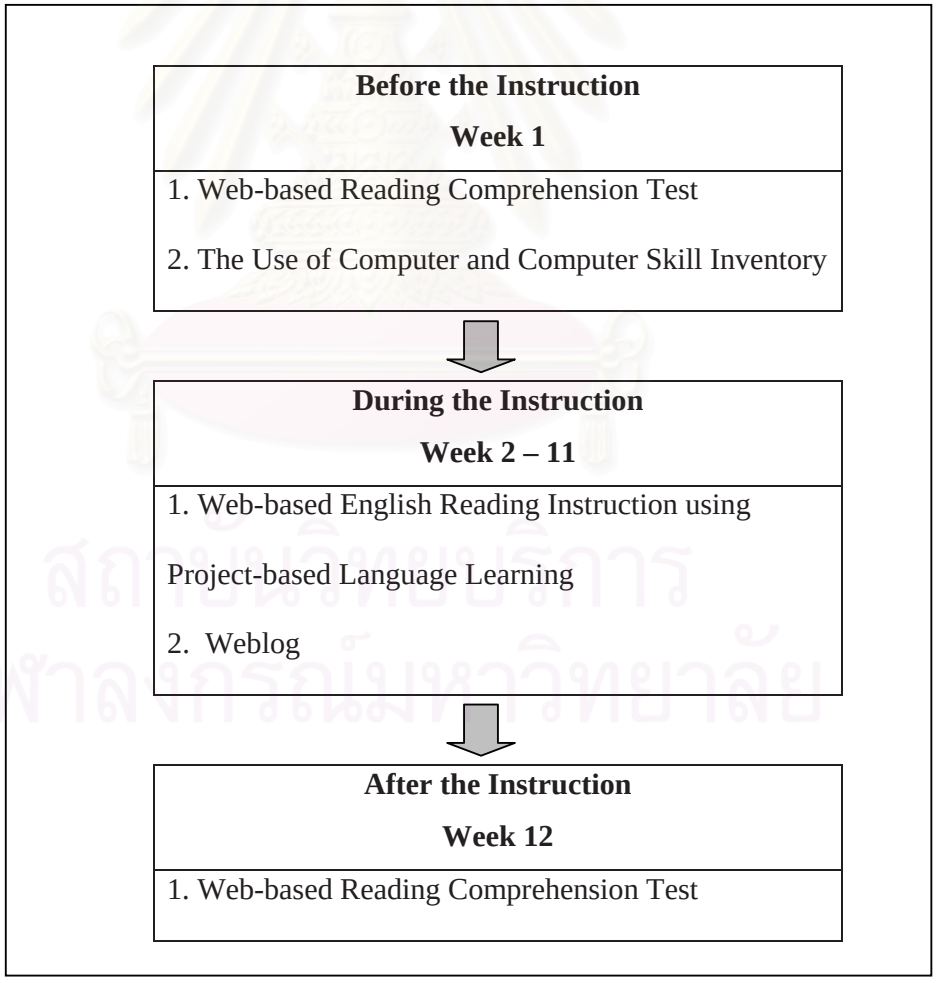

Figure 11. Data Collection Procedures

Data Analysis

Research Question 1: To what extent does Web-based English Reading Instruction using Project-based Language Learning affect students' reading comprehension ability?

The research instrument used to answer research question 1 was a Web-based reading comprehension test constructed by the researcher. The independent variable was Web-based English reading instruction using Project-based language learning and the dependent variable was based on group mean scores on the Web-based reading comprehension test.

The students' reading comprehension ability of Web-based English reading instruction using Project-based language learning was processed and analyzed using SPSS version 12. To answer whether the students made any progress as a result of the reading instruction, a within-group paired-sample t-test was applied to find out whether there was a significant difference between students' Web-based reading comprehension test pretest and posttest mean scores. In order to measure the magnitude of the effects of Web-Based instruction using project-based language learning on students' reading comprehension ability the effect size (Cohen's *d)* was conducted.

Research Question 2: What are students' opinions toward a Web-Based Reading Instruction using Project-Based Language Learning?

The research instrument used to answer research question 2 was a weblog. The independent variable was Web-based English reading instruction using Project-based language learning and the dependent variable was based on students' comments on the weblog. Then, the students' opinions toward Web-based English reading

instruction using Project-based language learning that the students posted on the weblog were transcribed and analyzed using content analysis.

Summary

The research design of this study was “the pretest-posttest quasi-experimental design”. The samples were 23 second year Business English major students at Phetchaburi Rajabhat University. This chapter describes the research procedure used in the present study. The research procedure consists of three phases:

Phase I: The related theoretical framework was reviewed. The relevant documents were (1) Web-based reading instruction, (2) Project-based language learning, and (3) reading comprehension.

Phase II: Conduct a needs analysis to investigate the theme of reading project. The information derived from related documents and Project Interest Survey Questionnaire was used to design Web-based English reading instruction using Project-based language learning. The data gained from the documents analysis were reading strategies that the course required students to study. The findings gained from Project Interest Survey Questionnaire showed that students interested in the theme “entertainment”, “health” and “travel”.

Phase III: Develop lesson plans and Web-based English reading instructional materials based on the information obtained from a needs analysis. Each lesson plan included the title of the unit and lesson, rationale, objectives, instructional media, vocabulary, and teaching procedures. After, three lesson plans had been validated, the theme, reading strategies, objectives, in class and out of class activities were revised according to the experts’ suggestions. Then, the Web-based English reading instruction using Project-based language learning activities were created after the revision of the lesson plans. Next, the web-based lessons were constructed and asked

3 experts in computer education to validate. In order to prepare the instructional materials for the instruction and to identify what part of the course need to be revised, the pilot test was conducted.

The instruments used in this study were (1) Web-based reading comprehension test, and (2) weblog. The aims of research instruments were to assess students' reading comprehension ability and to collect students' opinions towards Web-based English reading instruction using Project-based language learning. The data was collected in three phases: before, during and after the instruction.

The study compared the students' reading comprehension ability before and after taking Web-based English reading instruction using Project-based language learning. The students studied 10 lessons with 3 themes. The effects of the treatment were evaluated by using a mean score, standard deviation, within-group paired-sample t-test, and effect size (Cohen's *d*). The qualitative data from the weblog was analyzed using content analysis and shown in frequency and percentage.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

CHAPTER IV

FINDINGS

Introduction

This chapter reports both quantitative and qualitative results based on two research questions. The first question was to investigate the effects of Web-based English reading instruction using Project-based language learning on students' reading comprehension ability. Research question 1 reported quantitative results gained from the pretest and posttest mean scores. The second research question was to explore students' opinions towards Web-based English reading instruction using Project-based language learning. The qualitative results described the benefits and limitations of Web-based English reading instruction using Project-based language learning.

According to the objectives of the study, the analysis of the data was presented in 3 parts. The first part was to answer the research questions 1 and the second part was to answer the research questions 2.

Research question 1

To what extent does Web-based English reading instruction using Project-based language learning affect students' reading comprehension ability?

The research instrument used to answer research question 1 was a Web-based Reading comprehension test. The test consisted of 30 multiple-choice questions composed of two different levels of reading comprehension. The first research question focused on identifying whether the pretest mean scores differed from the posttest mean scores at the level of significant 0.05.

Within-group paired-sample t-test was used to find out whether there was a significant difference between the pretest and posttest mean scores of students. The students' pretest and posttest means scores, standard deviations, t-values, and statistical significance are presented in Table 15.

Table 15.
A comparison of Web-based reading comprehension pretest and posttest mean scores

Group	**n**	**Pretest**		**Posttest**		**Mean Difference**	**t**	**Sig**
		$\overline{X}$	**S.D.**	$\overline{X}$	**S.D.**			
Phetchaburi Rajabhat University students	23	14.652	2.838	19.435	2.351	4.783	6.254	0.000*

*$p < .05$

It was found from the mean comparison that students earned a higher Web-based reading comprehension posttest mean score ($\overline{X}$ = 19.435) than Web-based reading comprehension pretest mean score ($\overline{X}$ =14.652). The total score was 30 points, the mean difference was 4.783 and the t value was 6.254 with a degree of freedom of 22(n = 23). The result showed that there was a significant difference between the mean scores from the pre and post Web-based reading comprehension test at a significant level ($p < .05$). Thus, the first hypothesis was accepted. In other words, students' reading comprehension ability improved after taking Web-based English reading instruction using Project-based language learning.

Levels of reading comprehension

The score on the Web-based reading comprehension test were analyzed in detail to examine the students' reading comprehension at two levels namely literal and interpretive comprehension level. The test contained 18 multiple-choice questions in order to measure students' literal comprehension level and 12 multiple-choice questions in order to measure students' interpretive comprehension level. Table 16 presents the students mean score and standard deviation at the literal comprehension level and the interpretive comprehension level before and after the experiment.

Table 16.
A Comparison of the mean scores and standard deviation of literal and interpretive comprehension level

Level of Reading Comprehension	**Before Treatment**		**After Treatment**		**t**	**Sig.**
	$\overline{X}$	**S.D.**	$\overline{X}$	**S.D.**		
1. Literal comprehension	8.957	1.965	11.391	1.852	4.635	0.000*
2. Interpretive comprehension	5.696	1.717	8.044	1.186	5.008	0.000*
Total	14.652	2.838	19.435	2.352	6.254	0.000*

*p < .05

1) Literal Comprehension Level

Literal questions require the reader to recall or recognize information explicitly presented in the reading material. At this level, teachers asked students to guess synonym from context, guess meaning from context, and preview and predict the content of the text.

The Web-based reading comprehension test contained 18 items measuring students' literal comprehension level with the total score of 18 points. The results

from Table 12 illustrate that students' literal comprehension level earned a higher posttest mean score ($\overline{X}$ = 11.391) than a pretest mean score ($\overline{X}$ = 8.957) with the t value 4.635. It implied that there was statistically significant difference between the pretest and posttest mean scores of the students' literal comprehension level at the $p<0.05$ level.

2) Interpretive Comprehension Level

At the interpretive comprehension level, the meaning is derived from reading "between the lines", in which readers go beyond what is said and read for deeper meanings. Students must be able to read critically and analyze carefully what they have read. At this level, the teacher asked students to determine the meaning of words by context, understand the author's purposes and summarize the content of the text, identify the topic sentence, the main idea and supporting details, and make references and inferences where the answer is not directly stated in the paragraph.

The Web-based reading comprehension test contained 12 items measuring students' interpretive comprehension level with the total score of 12 points. The results in Table 11 indicate that students' interpretive comprehension level also earned a higher posttest mean score ($\overline{X}$ = 8.044) than a pretest mean score ($\overline{X}$ = 5.696) with the t value 5.008. It implied that there was statistically significant difference between the pretest and posttest mean scores of the students' interpretive comprehension level at the $p < 0.05$ level.

To conclude, students' literal and interpretive comprehension levels improved after taking Web-based English reading instruction using project-based language learning.

Effect Size

The values of effect size were used measure the magnitude of the effect of Web-based instruction using project-based language learning on students' reading comprehension ability, the effect size was calculated. By using the means and standard deviations, Cohen (1988) defined effect sizes as follows: "small, d = 0.2," "medium, d = 0.5," and "large, d = 0.8". The result of the mean effect size correlation (r_Y) was 0.80 and Cohen's d was 2.67, which represented large effect size according to Cohen's (1998). The effect size of Web-based instruction using project-based language learning on students' reading comprehension ability were illustrated in Table 17.

Table 17
The effect size of Web-based instruction using project-based language learning on students' reading comprehension ability

Cohen's *d*	**Effect Size ($r_{Y\lambda}$)**	**Percentile Standing Percent**	**Meaning**
2.6667145601	0.80000517240	79.00	Large

From Table 17, an effect size of 0.8 means that the score of the average person in the posttest group was 0.8 standard deviation above the average person in the pretest group, and hence exceeded the score of 79% of the pretest group. It can thus be concluded that the Web-based English reading instruction using Project-based language learning had large effect on promoting students' reading comprehension ability.

Research question 2

What are students' opinions towards Web-based English reading instruction using Project-based language learning?

The research instrument used to answer research question 2 was a weblog. The weblog allowed the students to post their comments and express their opinions toward Web-based reading instruction. In week 5th, 7th, and 11th the teacher asked students to post their comments and opinions on the instructor's weblog. The findings from the weblog were presented in 2 parts: benefits, and difficulties and limitations. The frequencies of keywords appearing in the weblog were counted and then summarized by frequency and percentage.

The first question asked students to post their opinions about the benefits they gained from Web-based English reading instruction using project-based language learning. Table 18 shows the students' opinions on the benefits of Web-based English reading instruction using Project-based language learning.

Table 18
Students' opinions on benefits of Web-based English reading instruction using Project-based language learning

Topics	**Week 5**		**Week 7**		**Week 11**	
	Frequency (n = 15)	%	Frequency (n = 20)	%	Frequency (n = 23)	%
1. Reading strategies	4	26.67	10	50.00	14	60.86
2. Computer skills	7	46.67	3	15.00	1	4.34
3. Student interaction	4	26.67	7	35.00	8	34.80

By week 5, 46.67% of students thought that they could develop computer skills the most. On the other hand, in weeks 7 and 11 students started to recognize the benefits on reading strategies represented by 50.00% of the students in week 8 and 60.86% in week 11. In addition, some of the students thought that Web-based English reading instruction using Project-based language learning could increase their interaction. In detail, the benefits the students had were as follows.

Web-based English reading instruction using Project-based language learning enhanced students' reading strategies when students studied Web-based English reading instructional materials. The reading strategies teacher taught explicitly in class were predicting the content of the text, setting goals for reading, finding main idea and supporting details, making references and inferences and summarizing the content of the text. Web-based English reading instructional materials also provided course websites that included the course syllabus, links to students' group and individual projects, explanation of reading strategies and exercises, students' group and individual project that the teacher assigned every week, and useful websites. These are why students could study and practice their reading strategies anytime that they wanted for example,

1. "ในการทำโปรเจค ทำให้หนูได้ฝึกวิธีการอ่านที่ครูสอนในห้อง และได้เรียนรู้พื้นฐานคอมพิวเตอร์ด้วย ดีๆๆๆค่ะ ชอบๆๆ" [Week 7, Chapter 2: Health]

"While doing project work, I can practice reading strategies that the teacher taught us in class and also basic computer skills…"

2. "ได้เรียนรู้มากเลยค่ะตอนที่ต้องหาบทอ่านจากเว็บมาทำ individual project แต่ละอาทิตย์ เนื่องจากต้องอ่านบทอ่านภาษาอังกฤษเพื่อที่จะเลือกมาทำโปรเจค" [Week 11, Chapter 3: Travel]

"I have learnt a lot going to a website and choosing a text to do my individual project activities each week. I have to read it all in English before I find what I need to know…"

3. "วิชานี้สนุกดีค่ะ ได้หาได้อ่านบทความออนไลน์จากอินเทอร์เน็ตเยอะดี" [Week 11, Chapter 3: Travel]

"This course is very interesting. I get a chance to be exposed to a variety of interesting texts online."

Students' computer skills were developed when they were taught basic computer skills that were necessary to create the online project work. The examples were searching the internet (using keywords), using Microsoft PowerPoint, signing up to the weblog, creating a weblog, uploading and downloading a project to the weblog, writing in a weblog, posting a comment on the weblog and customizing a weblog by using CSS style. See the following examples.

1. "ผมคิดว่า พื้นฐานคอมพิวเตอร์มีประโยชน์มาก ในห้องเรียนผมได้มีโอกาสได้ใช้คอมพิวเตอร์เยอะมาก ไม่ว่าจะเป็นการสมัครมัลติพลาย การดาวน์โหลด และอัพโหลดไฟล์ และอีกมากมาย" [Week 5, Chapter 1: Entertainment]

"In my opinion, it is very useful for me to have basic skills in computer. In class, I have a chance to learn and use various kinds of computer applications. For example, I learned how to sign up the Multiply weblog, how to download and upload files and others."

2. "ประโยชน์ที่พบคือ ได้ฝึกใช้คอมพิวเตอร์ ไม่ว่าจะเป็นการแก้ไข weblog โดยใช้ CSS style แล้วก็การ search หาข้อมูลจากอินเทอร์เน็ต" [Week 5, Chapter 1: Entertainment]

"The benefits I found when studied this course was that I can practice computer skills such as I learn how to customize a weblog by using CSS style and search the information from the Internet."

Web-based English reading instruction using Project-based language learning could increase students' interaction with their teacher, their peers, and online resources. The interaction between the students and their teacher increased when the

teacher taught reading strategies online in class to promote reading comprehension ability and when the teacher gave task feedback on students' project work on the weblog. See the following example.

1. "อาจารย์ตอบกลับเร็วจริงๆ ดีค่ะๆ แถมหนูยังได้อ่านเมนต์ของเพื่อนด้วย จะได้เอามาแก้ไขงานตัวเอง…" [Week 7, Chapter 2: Health]

"I can get immediate feedback from the teacher, and I can also read the comments that the teacher gives to my friends…"

The interaction between students and peers increased when they worked collaboratively on a specific topic, discussing issues that were related to their learning on the weblog or sharing ideas and materials to solve problems. See the following examples.

1. "โครงงานกลุ่มที่พวกเราทำ ผมคิดว่าเราได้พัฒนาความรับผิดชอบต่อตนเอง ที่จะทำงานที่ได้รับมอบหมาย และยังได้ทำงานร่วมกัน ได้แลกเปลี่ยนไอเดียกันด้วย" [In week 5, Chapter 1: Entertainment]

"Group project enhances our self-responsibility. We cooperate with one another and share different ideas."

2. "ตอนแรกคิดว่าวิชาการอ่าน จะต้องอ่านเรื่องที่ครูให้อ่านเท่านั้น แต่วิชานี้น่าสนใจตรงที่พวกเราได้อ่านเรื่องที่อยากอ่าน ได้ทำกิจกรรมที่กลุ่มเราช่วยกันคิดช่วยกันทำ" [In week 11, Chapter 3: Travel]

"I always think that in the reading classroom, I have to read the assigned text. Now it is very interesting. My friends and I can read the texts and do activities that we want to do and make a decision by ourselves."

3. “ชอบใช้เว็บล็อกทำโปรเจคค่ะเพราะสามารถแก้ไขได้บ่อยตามที่ต้องการ และได้ฟีดแบคจากอาจารย์และเพื่อนๆอีกด้วย” [In week 7, Chapter 2: Health]

“I like to use weblog to do the project because I can correct it as often as I want and get feedback from teacher and the others.”

The interaction between students and online resources occurred when students searched for the texts on a specific topic, and downloaded and uploaded video clips, music, and pictures from the internet. The following statement can give a clear picture of how students increased their interaction with online resources. For examples,

1. “ดีครับอาจารย์ สะดวกดี ในการทบทวนบทเรียน และมีแบบฝึกหัดให้ฝึก จะทำเมื่อไหร่ก็ได้ แถมยังดาวน์โหลดงาน และเนื้อหาที่อาจารย์สอนไปอ่านได้ด้วย” [Week 7, Chapter 2: Health]

“I can review the lessons, download the worksheet and do the activities wherever and whenever that I want.”

2. “…เวลาอ่านบทอ่านเพื่อที่จะเลือกมาทำโปรเจค พอเจอคำศัพท์ยากๆก็สามารถใช้ออนไลน์ dictionary ของเคมบริดจ์ (http://dictionary.cambridge.org/) เพื่อหาความหมายได้ด้วย...” [Week 7, Chapter 2: Health]

“... I can read something and then I use an online dictionary (http://dictionary.cambridge.org/) to look up more difficult words.”

In sum, the benefits of Web-based instruction using Project-based language learning could enhance students’ reading strategies, develop computer skills, and increase students’ interaction. Web-based instruction using Project-based language learning enhanced students’ reading strategies when they studied Web-based English reading instructional materials. Students’ computer skills were developed during the

process of project work. Additionally, students' interaction had increased because they had a chance to interact with their teacher, their peers, and online resources.

Even though Web-based English reading instruction using Project-based language learning helped develop students' reading strategies and computer skills, students said that there were some difficulties and limitations when they were learning online. The second question asked students to post their opinions about the limitations and problems found during the process of the Web-based English reading instruction using Project-based language learning. The problems were illustrated in Table 19.

Table 19.
Students' opinions on difficulties and limitations in learning through Web-based English reading instruction using Project-based language learning

Topics	**Week 5**		**Week 7**		**Week 11**	
	Frequency (n = 15)	%	Frequency (n = 20)	%	Frequency (n = 23)	%
1. reading strategies and project activities	5	33.33	10	50.00	9	39.13
2. computer skills	10	66.67	4	35.00	4	17.39
3. time constraint	0	00.00	6	15.00	9	39.13

Limitations and difficulties when students learned online were expressed through the comments on the weblog. Table 15 shows that, in week 5, 66.67% of students thought some computer skills were difficult for them. However, fewer students encountered difficulties in computer skills as shown by 35.00% of students in week 7 and 17.39% of students in week 11. In week 7 and 11 students found that they had problems with reading strategies and project work represented by 50.00% of students in week 7 and 39.13% in week 11. Additionally, a few of them had problems

with the time available to practice the lessons and do the project work. In detail, the problems the students had were as follows.

In reading strategies and project activities student had problems in three areas. Some of them did not understand the concept of reading strategies well before doing the activity. They also commented that there was not enough time to practice each strategy in class before doing the project and they got confused over the process of doing the individual and the group projects. In addition, some of them commented that they did not learn as much English as they had hoped they would. See the following example.

1. "ผมยังไม่ค่อยเข้าใจ reading strategy ที่อาจารย์สอนอาทิตย์นี้เท่าไหร่ครับ อาจารย์น่าจะให้ฝึกการอ่านให้มากกว่านี้ก่อนที่จะทำโปรเจคนะครับ" [Week 11, Chapter 3: Travel]

"I don't understand the reading strategies that teacher taught in class, I want more practice at reading strategies in class before doing the project work."

Difficulties found in computer skills were signing up the e-mail, downloading files or saving the target of specific URLs, or sending and receiving emails with attachments. Students also had navigational problems arising from issues such as network limitations and network bandwidth. See the following examples.

1. "หนูไม่ค่อยเก่งคอมพิวเตอร์เลยค่ะอาจารย์ ตอนทำ blog ต้องให้เพื่อนช่วย upload งานใส่ใน Multiply ให้…"[Week 11, Chapter 3: Travel]

"I'm not good at using computer, I always had to ask my friend to help me upload individual project to the Multiply weblog."

2. “ที่บ้านหนูไม่มีคอมพิวเตอร์ค่ะ เลยต้องทำงานให้เสร็จที่มหาลัย ลำบากๆๆๆๆมาก”

“I don’t have a computer at home, so I have to finish my project activities at the university.” [Week 11, Chapter 3: Travel]

The time constraint was one of the problems found in this study. In class, students were expected to learn reading strategies, practice reading strategies and create project work. These activities required a large amount of time to negotiate with the teacher and their group members about the theme and content of a topic. In addition, it was evident that there was not enough time for the teacher to train students in the skills necessary to complete the tasks, facilitate their completion of the task, and finally have them present it orally in class and on the web. The following statements problems they encountered. See the following statements.

1. “อยากมีเวลาในการทำงานกลุ่มให้มากกว่านี้ จะได้คุยกันเพื่อแชร์ไอเดียกับเพื่อนๆได้ เวลาในห้องเรียนไม่ค่อยพอเลยค่ะอาจารย์ นอกห้องเรียนก็ไม่ค่อยได้คุยกันเท่าไหร่” [Week 7, Chapter 2: Health]

“I need more time to negotiate with my friends to complete the project activities. However, there was not enough time for us to work collaboratively in class.”

2. “งานที่อาจารย์ให้พวกเราคอมเมนต์ group project ของเพื่อนเมื่อสองอาทิตย์ก่อนอ่ะค่ะ พวกหนูทำไม่ได้เพราะว่าพวกหนูยังทำงานที่อาจารย์สั่งไม่เสร็จกันเลย ก็เลยคอมเมนต์งานเพื่อนไม่ได้จนถึงสัปดาห์นี้อ่ะค่ะ” [Week 11, Chapter 3: Travel]

“We have to create a group project and asked my friends to comment them. However, we couldn’t give comments to the other groups because nobody could finish the group project activities in the limited time. So, it’s not until this week that we can

look at the other group projects and write the feedback. So it was unrealistic to expect us to have it done in last two weeks."

In sum, students' opinions about the limitations and problems they found during the process of project work fell into three categories: reading strategies and project works, computer skills, and time constraint.

From students' opinions towards Web-based English reading instruction using Project-based language learning, the results revealed that students could get immediate feedback, had opportunities to practice reading strategies and to choose the reading texts according to their individual needs. Also, it promoted students' responsibilities, self-discipline, and self-directed learning. However, the course schedule led to some problems. Students needed time to practice reading strategies and create project works. If it lasted longer than 10 weeks, the Web-based English reading instruction using Project-based language learning should be more efficient. In addition, computer access was another problem. The hardware and software are expensive to purchase and maintain, and some students could not afford to have computer at home.

Summary

This chapter reports the findings under two main aspects regarding students' reading comprehension ability and students' opinions on the benefits and limitations of Web-based instruction using project-based language learning. The study was conducted for 12 weeks with 23 undergraduate students majoring in Business English.

According to the research objective 1, the findings revealed that students' reading comprehension ability improved after taking Web-based English reading instruction using Project-based language learning. The score on the Web-based

reading comprehension test were analyzed in details to examine the students' reading comprehension at 2 levels. The findings showed that students' literal and interpretive comprehension levels improved after taking Web-based English reading instruction using Project-based language learning.

Additionally, students commented on the benefits and difficulties they encountered while participating in Web-based English reading instruction using Project-based language learning. Students said that Web-based English reading instruction using Project-based language learning enhanced their reading strategies, developed their computer skills, and increased students' interaction. It enhanced students' reading strategies because it provided course website that students can practice their reading strategies anytime and anywhere that they wanted. Students could get immediate feedback, had opportunities to practice reading skills and to choose reading text according to their individual needs. Students developed their computer skills when they studied basic computer skills that necessary to create the online project. Additionally, students' interaction was increased because they had a chance to interact with their teacher, their peers, and online resources.

Amongst the limitations and difficulties of Web-based English reading instruction using Project-based language learning, students said that they had problems with reading strategies and project activities, computer skills, and time constraint. The students' comments revealed that they need sufficient time to practice reading strategies and create project works. In addition, difficulties found in computer skills were signing up the e-mail, downloading files, or sending and receiving emails with attachments. The next chapter will cover a summary of the findings, a discussion of the findings and their recommendations for future research.

CHAPTER V

SUMMARY, DISCUSSION AND RECOMMENDATIONS

This chapter has four parts. The first part provides a summary of the study. The second part presents the finding of the study. The third part includes a discussion of the findings. The fourth part suggests the pedagogical implications from the findings. The last part presents recommendations for future studies.

Summary

The objectives of this study were to: 1) investigate the effects of Web-based English reading instruction using Project-based language learning on students' reading comprehension ability, and 2) explore students' opinions towards Web-based English reading instruction using Project-based language learning. This study was a one group pretest-posttest quasi-experimental design. The samples in this study were 23 second year students at Phetchaburi Rajabhat University, Phetchaburi Province, Thailand. They were majoring in English concentrating on English for Business. They enrolled in the Paragraph Reading course (1553201) in the first semester, academic year 2007.

The design of Web-based English reading instruction using Project-based language learning for Rajabhat University students consisted of 2 phases: 1) to conduct a needs analysis to investigate the theme of the reading project and 2) to develop lesson plans and Web-based English reading instructional materials based on the information obtained from a needs analysis.

Phase I: Conducting a needs analysis

The first phase was to conduct a needs analysis to investigate the theme of the reading project. The samples were 25 first year students at Phetchaburi Rajabhat University. The document analysis and the Project-Interested Survey Questionnaire were the two main sources for analyzing needs.

1. Documents analysis

The related documents consisted of the English curriculum of the Faculty of Humanities and Social Sciences and Paragraph Reading (1553201) course description.

2. The Project-Interest Survey Questionnaire

The Project-Interest Survey Questionnaire was used to assess students' needs as well as survey the themes of the reading project. The findings from the questionnaire revealed that the most preferable themes were "entertainment", "travel" and "health."

Phase II: Developing lesson plans and Web-based English reading instructional materials

The Web-based English reading instruction using Project-based language learning was developed based on the following stages: 1) explore the theoretical framework, 2) analyze data from a needs analysis procedure, 3) develop lesson plans and Web-based English reading instructional materials, 4) validate the lesson plans and Web-based English reading instructional materials, and 5) pilot the lesson plans and Web-based English reading instructional materials. The following sections describe the process of lesson plans and Web-based English reading instructional materials development.

Stage one, this stage aimed at studying and exploring the basic concepts of the relevant documents. The relevant documents were web-based instruction, project-based language learning, and reading comprehension ability.

Stage two, results gained from needs analysis was used to develop Web-based English reading instruction using Project-based language learning. The results revealed that students were interested in the themes “entertainment”, “travel” and “health.”

Stage three, based on data gained from the needs analysis, the preferable themes were selected to design and develop the scope and sequence of Web-based English reading instruction using Project-based language learning. Each lesson plan included the title of the unit and lesson, rationale, objectives, instructional media, vocabulary, and teaching procedures.

Stage four, three checklists were constructed to evaluate the effectiveness of the lesson plans, Web-based English reading instructional materials and research instrument. The lesson plans and Web-based English reading instructional materials were revised according to the experts’ validation.

Stage five, after the revision of the lesson plans and Web-based English reading instructional materials by six experts, they were pilot tested with 23 second year students majoring in Computer-Sciences in academic year 2007. A pilot study was carried out for three weeks before the main study. The lesson plans and Web-based English reading instructional materials were altered based on the results gained from the pilot study.

The main study was conducted for 12 weeks of 2 hours per week. The samples were 23 Business English major students. The students who enrolled in the Paragraph Reading course in the first semester of academic year 2007. In this course, the Web-based English reading instruction using Project-based language learning had been applied in order to investigate effects on students’ reading comprehension. The Web-based English

reading instruction using Project-based language learning consisted of 3 units 10 lessons, and 2 projects.

The students took the posttest Web-based reading comprehension test to measure their reading comprehension ability after taking Web-based English reading instruction using Project-based language learning. The students' reading comprehension ability was analyzed using arithmetic means, standard deviation, and within-group paired-sample t-test. The effect size value were used to measure the effectiveness of Web-based English reading instruction using Project-based language learning on students' reading comprehension ability. In relation to the benefits and limitations, the students' opinions towards Web-based English reading instruction using Project-based language learning were analyzed using content analysis.

Findings

The findings of the study can be summarized in two main aspects namely: (1) the students' reading comprehension ability and (2) the students' opinions on the benefits and limitations of Web-based instruction using project-based language learning.

English Reading Comprehension Ability

The findings of the study aimed at investigating the effects of Web-based English Reading Instruction using Project-based language learning on students' reading comprehension ability. In this study, the research instrument in this study was a Web-based reading comprehension test constructed by the researcher. The results derived from Web-based reading comprehension test indicated that Web-based English Reading Instruction using Project-based language learning leads to improvement in students' reading comprehension ability.

The mean scores on the pre and post Web-based reading comprehension tests were also analyzed to examine the students' reading comprehension ability at two levels, namely literal and interpretive comprehension. Students' literal and interpretive comprehension ability improved after taking Web-based English reading instruction using project-based language learning.

The effect size of Web-based English Reading instruction using Project-based language learning on students' reading comprehension ability was 0.80, which was represented the large effect size. It can thus be concluded that the Web-based English reading instruction using Project-based language learning had large effect on promoting students' reading comprehension ability.

In addition, the course was found effective because the students' mean scores of the Web-based reading comprehension posttest were higher than mean scores of the pretest. This indicated that the course could enhance the students' reading comprehension ability.

Benefits and Limitations of Web-based English Reading Instruction using Project-based Language Learning

The research instrument in this study was a weblog. Students' comments on the weblog revealed both benefits and limitations in Web-based instruction using Project-based language learning.

In terms of the benefits, it was found that Web-based reading instruction using project-based language learning enhanced reading skills, developed computer skills, and increased student' interaction with their teacher, their classmates, and online resources.

However, students mentioned the difficulties and limitations of Web-based English reading instruction using project-based language learning in relation to reading strategies and project work, computer skills, and time constraint. The majority of the students found that they had limited computer skills; for example, how to sign up the weblog, or download and upload files.

Discussion

In this part, quantitative and qualitative findings concerning the development of Web-based English reading instruction using Project-based language learning to enhance reading comprehension ability were discussed.

The Web-Based English reading instruction using Project-based language learning in this study had an effect on students' reading comprehension ability due to the significant differences between students' mean scores on the Web-based reading comprehension test. The results of this study supports the first hypothesis that students who received Web-based English reading instruction using Project-based language learning achieved significantly higher average scores on the post Web-based reading comprehension test than the pre Web-based reading comprehension test at the significant level of 0.05. It was concluded that the Web-based English reading instruction using project-based language learning significantly improved students' reading comprehension ability. The process of learning was important to help enhancing their reading comprehension ability. In the present study, the process of teaching and learning reading strategies was integrated the use of Web-based English reading instruction with Project-based language learning. The success of Web-based English reading instruction using

Project-based language learning increased students' reading comprehension ability was discussed as follows.

First of all, the data gained from students' comments on the weblog revealed that Web-based English reading instructional materials facilitated reading comprehension. In the study, the Web-based English reading instructional materials were developed in order to use them in the Web-based English reading instruction using Project-based language learning. Web-based English reading instructional materials were applied to present reading strategies, to assign individual and group project activities as well as preparing useful websites for project works. In addition, students could practice reading strategies, review the lessons, and download handouts from the teacher's Website. For instance, Supachai, a student from "Seven Wonders of the World" project commented on week 7 that *"I can review the lessons, download the worksheet and do the activities wherever and whenever that I want."* The results supported the previous studies of Chun and Plass (1996), Hong (1997), and Lomicka (1998) which indicated that the use of WBI facilitated overall reading comprehension, increased comprehension rates, and promoted a deeper level of reading comprehension. The finding supported the findings of Hong (1997), who investigated the effects of multimedia on reading comprehension in a business Chinese course, indicated that students read with a higher comprehension rate in half the time when they studied with multimedia. In addition, the results of this study are similar to Singhal's study (2001) in that the effects of Web-based reading strategies instruction program significantly led to improvement in ESL students' reading comprehension. It can be concluded that teaching reading via the web-based instruction should be introduced to EFL reading instruction.

Secondly, the Web-based English reading instruction using Project-based language learning engaged students in meaningful tasks and promoted collaborative learning. In order to practice reading strategies that teacher taught in each week, students required to do individual and group projects that related to their reading themes. Individual projects engaged students in personally meaningful tasks. Students selected project topics and reading texts that they found meaningful and motivating to themselves. Additionally, the group project involved students working collaboratively in small groups to create an online project in English language. For example, Monthira, a student from "Seven Wonders of the World" project commented on week 5 that *"Group project enhanced our self-responsibility. We cooperate with others and share different ideas."* Another comment from Panida, a student from "Music around the World" project commented on week 7 that *"I feel relaxed when doing the group project. We can discuss among group members to select our preferred topic and tasks. For example, Supachai was good at computer, so he took responsibility for creating and decorating the weblog."*

The discussion of Legutke and Thomas's model (Legutke and Thomas, 1991) characterized the practice of Project-based language learning as a collaborative, learner-centered environment. Each student shared responsibility for his or her learning with the teacher and other students in the collaborative activities. The learner-centered classroom provided opportunities for individual to collaborate task-based learning, increased motivation and accommodated student agendas. In the social environment, students engaged in activities which provided opportunities to negotiate, thereby enhanced their language learning. The findings were consistent with a view of collaborative learning proposed by Nunan (1992). Collaborative learning promotes a philosophy of cooperation

rather than competition and an environment in which learners are learning from each other in an equitable way. The learning process promote students working together to achieve common learning goals.

Thirdly, Web-based English reading instruction using Project-based language learning matched students' interests and engaged students in the learning process that can increase students' motivation. It was found that motivation was an important factor to assist students in language learning. Even though student's motivation can be influenced by external factors, it was recognized that motivation is important for successful second language acquisition (Taylor, Meynard and Rheault, 1977; Ellis, 1997). The Web-based English reading instruction using Project-based language learning course was motivated students because students were involved in the learning process. The individual and group project activities were related to real world situation, and promoted collaborative learning. Since the students became involved in the learning process, they were capable of choosing projects that matched their needs. As a result, the projects tended to be interesting, challenging, and motivating for them. The following examples revealed that the project was matched students needs and interests. Watinee, a student from "Travel Europe" project comments on week 11 that *"This course is very interesting. I get a chance to be exposed to a variety of interesting texst online."* Another comment from Sasima, a student from "Good Health" project on week 11 stated that *"I always think that in reading classroom, I have to read the assigned text. Now it is very interesting. I and my friends can read the texts and do activities that we want to do and decide by our group members."*

The results of this study also confirmed the study of Legutke and Thomas (1991) which indicated that computer technologies provide new spaces where students can negotiate and create projects and new tools for project development. Network also gives access to a new audience for doing so it strengthens students' motivation and a sense of achievement. In addition, Ewing (2000) reported that project-oriented CALL classes provided students with opportunities to develop linguistic skills that were not available in the traditional classrooms and that students had more control over the linguistic means they used to express themselves. The results also supported the study of Gu (2002) who reported that project classes in English as a foreign language (EFL) in China have provided students with authentic interaction with a variety of audiences, increased their levels of input and output, and enhanced motivation, engagement and willingness to learn collaboratively.

Fourthly, students reported that the Web-based English reading instruction using Project-based language learning could increase students' interaction with their teacher, their peers, and online resources. For example, one student stated that *"I can get immediate feedback from the teacher, and I can also read the comments that the teacher gives to my friends…"* Another comment stated the interaction between students and their peers *"Group project enhances our self-responsibility. We cooperate with one another and share different ideas."* The other comment stated the interaction between students and online resources *"... I can usually read something and then I use an online dictionary (http://dictionary.cambridge.org/) to look up more difficult words."*

This report was consistent with the study of Shrum and Glisan (1994) who found that the interaction occurred when students who already knew how to use computers

would assist those who had less computer skills. In other words, this Web-based English reading instruction using project-based language learning creates a collaborative learning environment in which student can interact with more capable peers. Similarly, Insung (2002) studied the effects of different types of interaction on learning achievement in WBI. The results revealed that the interaction between students and students, and students and online resources can increase learning achievements.

According to Adelskold (1999) found that interaction among the students occurred during problem-based learning via a computer network. Students interacted when they worked collaboratively in the process of online project works and on the Web. Interaction between students and teacher occurred when the teacher explicitly taught reading skills in class and commented on students' project work. In addition, the interaction between students occurred when they worked collaboratively on a specific topic, discussing issues that were related to their learning on the weblog or shared ideas and materials to solve a problem. Finally, interaction between students and online resources occurred when students searched for a text on a specific topic, and downloaded and uploaded files on the internet.

Finally, this study use web-based materials to support teaching reading and creating project. The outcomes of the projects, both individual and group were oriented towards the web. Students created the online project via the weblog which was a web-based material that offered students opportunities to publish their projects on the web. These weblogs were a personal online diaries and journals that teachers and peers could immediately reflect to what was posted on their blog or weblog. According to Ward (2004), the weblog was a website that was updated regularly and organized

chronologically according to date. Once students registered on the weblog, they could maintain the site without any prior knowledge about web technology and could receive comments from teachers or peers. In addition, they could automatically receive updates of his/her favorite weblogs whenever they prefer. In addition to the benefits of weblog, it facilitates students to easily create online project works since it provides students with instant feedback, immediate explanations and reinforcement along with quick correction.

For examples, Jakkrit, a student from "Travel Europe" project commented on week 5 that *"In my opinion, it is very useful for me to have basic skills in computer. In class, I have a chance to learn and use various kinds of computer applications. For example, I learned how to sign up the Multiply weblog, how to download and upload files and others."* Another student stated that *"I can get immediate feedback from the teacher, and I can also read the comments that the teacher gives to my friends…"* The other student commented, *"I like to use weblog to do the project because I can fix it as much as I could and getting feedback from teacher and others."*

This is consistent to what Richardson (2004) points out under the reading "Subscribe to My Homework Page!" that teachers can subscribe to their students' weblogs and would be notified whenever changes are made to these weblogs. Ward (2004) argued that the weblog offered EFL students opportunities to use a variety of reading strategies in order to gain both reading contents and language forms since it was a source of authentic and communicative language materials. In addition, it provided a variety of free online English texts to which students could get access easily in order to serve their reading purposes. Additionally, Riel and Fulton (2001) stated that Web-based instruction can enhance Project-based language learning by bringing the outside world

into the classroom through the use of computer and internet. Rather than viewing technology as a separate feature of PBLL, technology is included in all other features and provides an essential tool for both teachers and students. Computers and Internet can support students and teachers in accessing, managing, analyzing, and sharing information. It also serves as an important tool in constructing products in project-based activities.

To conclude, even though the Web-based English reading instruction using Project-based language learning has not been widely used in Thailand, this study confirmed that this approach can be used in teaching reading in Thai context. This course facilitated overall reading comprehension, encouraged students to work collaboratively within their group (Wilson, 1995; Hedge, 1993; and Thomas, 2000), enhanced student-student relationships, cooperative learning, motivation and development of social skills (Epstein and Ormiston, 2007). Students interact with these who have different background knowledge in that they can share ideas and new information during the process of project work.

Limitation to the Study

Even though this study achieved its objectives, the time constraint was one of the problems found in this study. On the basis of the results from the class, when students studied in normal class where they were expected to practice their reading strategies and create project works, students needed large amounts of time to negotiate with the teacher, their peers, and then to negotiate within the group about the theme and content of a topic. However, the activities mentioned above were not present in most classroom situations.

Teacher tried to save time by increasing the control over the process of selecting a project that could easily reduce student's opportunities in using English in the classroom. In addition to Debski (1997), the benefits of technology support project works may be limited due to time constraint. Thus, EFL reading teachers should be aware that teaching reading through the application of Web-based English reading instruction using Project-based language learning required a large amount of time for students to complete their projects.

Implications

There is a lack of research which showed the effects of teaching reading by integrating the Web-based English reading instruction and Project-based language learning in the Thai context. However, findings in this study show that it is possible to develop an English reading course by using this approach. The course was found effective because students' reading comprehension ability was enhanced. There are five major implications which can be drawn from the research findings of the study. They are as follows:

1. Because the online project was related to the reading strategies taught in class, reading strategies should be taught explicitly before doing the project work. It was found from the study that students feel familiar with the different strategies, they can then do the project without problems.

2. Web-based lessons and project work used in Web-based English reading instruction using Project-based language learning should be relevant to students' interests or needs. It was found from students' comments that instructional materials and activities matched with the students' preferences. Each group freely selected the preferable themes

and topics of their project. In addition, this factor played a significant role in the process of needs analysis. It is suggested that a language teacher should conduct a needs analysis before designing the course.

3. Web-based instruction involved various kinds of graphics and multimedia elements such as flash files, video files, sound files and others. Multimedia elements can enhance the content of the website. However, the data gained from students' comments revealed that they had navigational problems arising from issues such as the speed of navigation, the file opening speed, bandwidth etc. This issue has to be taken into consideration. Too many graphics employed may slow down the site's access time. In order to avoid these limitations, the teacher should save the web-based lessons on a computer or a CD which is not dependent on internet access.

4. In this study, students were allowed to shared and negotiate with their peers in order to promote collaborative learning. It is suggested that the role of teacher should be changed. Teacher should conduct fewer lectures and facilitate more on learning. In addition, teachers should monitor students' online projects because students might publish material that is inappropriate. Teachers are given advised before they are published and to read the entire text after they have been published and delete them if necessary.

5. The problem of time constraints occurs due to a lack of training on the part of the students on how to manage the various aspects of Project-based language learning classes. The problems include techniques for dealing with group issues, choosing topics, and using a weblog. It is a teacher's task to train students in all these areas while at the same time expecting students to create a challenging and interesting project.

Recommendations for Future Studies

1. To date there has been very little research into the practice of project-based learning approaches to language learning that involve the use of web-based instruction and network computers. This study and also most of the literature of project-based language learning has described short-term experiments or conducting in an individual classroom. It is recommended that future research should take longer period of time. Thus, the result will be more accurate and represent the WBI and PBLL approach.

2. Since this study was conducted with only 23 second-year students major in Business English in Faculty of Humanities and Social Science, the results may not be generalized to all students who are studying at the same educational level at other faculties at Phetchaburi Rajabhat University or other universities throughout Thailand. Future research should increase the sample size and also select a broader sample of students who are English majors as well as non-English majors in order to confirm the effectiveness of Web-based English reading instruction using Project-based language learning. In addition, it is worth investigating how both English and non-English major students improve their reading strategies and what they actually learn from using Web-based English reading instruction using Project-based language learning.

3. In the process of doing project work, students are required to work collaboratively in class and outside of class. In this study, the students were required to interact in Web-based asynchronous learning by posting their opinions towards the Web-based English reading instruction using Project-based language learning, and giving peer feedback. It is recommended that future research include both Web-based asynchronous learning and Web-based synchronous learning in a learning class. The use of Web-based

synchronous and asynchronous learning could help students exchange ideas with all their peers in a flexible and dynamic environment. In addition, the use of Web-based instruction and Project-based language learning could promote cross-cultural teaching and learning, and distance learning. Teachers could assign the students to a create web projects through online learning environments in which they can interact and learn collaboratively with students from other schools and other countries.

Summary

Web-based English reading instruction using Project-based language learning is used as a framework to design a reading course in this study. It can be said that this approach can enhance students' reading comprehension ability. The process of learning was important to improve students' reading comprehension ability because the design of the course was based on the Rajabhat University Act 2004, English curriculum of the Faculty of Humanities and Social Sciences, and Paragraph Reading course description.

The findings revealed that Web-based English reading instruction using Project-based language learning facilitated overall reading comprehension, encouraged students to work collaboratively within their group (Wilson, 1995; Hedge, 1993; and Thomas, 2000), enhanced student-student relationships, cooperative learning, motivation and development of social skills (Epstein and Ormiston, 2007). In addition, during the process of project work students can interact with those who have different background knowledge in that they can share ideas and new information. Thus, the Web-based English reading instruction using Project-based language learning tend to be used in the EFL context. Based on these findings, it is suggested that reading skills should be taught explicitly in class before doing the project work, the lessons should be relevant to

students' interest, and the teachers should train students in the process of project work and the use of computer and Internet. For future research, it is recommended that the study should take longer period of time. Thus, the result will be more accurate and represent the WBI and PBLL approach. In addition, the sample size should be increased and also selected a broader sample of students who are English majors as well as non-English majors in order to confirm the effectiveness of Web-based English reading instruction using Project-based language learning. Furthermore, the future research should include both Web-based asynchronous learning and Web-based synchronous learning in a language class in order to help students exchange ideas with all their peers in a flexible and dynamic environment.

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APPENDICES

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Appendix A

The Project-Interest Survey

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แบบสอบถามเรื่องหัวข้อในการทำโครงงาน (Project-Interest Survey)

ข้อมูลส่วนบุคคล

1. เพศ

☐ 1. ชาย ☐ 2. หญิง

Project Interest (หัวข้อที่นักศึกษาสนใจในการทำโครงงาน)

2. โปรดขีดเครื่องหมายถูก (/) ตามระดับความสนใจของนักศึกษาในการทำโครงงาน

5 = สนใจมากที่สุด 4 = สนใจมาก 3 = สนใจปานกลาง 2 = สนใจน้อย 1 = สนใจน้อยที่สุด

หัวข้อ	ระดับความสนใจ				
	5	4	3	2	1
History (ประวัติศาสตร์)					
Travel (การท่องเที่ยว)					
Sports (กีฬา)					
Adventure (ผจญภัย)					
Environment (สิ่งแวดล้อม)					
Music (เพลง)					
Poetry (โคลงกลอน)					
Novel (นวนิยาย)					
Entertainment (ความบันเทิง)					
Technology (เทคโนโลยี)					
Culture (วัฒนธรรม)					
Science fiction (นิยายวิทยาศาสตร์)					
Health (สุขภาพ)					
Art (ศิลปะ)					

Appendix B

The results of the Project-Interest Survey

……

Mean and Standard Deviation on level of students' interest in each theme

Theme	Level of Interest					$\overline{X}$	S.D.
	5	4	3	2	1		
History	1	10	11	2	0	3.42	0.717
Travel	10	9	5	0	0	4.21	0.779
Sports	3	10	7	7	0	3.50	0.933
Adventure	3	14	5	2	0	3.75	0.795
Environment	6	9	9	0	0	3.87	0.797
Music	8	7	8	1	0	3.92	0.929
Poetry	0	5	13	5	1	2.92	0.776
Novel	1	7	7	8	1	2.96	0.999
Entertainment	10	13	1	0	0	4.38	0.576
Technology	4	12	8	0	0	3.83	0.702
Culture	4	5	13	2	0	3.46	0.884
Science Fiction	0	6	8	8	2	2.75	0.944
Health	7	12	5	0	0	4.08	0.717
Art	4	3	16	1	0	3.42	0.830

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Appendix C

Course Syllabus of Paragraph Reading Course (1553201)

……

Course Syllabus

1. Course Code: 1553201

2. Number of Credit: 2 credits

3. Course Title: Paragraph Reading

4. Faculty/Department: Humanities and Social Sciences,
Phetchaburi Rajabhat University

5. Semester: First Semester

6. Academic Year: 2007

7. Names of Instructors: Nantarat Kongkapet

8. Condition (Pre-requisite): None

9. Type of Course: Core

10. Program Title: English

11. Level: Undergraduate, Second Year

12. (Class) Contact Hours: 2 hours

13. Course Description: The Paragraph Reading course aims to teach the students about basic strategies for reading efficiency at the complex sentence level, including embedded forms, and at the paragraph level. Students also study about idea organization patterns in paragraphs, using context clues and word-study skills for discovering meaning of new words, identifying topic, topic sentence, main idea, and important supporting details and making references and inferences.

14. Course Outline:

14.1 Course Objectives:

By the end of the course, students should be able to do the following:

1) using various reading skill that appropriate for the content of the text.
2) acquiring information and knowledge about the theme “Entertainment”, “Travel” or “Health” from difference sources and media.
3) using reading skill to develop the individual project and group project.

14.2 Course Content:

Students are required to work in a group and individually on a topic of their interest under the theme: “Entertainment”, “Travel” or “Health”. They are expected to use English to acquire information and knowledge from different sources and media, summarize and finally present important issues. Printed as well as web-based materials supplied are provided as worksheets and Self-Access Language Learning (SALL) materials.

14.3 Class Management/ Instruction

- Brainstorming
- Small group/ class discussion
- Lecture
- Information search on the Internet
- Individual work
- Group work
- Oral presentation

14.4 Instructional Media:

- Printed and Web-based materials
- Movie clips
- Pictures

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14.5 Evaluation:

The final grade students receive for the course will be based on their performance in the following assessment tasks and weighting:

1) Group Project (web magazine)	30%
2) Individual Project	20%
3) Mid-term examination	15%
4) Final examination	25%
5) Class participation	10%

Examination Dates:

Mid-term examination:	July, 2007
Final Examination:	September, 2007

Assessment:

The final assessment is norm-referenced. All the raw scores will be converted into t-score before a final grade in the university's eight-letter-grade system is assigned to each student.

15. Recommended Materials for Further Practice:

- SALL materials
- Various websites suggested in each activity.

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Week	Reading Strategies	PBLL Procedure	Web-Based Project-Based Activities		Evaluation Instruments
			In class	Out of class	
1 -	**Pretest** (Web-based Reading Comprehension Test)				
2 -	-	**1. Orientation** **1.1 Introduction to the course**	Introduction to the course (course outline, course objective and assessment) **Individual:** sign up the web log and upload works to the web log - Search for the information by using search engine.	-	-
3 **Chapter 1:** Entertainment	Predicting the content of the text Setting goals for reading	**2. Classroom Planning** **2.1 Deciding a group topic for the project**	**Individual:** (1) (1) Read "Legally Blonde" from the website http://www.eslnotes.com/movies/word/Legally-Blonde.doc to predict the content of the text and set goals for reading. **Group:** (1) Discuss of topics to choose group topic under the theme "Entertainment", "Health" or "Travel". (2) Finalize group topic and send the group topic to the instructor via e-mail	(1) Search one text that relate to theme "Entertainment", "Health" or "Travel", predict the content of the text and set goals for reading. Ss. can look for the websites *Entertainment:* 1) http://www.allmusic.com 2) http://www.eslnotes.com/index.html 3) http://www.essentialsofmusic.com/ *Health:* 1) http://www.kidshealth.org 2) http://www.bbc.co.uk/learning/ 3) http://www.cdlponline.org/ *Travel:* 1) http://www.worldtravelguide.net 2) http://www.thebackpacker.com/articles/ 3) http://www.theworldisnotflat.com/	-

Week	Reading Strategies	PBLL Procedure	Web-Based Project-Based Activities		Evaluation Instruments
			In class	Out of class	
4 **Chapter 1:** Entertainment	Focusing on main idea Scanning to locating supporting details	**2. Classroom Planning** **2.2 Drafting a project plan**	**Individual:** (1) Read "Mass Media" from the website http://www.cdlponline.org/ to find the main idea and supporting detail. **Group:** (1) Make project plans and timetable	(1) Search one text from the selected website that relate to group topic, find the main idea and supporting details (2) Submit the project plans and timetable via e-mail.	-
5 **Chapter 1:** Entertainment	Focusing on main idea Scanning to locating supporting details	**2. Classroom Planning** **2.3 Designing and Drafting group web log**	**Individual:** (1) Read "Wolfgang Amadeus Mozart" from the website http://www.bbc.co.uk/learning/subjects/music.shtml to find the main idea and supporting details. **Group:** (1) Modifying project plans and timetable (2) Designing format of group web log	(1) Send the format of group web log to instructor via e-mail	(1) Project-based Language Learning Rubric (2) Post opinions towards this course to the web log.
6 **Chapter 2:** Health	Making References and Inferences	**3. Carrying Out the Project** **3.1 Drafting and Composing**	Individual: (1) Read "University Students Not Allowed to Drink Alcohol" from the website http://www.cdlponline.org/index.cfm?fuseaction=activity1&topicID=5&storyID=178 to make references and inferences. **Group:** (1) Finalize group web log design (2) Sign up the group web log and send the link to instructor via e-mail	(1) Search one text related to group topic and make references and inferences. (2) Start collecting images and gathering other information for web log	-

Week	Reading Strategies	PBLL Procedure	Web-Based Project-Based Activities		Evaluation Instruments
			In class	Out of class	
7 **Chapter 2:** Health	Making References and Inferences	**3. Carrying Out the Project** **3.2 Produce Group Project**	**Individual:** (1) Read "Sleep: An Important part of Life" from the website http://news.bbc.co.uk/1/hi/health/3597468.stm to make references and inferences. **Group:** (1) Share individual project within group. (2) Choose the reading text from individual project to create group project. (3) Start to create group project using http://multiply.com	(1) Search one text related to group topic and make references and inferences. (2) Continue collecting images and information.	(1) Project-Based Language Learning Rubric (2) Post opinions towards this course to the web log.
8 **Chapter 2:** Travel	Summarizing the content of the text	**4. Reviewing & Monitoring** **4.1 Peer Review**	**Individual:** (1) Read "On the beach in Cha-Am" from the website http://www.thaitravelblogs.com/ to summarize the content of the text. **Group:** (1) Make comments on the others group web log. (2) Discuss the feedback from peer review. (3) Continue working on group project.	(1) Search one text related to group topic and summarize the content of the text. (2) Deciding on changes.	-

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Week	Reading Strategies	PBLL Procedure	Web-Based Project-Based Activities		Evaluation Instruments
			In class	Out of class	
9 **Chapter 3:** Travel	Summarizing the content of the text	**4. Reviewing & Monitoring** **4.2 Revision Group Project**	**Individual:** (1) Read "Maruekkhathayawan Palace (Palace of Love and Hope)**"** from the website www.discoverythailand.com/ and summarize the content of the text. **Group:** (1) Make change to final version of project	(1) Search one text related to group topic and summarize the content of the text. (2) Upload the project to the group web log.	-
10 **Chapter 3:** Travel	Summarizing the content of the text	**4. Reviewing & Monitoring** **4.3 Prepare the Presentation**	**Group:** (1) Summarize the ways to improve the project (2) Prepare group project for final presentation.	(1) Prepare the presentation	-
11 -	-	**4. Reviewing & Monitoring** **4.4 Presentation** **4.5 Evaluate the project**	**Group:** (1) Present the group project to the whole class with individual member explaining the pages they contribute. (2) Give peer feedback to the project work.	-	(1) Project-Based Language Learning Rubric (2) Post opinions towards this course to the web log.
12 -	**Posttest** (Web-based Reading Comprehension Test)				

Appendix D

The example of lesson plan (Lesson 1)

……

Unit 1: Entertainment **Lesson 1:** Legally Blonde

Time: 1 class period (100 minutes) **Date:**

Rationale:

This lesson is the first step of classroom planning. Students choose a group topic or a "big idea" for a project. When students have the project topic, they can set a question based on a problem or a question that they want to solve or answer.

Predicting is a reading strategy in which students make predictions about what they will read and then read to prove those predictions. The benefits of predicting before they read are that they can get some ideas about what they will read. Furthermore, they will also be able to follow the writer's ideas better.

Audience:

The second year undergraduate students in Faculty of Humanities and Social Sciences, Phetchaburi Rajabhat University

Objectives:

Terminal objectives

1. Students will be able to choose a topic for their group.
2. Students will be able to make prediction before reading the text.
3. Students will be able to set goal before reading the entire text.

Enabling objectives

1. Students should be able to discuss and make decision about what they would take as their topic.
2. Students should be able to make predictions from pictures, the title, and introducing paragraph.
3. Students should be able to use the predicting strategy with a new text they are assigned to search.
4. Students should be able to discuss how they can make predictions.

5. Students should be able to answer questions concerning how they will set goal before reading.

Instructional Media:

1. A prediction handout
2. A goal setting worksheet
3. A Computer connected the Internet
4. The web-based lessons (http://161.200.155.9/paragraph/)
5. The web log (http://multiply.com)
6. The website (http://www.eslnotes.com)

Vocabulary

impress (v.) = admire

sorority (n.) = a social club for women students at a US university or college

superficial (adj.) = person who does not think about serious or important things

stereotype (n.) = a simple idea about what a particular type of person or thing is like

accomplish (v.) = to succeed in doing something.

accuse (v.) = to say that someone has done something wrong or committed a crime.

Teaching Procedures:

Pre-reading (10 minutes)

1. Teacher divides the students into 5 groups (5 each). Students decide to form their group by themselves.
2. Teacher opens the first page of lesson1 and asks students to look at the pictures on the screen. (The picture of Reese Witherspoon).

3. Teacher encourages students' reflection by asking the following questions:

   3.1) Do you know who she is?

   3.2) What is she famous for?

   3.3) Do you know the movie she performed? (Just like heaven, Sweet home Alabama, Legally Blonde)

4. Teacher play the movie "Love Story in Harvard" to relate students to the text that they will learn.

   4.1) Do you know where the movie is taking place? (Harvard)

   4.2) Can you guess what the text will be about after you see the picture of Reese Witherspoon and Harvard Law School?

While reading (40 minutes)

4. Teacher asks students what strategy they used to answer the previous questions. (Predicting).
5. Before reading the paragraph, teacher explicitly explains how to predict the content of the text as follows.

"Predicting is a reading strategy in which you make predictions about what you will read and then read to prove those predictions. The benefits of predicting before you read are that you can get some ideas about what you will read. Furthermore, you'll also be able to follow the writer's ideas better. However, it may take a little time to predict but you'll find that later you save reading time and gain comprehension."

6. Teacher asks the following questions:
   6.1) Can you guess what the text will be about after you see this picture?
   6.2) Do you know anything about this topic?
   6.3) Have you ever watched this movie?
7. Teacher asks students to guess the meaning of new vocabulary from context clues.

Look at the underlined word in each sentence. Select the meaning of the underlined word.

a. stupid
b. simple idea about what a particular type of person or thing is like
c. to succeed in doing something
d. to say that someone has done something wrong.
e. person who does not think about serious or important things
f. a social club for women students at a US university or college
g. admire

1. Her carvings attracted many admirers but her painting failed to impress.
meaning:_____

2. Mary and Anna always have a party at the sorority after school.
meaning:_____

3. She is so superficial. Her image means more to her than anything.
meaning:_____

4. The stereotype we have of an artist typically is something like this: a young person, a rebel, living in a bohemian city environment.
meaning:_____

5. His job was successfully accomplished.
meaning:_____

6. I do not want to accuse him of telling lies.
meaning:_____

8. Teacher asks student to read the first paragraph and asks the following questions:
   8.1) Do you think the topic of the passage should be about filmmaking, movie star or a brief story?

8.2) What in the first paragraph or illustration makes you believe that will be what the passage is about?

8.3) What do you think will happen next?

Paragraph 1

This is the story of Elle Woods, a very cute and friendly student who is also the most popular girl in her Los Angeles sorority. Elle has just finished her studies in Fashion, and is getting prepared to marry her boyfriend, Warner, who will soon be going to Harvard Law School, in Boston.

9. Students fill their answers in column “before reading” in the worksheet. (Prediction handout)

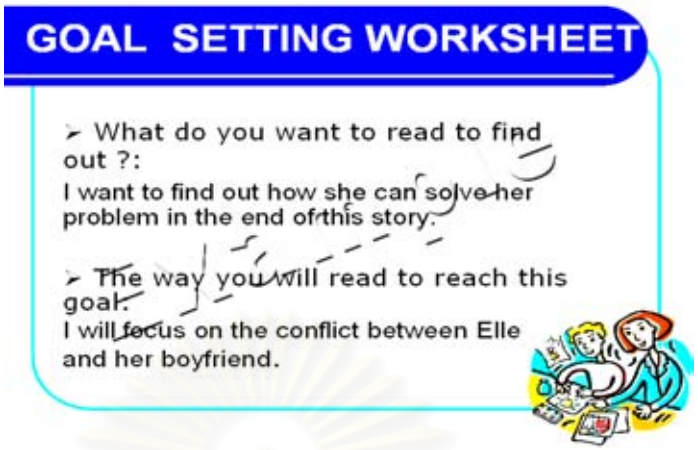
PREDICTION HANDOUT

Before Reading	During Reading	After Reading
I think the topic should be about synopsis.		
The first sentence tries to tell the synopsis of the movie. In addition, the picture makes me believe that the story should be about the woman with the small dog.		
The conflict between Elle and her boyfriend (Warner) will happen next .		

10. Teacher shares his/her own prediction with students and explain his/her thinking and reasoning.
11. After they read the first paragraph, teacher encourages students to set their goal for reading by answering the following questions:

11.1) What do you want to read to find out?

11.2) The way you will read to reach this goal



12. Each student reads the second paragraph on the screen silently. Teacher asks them to focus on finding evidence from the text to support their predictions. Teacher encourages them to explain their thinking and reasoning as they discuss changes to their predictions by asking the following questions:

12.1) What changes need to be made to your predictions?

12.2) What the clues in the text makes you believe that?

12.3) What do you think will happen next?

Paragraph 2

Unfortunately, Warner, who is actually a somewhat superficial ass, decides to break up with Elle, because he wants to find a more serious looking girlfriend who will help his career in politics after he gets out of law school (Elle, unfortunately looks like the stereotypical dumb blonde, though of course this is a look that many men find very sexy).

13. Students fill their answers in column “during reading” in the worksheet. (Prediction handout)

Post-reading (10 minutes)

14. Students discuss the text and that helped verify or caused them to revise their predictions within their group to complete the prediction handout. Students answer the following question:

    14.1 Please explain your thinking and reasoning as you discuss changes or verifications to your predictions after you have read the entire text.

Paragraph 3

At first, Elle is emotionally crushed, but she soon decides to get Warner back by applying to Harvard Law School herself, as a way of impressing him with how smart she really is. In fact, Elle is extremely smart much more than Warner, but it’s also true that her bubbly “sorority personality” is very different from the type of people who go to Harvard Law School. Still, Elle is accepted to the school, and after a few months of struggling, she soon becomes an accomplished law student who clearly has the potential to become an actual lawyer. On the way through Harvard, she makes many friends, saves a wrongly accused woman from murder charges, and soon 20 discovers that it is Warner who is not smart enough or good enough for her, and certainly not the other way around.

15. Students fill their answers in column “after reading” in the worksheet. (Prediction handout)

Project-Based Classroom Planning Reading Activity (40 minutes)

- **Choose Group Topic**

16. Teacher gives students a Project-based language learning rubric.
17. Teacher tells them about the scope of the project work for this semester. By this semester, students will create the project in the group web log under the theme

"Entertainment", "Travel" or "Health". The project of each group will have the topic that relate to the theme. Students can surf the Internet to find the passages that relate to the group topic, read it by using reading skills that teacher teach in each class and upload their work to the web log.

18. Teacher assigns students to do the Activity 1 in group and students discuss in their group to choose their group topic under the theme "Entertainment", "Travel" or "Health".

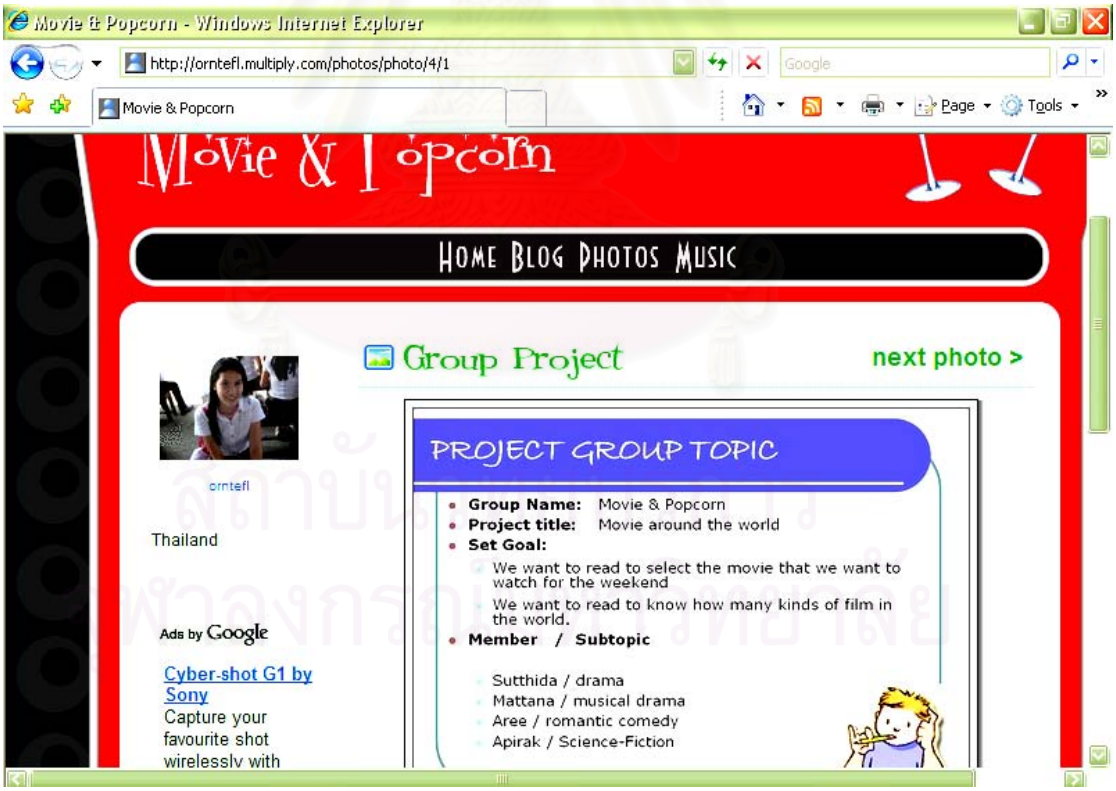
Activity 1

Classroom Planning: Choose Group Topic

1. Work in a group of five.

2. Discuss to find out the group topic that related to the theme "Entertainment", "Travel" or "Health".

3. Finalize group topic and prepare to present it in front of the class.



19. Teacher assigns students to select one passage, answer the questions and upload their work to their web log.

Individual work:

1. Find a passage via the internet that relate to your subtopic. Then, answer the following questions:

    1.1 From reading the text titles, can you predict what this text will be about?

    1.2 How do illustrations help you predict the text?

    1.3 What do you want to read to find out?

    1.4 What in the words or phrases make you believe that will be what the paragraph is about?

2. You can use the links that provided in this website.

3. Go to your web log (http://multiply.com) and upload your work to the blog section.

20. Teacher provides the useful website as follows:

ENTERTAINMENT:

1) http://www.essentialsofmusic.com/

2) http://www.bbc.co.uk/learning/ subjects/music.shtml

3) http://www.eslnotes.com/index.html

HEALTH:

1) http://www.kidshealth.org

2) http://www.bbc.co.uk/learning/subjects/health and_nursing.shtml

3) http://www.cdlponline.org/

TRAVEL :

1) http://www.worldtravelguide.net

2) http://www.thebackpacker.com/articles/

3) http://www.theworldisnotflat.com/

Appendix E

The example of instructional manual (Lesson 1)

……

Unit 1 Entertainment

Lesson 1: Movie (Legally Blonde)

Legally Blonde

Warm Up

Look at the picture above and discuss the following questions:

1. Do you know who she is?
2. What is she famous for?
3. Do you know the movie that she performs?

Pre - Reading

Look at the picture above and discuss the following questions:

1. Describe the pictures above and talk about how you think the pictures are related to each other.
2. Can you guess what the text will be about after you see this picture?
3. Do you know anything about this topic?
4. Have you ever watched this movie?

Vocabulary

Look at the underlined word in each sentence. Select the meaning of the underlined word.

a. stupid

b. simple idea about what a particular type of person or thing is like

c. to succeed in doing something

d. to say that someone has done something wrong

e. person who does not think about serious or important things

f. a social club for women students at a US university or college

g. admire

1. She looked suitably <u>impressed</u> when I told her about my new job.

meaning:_____

2. Mary and Anna always have a party at <u>sorority</u> after school.

meaning:_____

3. All the other girls seemed silly and <u>superficial</u> to Jessica.

meaning:_____

4. The <u>stereotype</u> we have of an artist typically is something like this: a young person, a rebel, living in a bohemian city environment.

meaning:_____

5. His job was successfully <u>accomplished</u>.

meaning:_____

6. I do not want to <u>accuse</u> him of telling lies.

meaning:_____

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While Reading

Reading Skill:

Predicting is a reading strategy in which we make predictions about what we will read and then read to prove those predictions. Using this skill can help us to better understand what we will read about.

*Legally Blonde_____

This is the story of Elle Woods, a very cute and friendly student who is also the most popular girl in her Los Angeles sorority (A house and club for female students). Elle has just finished her studies in Fashion, and is getting prepared to marry her boyfriend, Warner, who will soon be going to Harvard Law School, in Boston.

* Adapted from: http://www.eslnotes.com

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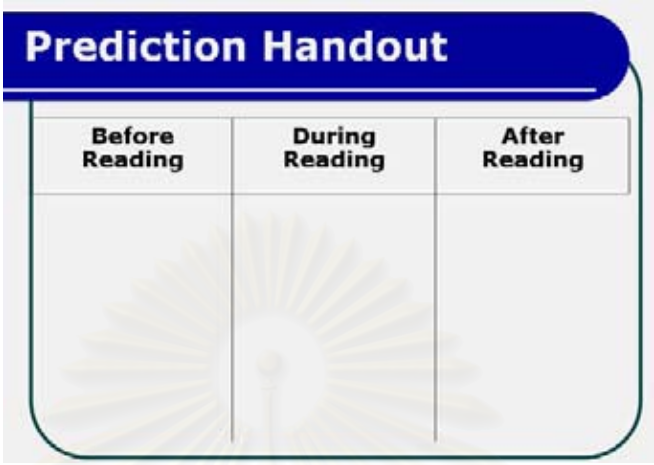
Predicting the content of the text (Before-Reading)

Prediction Handout

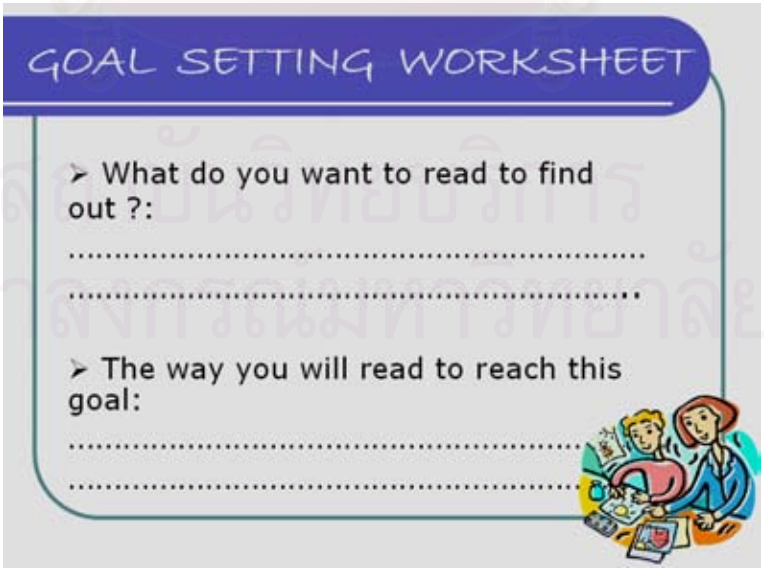


Read the first paragraph and answer the following questions. Then fill the answers in the Prediction handout (Before Reading).

1. Do you think the topic of the passage should be about filmmaker, movie star or a brief story?
2. What are the clues in the first paragraph or picture makes help you to guess the story?
3. What do you think will happen next?

Set goal for reading

Read this paragraph and set goal before reading the entire text.

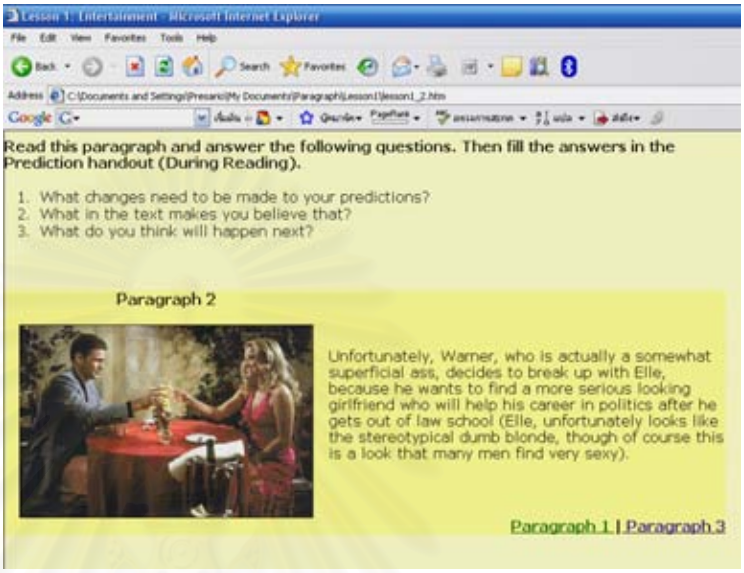


Reading Skill: Predicting the content of the text

Predicting

While we read the text, we can think about what will happen next and what will we make change to our prediction.

*Legally Blonde_____



Unfortunately, Warner, who is actually a somewhat superficial ass, decides to break up with Elle, because he wants to find a more serious looking girlfriend who will help his career in politics after he gets out of law school (Elle, unfortunately looks like the stereotypical dumb blonde, though of course this is a look that many men find very sexy).

* **Adapted from: http://www.eslnotes.com**

Predicting the content of the text (During-Reading)

Read this paragraph answer the following questions and fill the answers in the Prediction handout (During Reading).

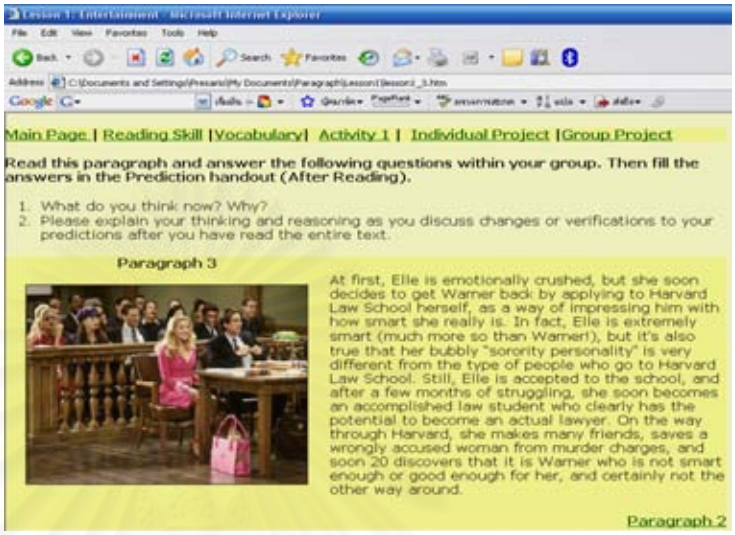
1. What changes need to be made to your predictions?
2. What in the text makes you believe that?
3. What do you think will happen next?

Post reading

Reading Skill: Predicting

After we read the entire text. We can discuss the text to verify or revise our prediction with the partner.

Legally Blonde_____



At first, Elle is emotionally crushed, but she soon decides to get Warner back by applying to Harvard Law School herself, as a way of impressing him with how smart she really is. In fact, Elle is extremely smart (much more so than Warner!), but it's also true that her bubbly "sorority personality" is very different from the type of people who go to Harvard Law School. Still, Elle is accepted to the school, and after a few months of struggling, she soon becomes an accomplished law student who clearly has the potential to become an actual lawyer. On the way through Harvard, she makes many friends, saves a wrongly accused woman from murder charges, and soon 20 discovers that it is Warner who is not smart enough or good enough for her, and certainly not the other way around.

Predicting the content of the text (After-Reading)

Read this paragraph and answer the following questions within your group. Then, fill the answers in the Prediction handout (After Reading).

1. What do you think now? Why?
2. Please explain your thinking and reasoning as you discuss changes or verifications to your predictions after you have read the entire text.

Project - Based Reading Activity

<u>Activity 1</u> Deciding Group Topic (Group Work)

1. Work in group of 5 and discuss to select the group topic that related to the theme "Entertainment", "Travel" or "Health".

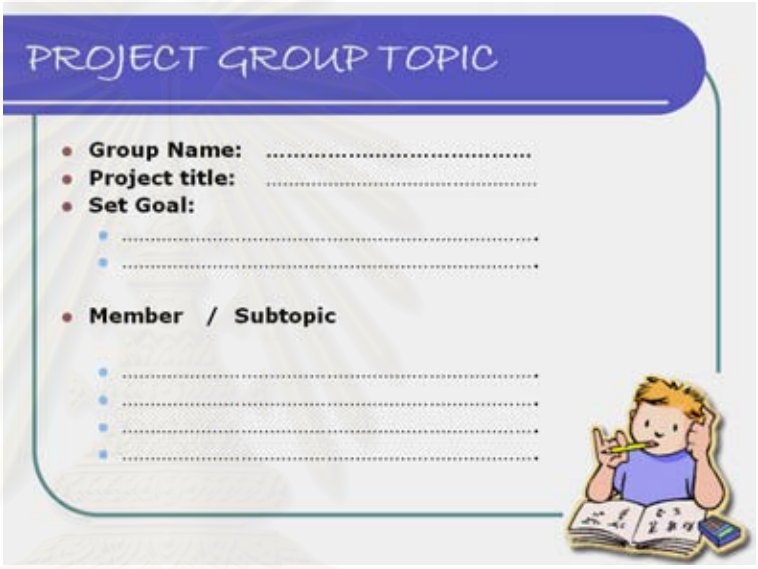
2. Set goal for your group project by answer the question "What does your group want to read to find out?"

3. Prepare to present it in front of the class.

Classroom planning

- Deciding group topic

The first step of classroom planning is to decide a group topic or the "big idea" for a project. Once you have the project topic, capture the topic in the form of a problem or a question that you want to solved or answered.



<u>Activity 2</u> Individual Reading Project (Individual Work)

1. After you get the topic of your group work. Select 3 paragraphs according to your subtopic from the World Wide Web. Then, predict the content of the text by answer the following questions.

1. From reading the text titles, can you predict what this text will be about?
2. How do illustrations help you predict the text?
3. What do you want to read to find out?
4. What in the words or phrases make you believe that will be what the passage is about?

Interesting Website!!!
Entertainment: 1) http://www.allmusic.com 2) http://www.bbc.co.uk/learning/ subjects/music.shtml 3) http://www.eslnotes.com/index.html ***Health:*** 1) http://www.kidshealth.org 2) http://www.bbc.co.uk/learning/subjects/health_ and_nursing.shtml 3) http://www.cdlponline.org/ ***Travel:*** 1) http://www.worldtravelguide.net 2) http://www.thebackpacker.com/articles/ 3) http://www.theworldisnotflat.com/

3. Go to your web log (http://multiply.com) and upload your work to the blog section.

Answers

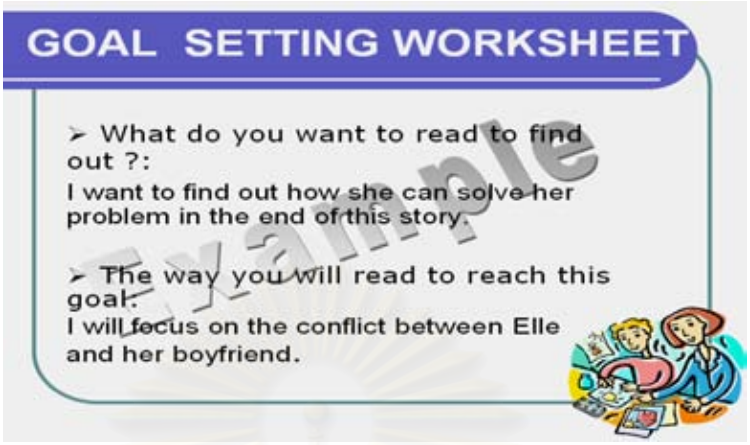
Vocabulary

1. g. admire
2. f. a social club for women students at a US university or college
3. e. person who does not think about serious or important things
4. b. simple idea about what a particular type of person or thing is like
5. c. to succeed in doing something
6. d. to say that someone has done something wrong

Predicting the content of the text (Before-Reading)

1. I think the topic should be about synopsis.
2. The first sentence tries to tell the synopsis of the movie. In addition, the picture makes me believe that the story should be about the woman with the small dog.
3. The conflict between Elle and her boyfriend (Warner).

Set goal for reading



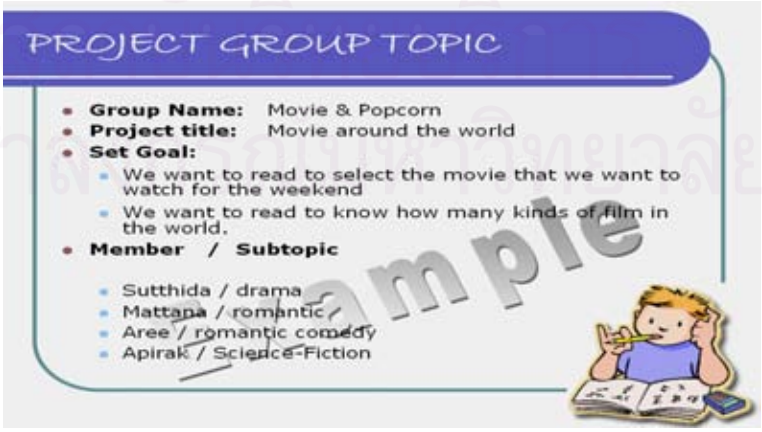
Predicting the content of the text (During-Reading)

1. - The passage do not mainly focus on the small dog but focus on the way Elle use to take Warner back to her and get marry with her.
   - Warner is smart and intelligent because he can go to study at Harvard Law School.
2. He wants to break up with her and find new girlfriend.
3. Elle will try to study at Harvard Law School but she may have problems because of her characteristic.

Predicting the content of the text (After-Reading)

1. I change my prediction that her personality may have problems she can be a good lawyer and also make many friends. In the fourth sentence showed that she saves a wrongly accused woman from murder charges.

Activity1 Choosing group topic



Appendix F

List of experts validating the instrument

……

A. List of experts for three lesson plans validation

1. Pranee Modehiran, Ph.D.
   Faculty of Education
   Chulalongkorn University

2. Paradee Praphuretkij, Ph.D.
   King Mongkut's Institute of Technology North Bangkok

3. Sutat Nakjan, Ph.D.
   Faculty of Humanities and Social Science
   Phetchaburi Rajabhat University

B. List of experts for Web-based English Reading Instructional Materials

1. Jintawee Monsakul, Ph.D.
   Faculty of Education
   Chulalongkorn University

2. Jaruek Chookittikul, Ph.D.
   Faculty of Sciences and Computer Sciences
   Phetchaburi Rajabhat University

3. Tavicha Phadvibhulya, Ph.D.
   Chulalongkorn University Language Institute (CULI)
   Chulalongkorn University

C. List of experts for Reading Comprehension Test

1. Wannana Soontornnaruerangsee, Ph.D.
   Faculty of Humanities
   Kasetsart University

2. Associate Professor Juntanee Indrasuta, Ph.D.
   Faculty of Humanities and Social Science
   Valaialongkorn Rajabhat University

3. Derrick Garnier
   Chitralada School

D. List of experts for Web-based Reading Comprehension Test

1. Jaruek Chookittikul, Ph.D.
   Faculty of Sciences and Computer Sciences
   Phetchaburi Rajabhat University

2. Sutat Nakjan, Ph.D.
   Faculty of Humanities and Social Science
   Phetchaburi Rajabhat University

3. Jintawee Monsakul, Ph.D.
   Faculty of Education
   Chulalongkorn University

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Appendix G

Expert's validation on three lesson plans

……

The validation of the "Legally Blonde" lesson plan

	Expert A	Expert B	Expert C	Total	Result
1. Theme: Entertainment	3	4	4	3.67	excellent
2. Reading skill	4	4	4	4.00	excellent
3. Objectives	4	4	3	3.67	excellent
4. In class activity: individual project	4	4	3	3.67	excellent
5. In class activity: group project	4	4	4	4.00	excellent
6. Out of class activity	4	3	3	3.33	good

Note: score 4.00-3.50= excellent, 3.49-2.50= good, 2.49-1.50= average,1.49-1.00= revise

The validation of the "University students not allowed to drink alcohol" lesson plan

	Expert A	Expert B	Expert C	Total	Result
1. Theme: Health	4	4	3	3.67	excellent
2. Objectives	4	4	3	3.67	excellent
3. Reading skill	4	3	4	3.67	excellent
4. In class activity: individual project	3	3	3	3.00	good
5. In class activity: group project	3	3	4	3.33	good
6. Out of class activity	3	3	4	3.33	good

Note: score 4.00-3.50= excellent, 3.49-2.50= good, 2.49-1.50= average,1.49-1.00= revise

The validation of the “On the beach in Cha-Am” lesson plan

	Expert A	Expert B	Expert C	Total	Result
1. Theme : Travel	4	4	4	4.00	excellent
2. Objectives	3	4	4	3.67	excellent
3. Reading skill	4	3	4	3.67	excellent
4. In class activity: individual project	3	3	4	3.33	good
5. In class activity: group project	3	4	3	3.67	excellent
6. Out of class activity	3	3	4	3.33	good

Note: score 4.00-3.50= excellent, 3.49-2.50= good, 2.49-1.50= average,1.49-1.00= revise

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Appendix H

The Example of Web-based Reading Comprehension Test

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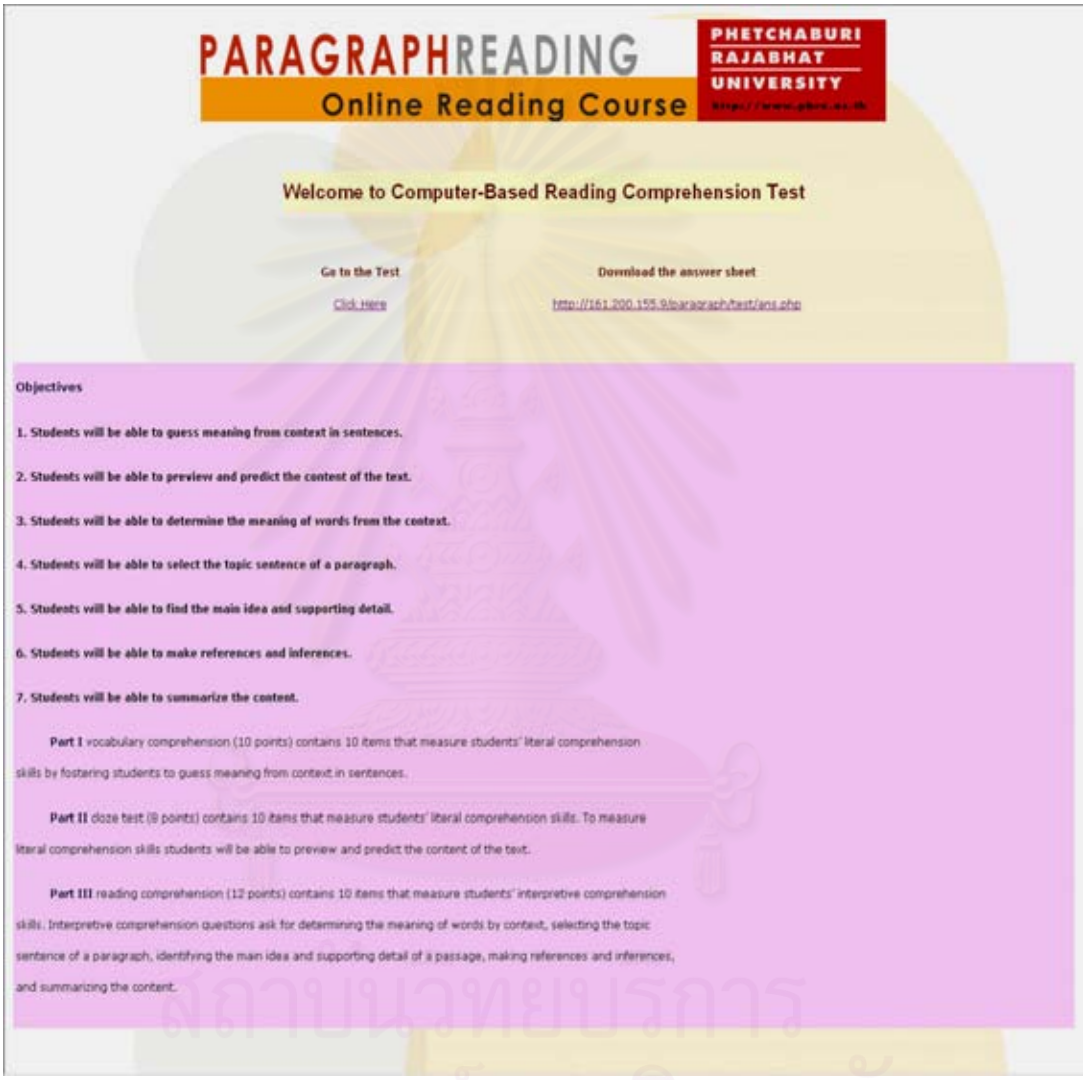
1. The first page of the Web-based Reading Comprehension Test



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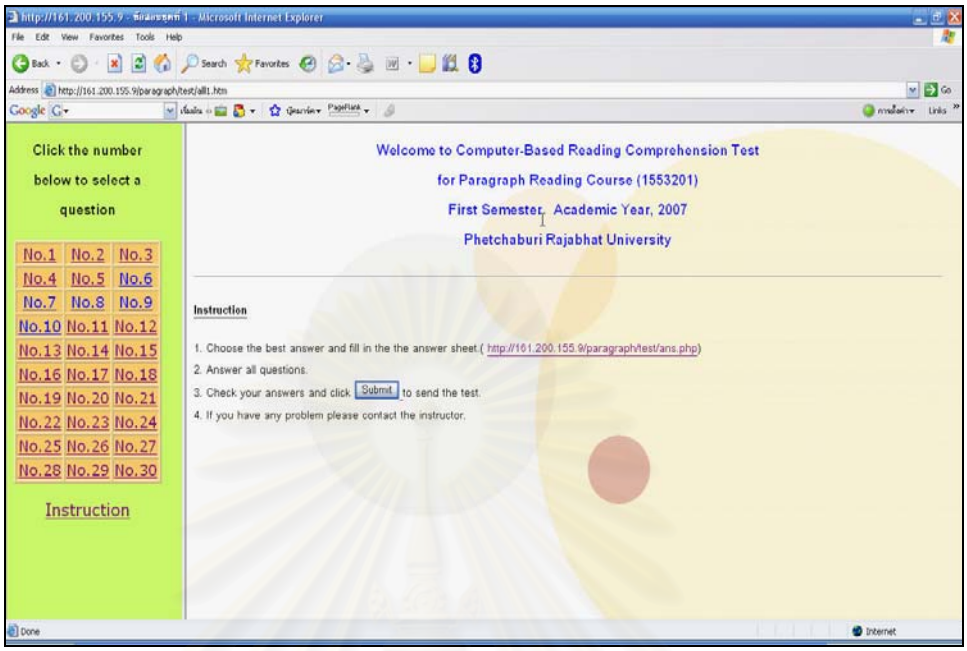
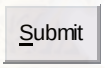
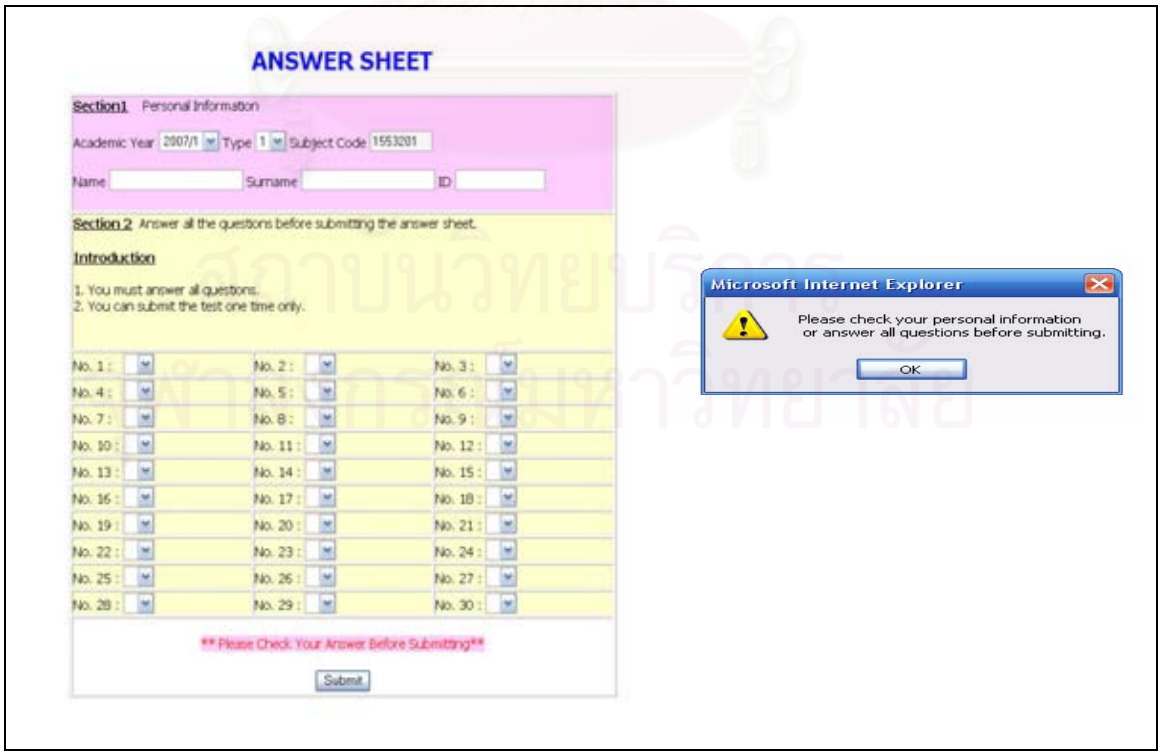
2. The instruction webpage

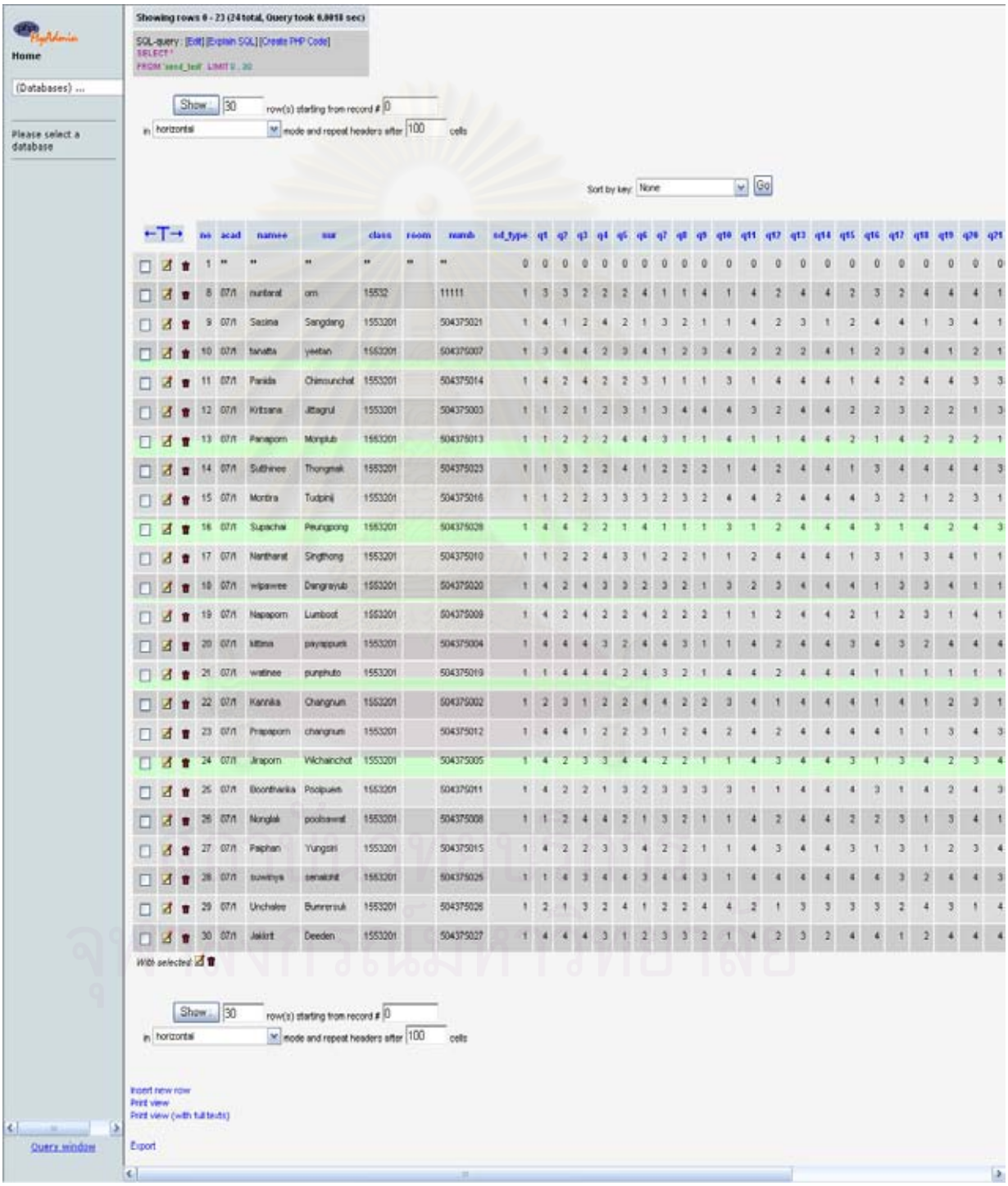


3. Students download the answer sheet, read the question and choose correct answer.

When students finish the test, then, click  button to send the test. They can send the test only once.



1. PHP and MySQL programs were used to develop the online test. The programs were used to collect students' raw score in the online database.



Web-based Reading Comprehension Test

Objectives

1. Students will be able to guess meaning from context in sentences.
2. Students will be able to preview and predict the content of the text.
3. Students will be able to determine the meaning of words by context.
4. Students will be able to select the topic sentence of a paragraph.
5. Students will be able to find the main idea and supporting detail.
6. Students will be able to make references and inferences.
7. Students will be able to summarize the content.

The Web-based Reading Comprehension Test is four multiple-choice questions composed of two different levels of comprehension in order to measure reading comprehension abilities.

Part I vocabulary comprehension (15 minutes) contains 10 items that measure students' literal comprehension skills by fostering students to guess meaning from context in sentences.

Part II cloze test (15 minutes) contains 8 items that measure students' literal comprehension skills. To measure literal comprehension skills students will be able to preview and predict the content of the text.

Part III reading comprehension (30 minutes) contains 12 items that measure students' interpretive comprehension skills. Interpretive comprehension questions ask for determining the meaning of words by context, selecting the topic sentence of a paragraph, identifying the main idea and supporting detail of a passage, making references and inferences, and summarizing the content.

The Example of Web-based Reading Comprehension Test

Part I **Synonym**

Directions: Look at the word and work out which of word below is the synonym of the underlined word.

2. Mark never went back to his hometown because he did not have a good reputation in his hometown.
   a. value
   b. feeling
   c. prestige ✓
   d. unimportant
3. The restaurant was resplendent with glass chandelier and mirrors.
   a. ugly
   b. humble
   c. shining ✓
   d. decorate
4. I would like to pay tribute to all of the people affected by the attacks on 9/11. I say thank you for giving your hearts and souls for America.
   a. blame
   b. gratitude ✓
   c. condemnation
   d. humbleness

Part II **Cloze Test**

Directions: Some words have been erased and replaced with blanks. In each blank, write the word that you think should go there.

Passage 2 (Question No. 15-18)

A chemical _(15)_ by fat cells makes colon cancers grow faster, a US study has suggested. The British Journal of Surgery study could help explain why severely overweight people appear to be at far greater risk of the disease. A team at the University

of California found that the hormone leptin triggered increased growth in human colon cancer cells. Obese people are up to three times more likely to _(16)_ colorectal cancer. The more fat cells a person has, the more leptin will be in their bloodstream. The San Diego team wanted to find further evidence of the link by watching what happened to human cancer cells _(17)_ to the hormone. And in two out of three tested, the hormone also hampered the usual process of programmed death that allows the body to _(18)_ normal cells, but which often malfunctions in cancers. Dr Kim Barrett, who led the research, said: "These results may explain why obesity increases a person's risk of colonic cancer.

* Adapted from: http://news.bbc.co.uk/1/hi/health/6529677.stm

15. a. built
    b. produced ✓
    c. increased
    d. destroyed

16. a. admit
    b. refrain
    c. organize
    d. develop ✓

17. a. ruin
    b. exposed ✓
    c. assimilated
    d. eliminated

18. a. react
    b. retain
    c. obtain
    d. replace ✓

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Part III **READING COMPREHENSION**

Directions: Read the text then choose the one best answer based on what is stated in the text or on what can be inferred.

Passage 3 (Question No. 19-25)

It doesn't matter that you're young and fit or that you've made the New York to Paris run before. Jet lag is no respecter of persons. Anyone can get it, even children, though people over 50 are more susceptible. And it doesn't matter how many frequent flier miles you've logged. The greatest cause of jet lag is rapid transit across world time zones. The time difference disrupts our body clock (circadian rhythm). This in turn affects body temperature, heartbeat, blood pressure and physiological patterns, leading to disorientation and mental and physical fatigue.

* Adapted from: http://www.mayoclinic.com/health/jet-lag/SL00012

19. Jet-lag refers to_____ .
    a. drinking alcohol in flight.
    b. the different time in the different part of the world.
    c. being unable to sleep properly on an aircraft.
    d. the clock says it is one time and the body says it is another. ✓
20. Jet lag is mentioned here as an example of____ .
    a. the job a pilot does
    b. modern technology
    c. people who lack of sleep
    d. a danger caused by traveling across time zone ✓

Appendix I

The construct validity of Web-based Reading Comprehension Test

……

Item	Level of Reading Comprehension	Objective	Expert			IOC	Result
			G	H	I		
1	Literal	1	+1	+1	+1	1.00	acceptable
2	Literal	1	+1	0	+1	0.67	acceptable
3	Literal	1	+1	+1	+1	1.00	acceptable
4	Literal	1	+1	+1	+1	1.00	acceptable
5	Literal	1	0	+1	-1	0.00	unacceptable
6	Literal	1	+1	+1	0	0.67	acceptable
7	Literal	1	+1	+1	+1	1.00	acceptable
8	Literal	1	0	+1	-1	0.00	unacceptable
9	Literal	1	+1	+1	+1	1.00	acceptable
10	Literal	1	+1	+1	+1	1.00	acceptable
11	Literal	2	+1	+1	+1	1.00	acceptable
12	Literal	2	+1	+1	+1	1.00	acceptable
13	Literal	2	-1	0	+1	0.00	unacceptable
14	Literal	2	+1	+1	+1	1.00	acceptable
15	Literal	2	+1	+1	0	0.67	acceptable
16	Literal	2	+1	+1	0	0.67	acceptable
17	Literal	2	0	+1	+1	0.67	acceptable
18	Literal	2	+1	+1	+1	1.00	acceptable
19	Literal	2	+1	+1	+1	1.00	acceptable
20	Literal	2	+1	+1	+1	1.00	acceptable
21	Interpretive	3	+1	+1	0	0.67	acceptable
22	Interpretive	7	+1	+1	+1	1.00	acceptable
22	Interpretive	4	+1	+1	+1	1.00	acceptable
24	Interpretive	5	+1	+1	+1	1.00	acceptable
25	Interpretive	3	+1	+1	+1	1.00	acceptable
26	Interpretive	6	+1	+1	+1	1.00	acceptable
27	Interpretive	5	+1	+1	+1	1.00	acceptable
28	Interpretive	5	+1	+1	+1	1.00	acceptable
29	Interpretive	6	+1	0	+1	0.67	acceptable
30	Interpretive	6	0	+1	+1	0.67	acceptable
31	Interpretive	6	+1	+1	+1	1.00	acceptable
32	Interpretive	3	+1	0	+1	0.67	acceptable
33	Interpretive	5	+1	+1	+1	1.00	acceptable

Note: +1 = Yes, 0 = Not sure, -1 = No

* acceptable (IOC >= 0.5): Acceptable for measuring the objective

* unacceptable (IOC<0.5): Unacceptable for measuring the objective

Appendix J

The item analysis of the Web-based Reading Comprehension Test

……

The Test Analysis Program (TAP) was used to explore the level of difficulty of the items (p), and the discrimination power of the items (r).

The level of difficulty of the items (p) and the discrimination power of the items (r) of the Web-Based Reading Comprehension Test

Item	IOC	p	r
1	1.00	0.78	0.52
2	0.67	0.34	0.26
3	1.00	0.73	0.63
4	1.00	0.68	0.42
5	0.67	0.68	0.42
6	1.00	0.42	0.63
7	1.00	0.25	0.33
8	1.00	0.60	0.57
9	1.00	0.29	0.56
10	1.00	0.73	0.42
11	1.00	0.33	0.41
12	0.67	0.42	0.05
13	0.67	0.81	0.47
14	0.67	0.71	0.36
15	1.00	0.73	0.42
16	1.00	0.34	0.36
17	1.00	0.52	0.52
18	0.67	0.50	0.47
19	1.00	0.76	0.47
20	1.00	0.25	0.22
21	1.00	0.76	0.47
22	1.00	0.57	0.42
23	1.00	0.47	0.42
24	1.00	0.60	0.57
25	1.00	0.33	0.41
26	0.67	0.38	0.19
27	0.67	0.76	0.26
28	1.00	0.74	0.63
29	0.67	0.33	0.41
30	1.00	0.33	0.16

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Appendix K

The example of students' online project

.....

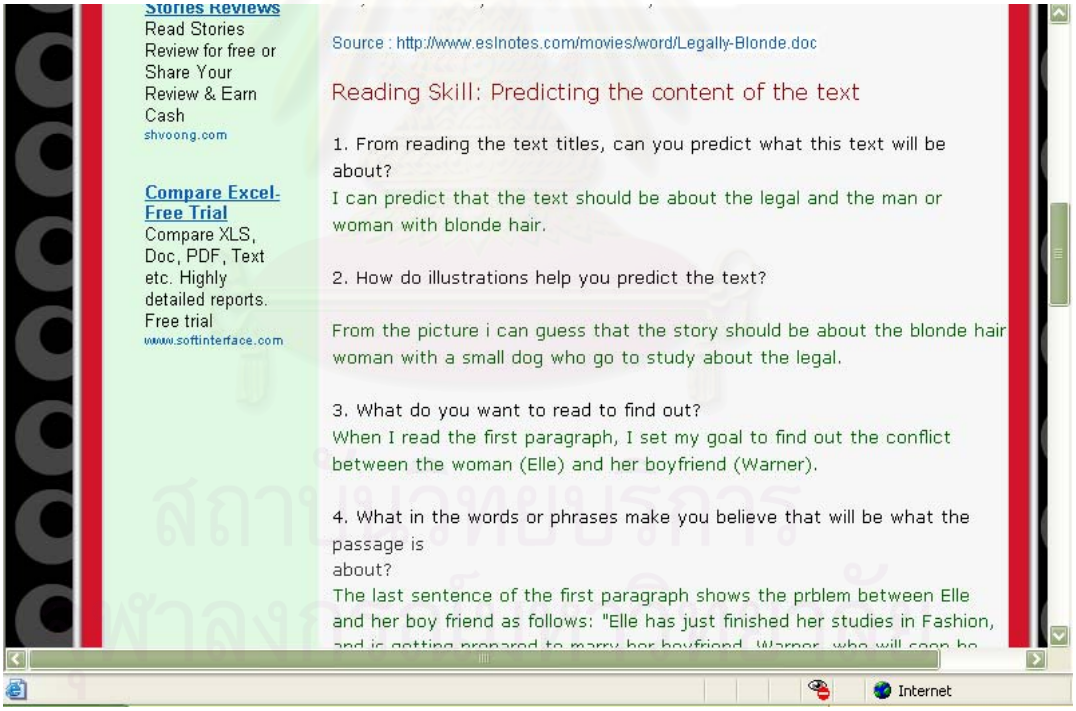
1. The example of students' project on the Multiply weblog.

(http://pochika.multiply.com)

2. Students uploaded their group topic to the web log.

3. Students created the individual and group project on the weblog.

4. Students answered the questions and uploaded to the web log.



Appendix L

The Example the Students' Project Activities

.....

Chapter 1: Entertainment

Week 3: (Legally Blonde Lesson Plan)

1. Individual Project (Predicting the content of the text and Set goals)

Individual work:

1. Find a passage via the internet that relate to your subtopic. Then, answer the following questions:

    1.1 From reading the text titles, can you predict what this text will be about?

    1.2 How do illustrations help you predict the text?

    1.3 What do you want to read to find out?

    1.4 What in the words or phrases make you believe that will be what the paragraph is about?

2. You can use the links that provided in this website.

3. Go to your web log (http://multiply.com) and upload your work to the blog section.

2. Group Project (Classroom Planning: Choose group topic)

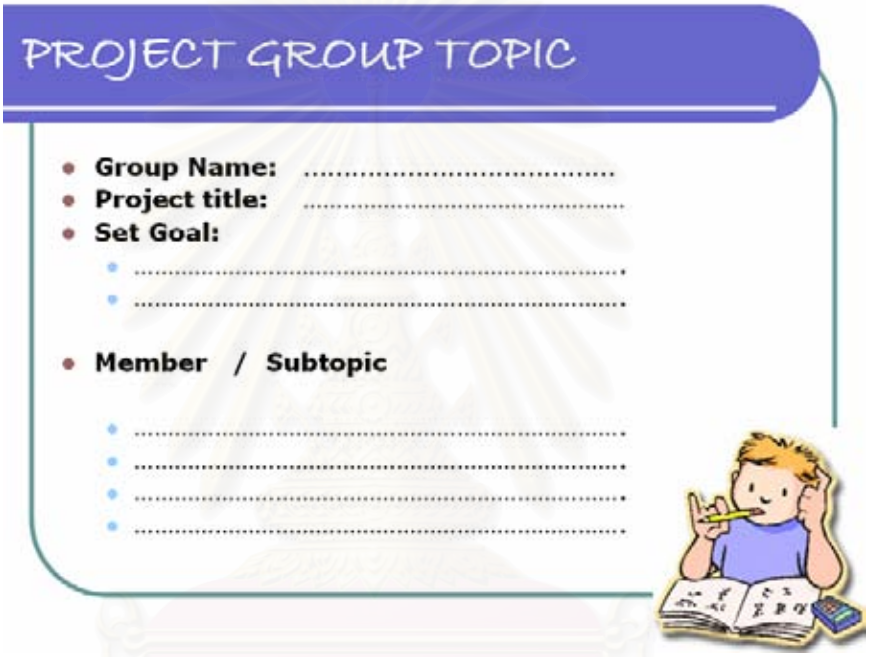
Classroom Planning: Choose Group Topic

1. Work in a group of five.

2. Discuss to find out the group topic that related to the theme

"Entertainment", "Travel" or "Health".

3. Finalize group topic and prepare to present it in front of the class.



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Chapter 1: Entertainment

Week 4: (Mass Media Lesson Plan)

1. Individual Project (Find the main idea and supporting details)

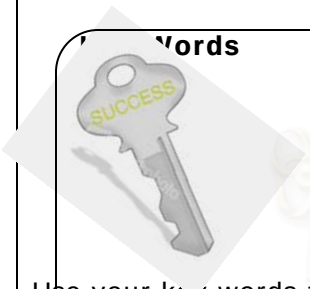
Name: _____ ID: _____

Title/Subtitle: _____

Finding the Main Idea and Supporting Details

Find key words from the text that best explain what the author want you to learn.

Key Words



Use your key words to write the main idea of this text.

Main Idea:

.....

.....

Find two or three details from the text that support your main idea.

Supporting Detail:

1. .....

2. .....

2. Group Project (Classroom Planning: Make group project planning form)

Group Project Planning

Project:_____Group:_____Date:_____

We want to know:

We need to complete the following activities:

What will we do?	How will we do it?	Date due
1. Classroom Planning		
2. Carrying out the project.		
3. Presentation		

We need the following resources and support:

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Chapter 1: Entertainment

Week 5: (Wolfgang Amadeus Mozart Lesson Plan)

1. Group Project (Classroom Planning: Modifying a group project planning form and send to the instructor via e-mail)

- Teacher asked students to work in group and revised a group project planning

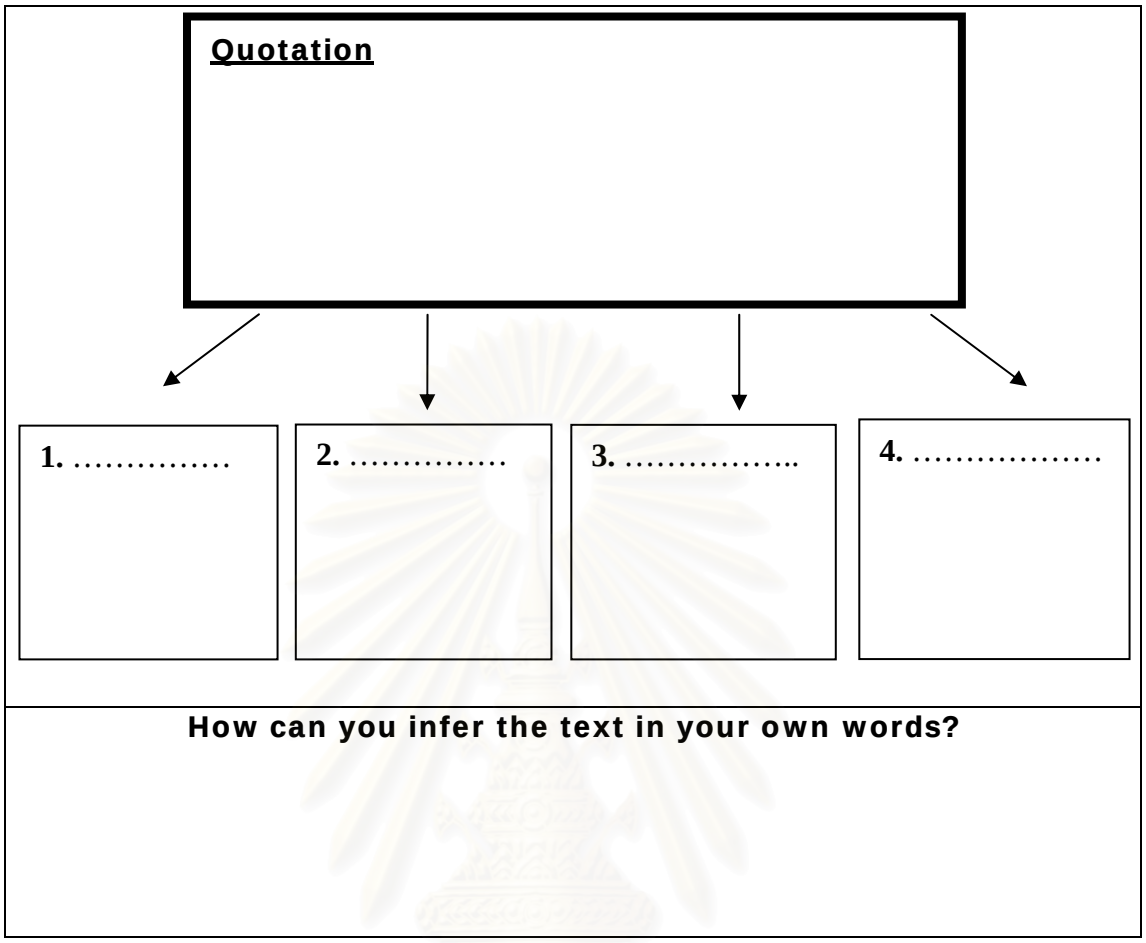
Chapter 2: Health

Week 6: (University students not allowed to drink alcohol)

1. Individual Project (Make references and inferences)

Select one paragraph that relate to your group topic from the World Wide Web. Make inferences of the paragraph in your own words by using at least 3 out of 7 clues as follows. Then, upload this activity to your web log.

1. ***Pronoun:*** Look for pronouns and figure out what to connect them to.
2. ***Situation:*** Guess where the situation is taking place.
3. ***Background Knowledge:*** Think about something that you know about this topic and see how that fits with what's in the text.
4. ***Explain character:*** After you read the text, see if you can explain why the main character in the text acted this way.
5. ***Relationship:*** What is the relationship between characters?
6. ***Unknown words****:* Look for words that you don't know and see if any of the other words in the sentence or surrounding sentences can give you an idea for what those unknown words mean.
7. ***The author's purpose:*** As you read this section, look for clues that would tell you how the author might feel about.



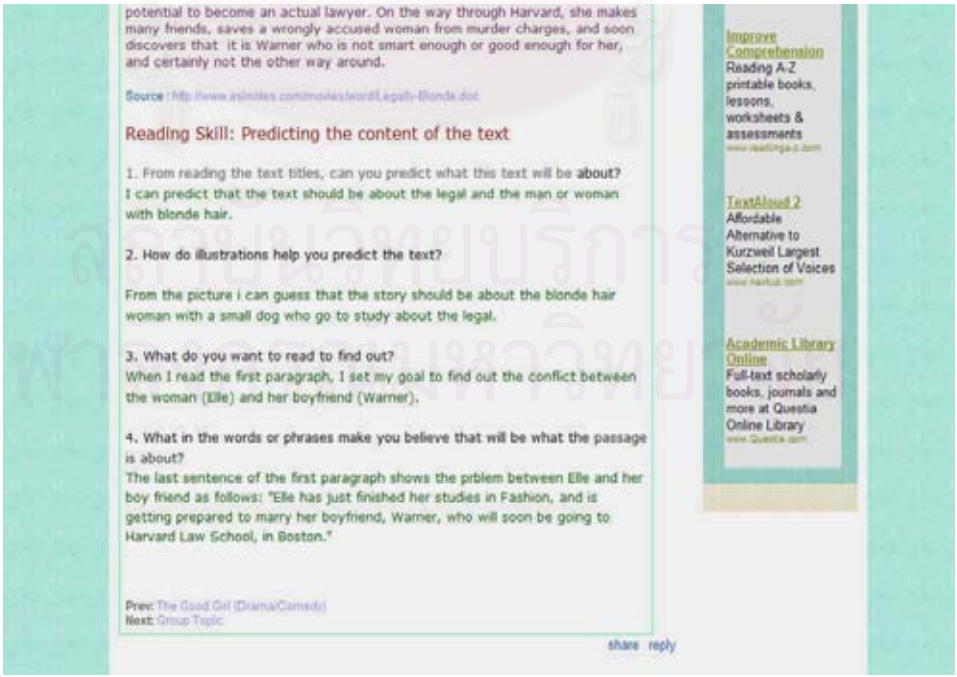
2. Group Project (Carrying out the project: Sign up the group weblog)

Chapter 2: Health

Week 7: (Sleep: An important part of life)

1. Group Project (Carrying out the project: Produce group project)

1.1 Students work in group to select the texts from the individual project and upload them to the group project. Students select the best individual project that they read by using the reading strategies that are: predicting the content of the text, setting goals for reading, finding main idea and scanning to locating supporting details.



potential to become an actual lawyer. On the way through Harvard, she makes many friends, saves a wrongly accused woman from murder charges, and soon discovers that it is Warner who is not smart enough or good enough for her, and certainly not the other way around.

Source : http://www.eslnotes.com/movies/word/Legally-Blonde.doc

Reading Skill: Predicting the content of the text

1. From reading the text titles, can you predict what this text will be about?
I can predict that the text should be about the legal and the man or woman with blonde hair.

2. How do illustrations help you predict the text?

From the picture i can guess that the story should be about the blonde hair woman with a small dog who go to study about the legal.

3. What do you want to read to find out?
When I read the first paragraph, I set my goal to find out the conflict between the woman (Elle) and her boyfriend (Warner).

4. What in the words or phrases make you believe that will be what the passage is about?
The last sentence of the first paragraph shows the prblem between Elle and her boy friend as follows: "Elle has just finished her studies in Fashion, and is getting prepared to marry her boyfriend, Warner, who will soon be going to Harvard Law School, in Boston."

Prev: The Good Girl (Drama/Comedy)
Next: Group Topic

share reply

Improve Comprehension
Reading A-Z printable books, lessons, worksheets & assessments
www.readinga-z.com

TextAloud 2
Affordable Alternative to Kurzweil Largest Selection of Voices
www.nextup.com

Academic Library Online
Full-text scholarly books, journals and more at Questia Online Library
www.Questia.com

Chapter 3: Travel

Week 8: (On the beach in Cha-am)

1. Individual Project (Summarizing the content of the text)

Select paragraphs that relate to your group topic from the World Wide Web. Summarize the content by follow the steps for summarizing a paragraph that can download from the teacher's website.

2. Group Project (Reviewing and monitoring: Peer feedback)

2.1 Comments your friends' group weblog at least 3 blogs by using the criteria from this handout.

Web Project Peer Feedback		
	Score	**Comments**
Content		
Information		
Links		
Organization		
Reading Skill : Predicting the content of the text and set goals for reading		
Reading Skill : Main idea and Supporting details		
Reading Skill : Making inferences		
Design		
Font/Images		
Color/Backgrounds		
Page linked to each other		
Overall styles		
4 = Excellent 3 = Good 2 = Average 1 = Need improvement		

2.2 Summarize and discuss the feedback from peer review and prepare to present it in front of the class.

Chapter 3: Travel

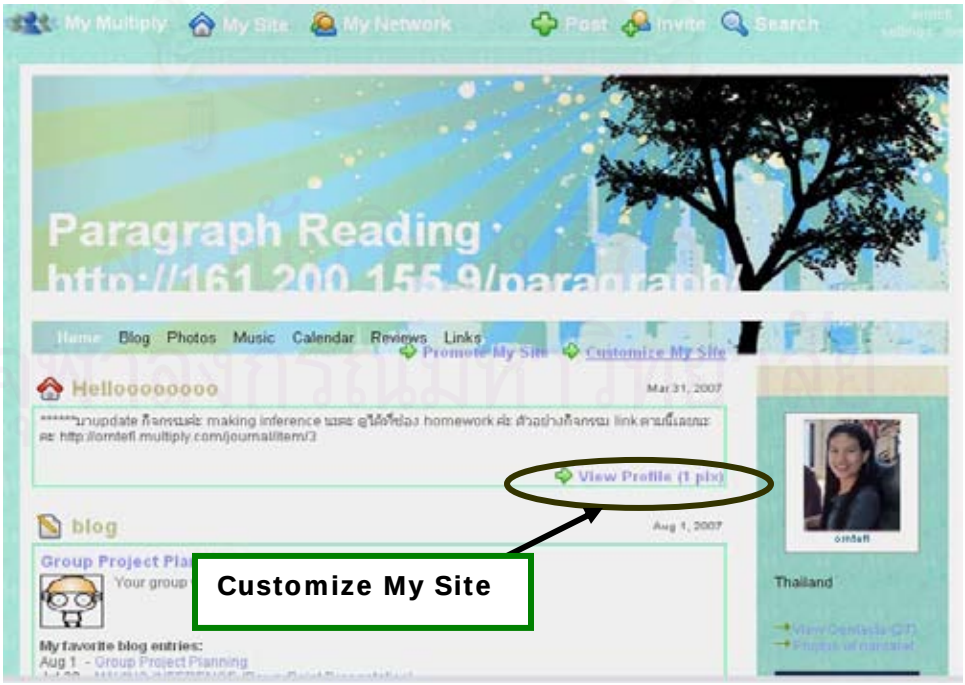
Week 9: Maruekkhathayawan Palace

(Palace of Love and Hope)

2. Group Project (Reviewing and monitoring: Revision of Group Weblog)

1. Students work in group and read the teacher and friends' comments that they are already summarized.

2. Students log in their group web log. Then, click "customize" to edit the design of group web log.

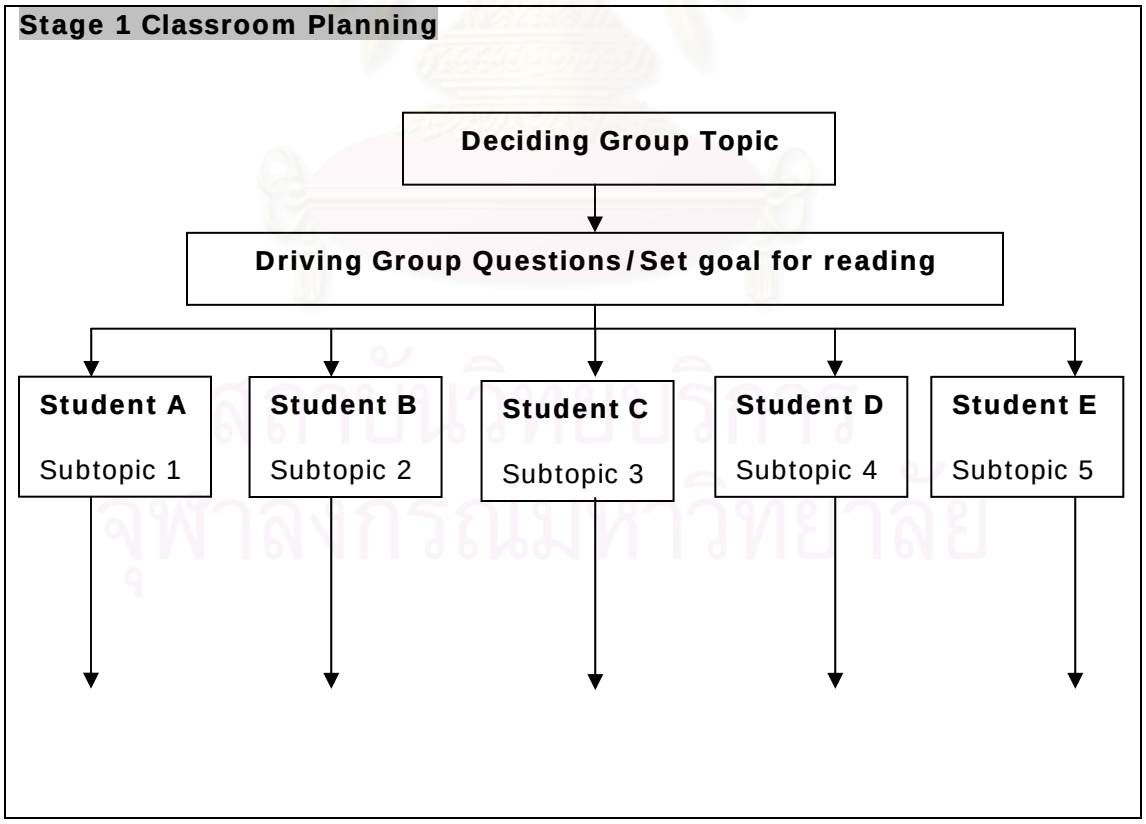


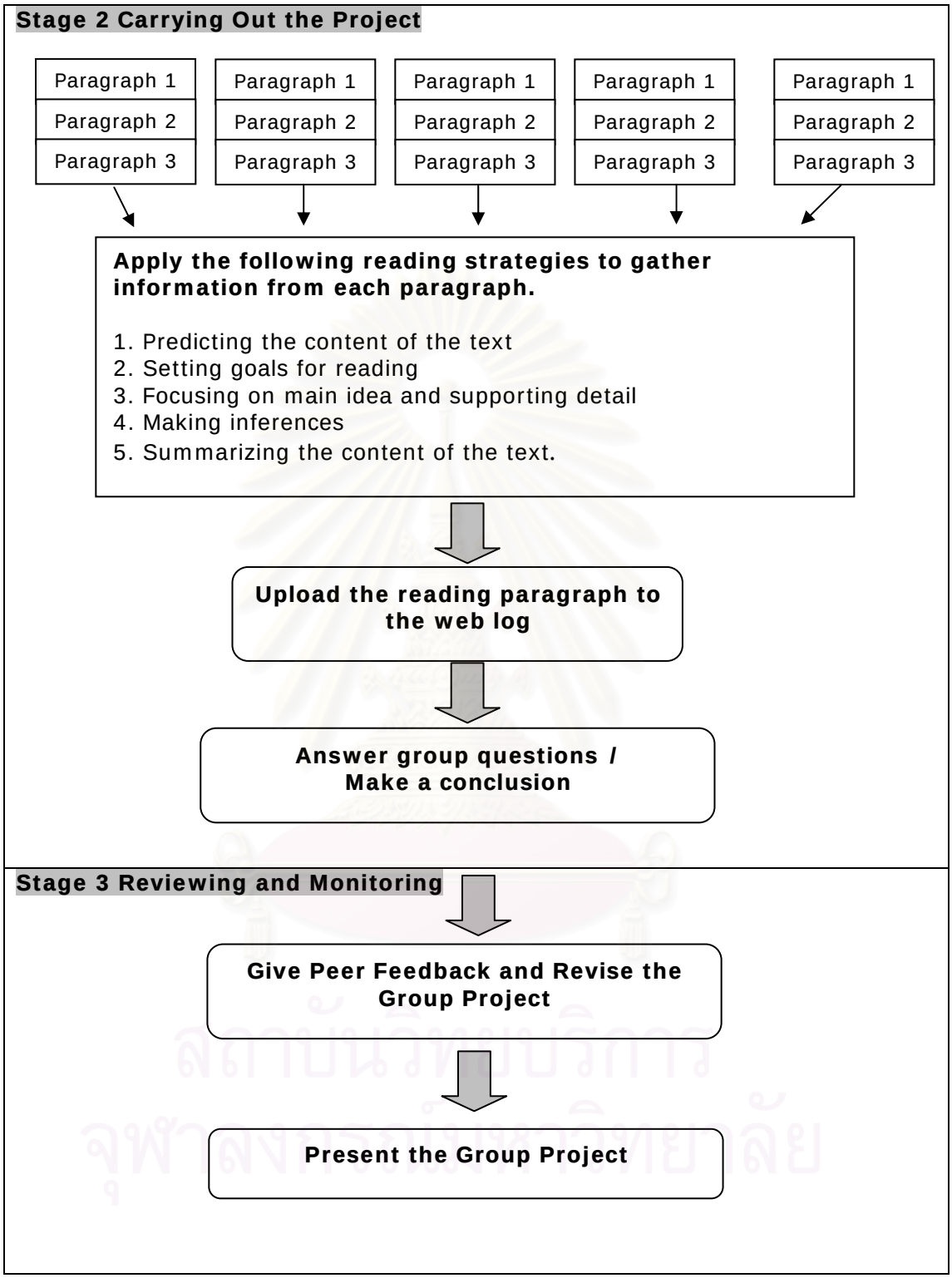
Chapter 3: Travel

Week 9: Prepare the Presentation

1. Group Project (Reviewing and monitoring: Prepare the presentation)

Look at the plan for project presentation as follows, work within your group and fill in the project presentation form.




Stage 2 Carrying Out the Project
Paragraph 1
Paragraph 2
Paragraph 3
Paragraph 1
Paragraph 2
Paragraph 3
Paragraph 1
Paragraph 2
Paragraph 3
Paragraph 1
Paragraph 2
Paragraph 3
Paragraph 1
Paragraph 2
Paragraph 3
Apply the following reading strategies to gather information from each paragraph.
1. Predicting the content of the text
2. Setting goals for reading
3. Focusing on main idea and supporting detail
4. Making inferences
5. Summarizing the content of the text.
Upload the reading paragraph to the web log
Answer group questions / Make a conclusion
Stage 3 Reviewing and Monitoring
Give Peer Feedback and Revise the Group Project
Present the Group Project

Appendix M

The example Computer and Computer Skills Inventory

……

1. Sex

☐ 1) Male ☐ 2) Female

2. Please check where you have ACCESS and USE to these computer applications:

Application	Do not use	At home	At school or university	Other place
Word-processing				
Email				
Chat				
Multimedia programs				
WebCT/Blackboard/ Moodle				
Microsoft Excel				
Microsoft PowerPoint				
Databases				
Websites in English				
Websites in Thai				

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3. Do you use websites for (please check):

Website type	Use	Not use
English language learning (e.g. grammar)		
Finding information		
News		
Banking		
Finding accommodation		
Travel planning		
Greeting cards		
Meeting people		
Shopping		
Downloading music		
Downloading clip art		

4. Please check the boxes to rate your skills using the various computer applications:

Application	Do not use	Poor	Average	Good
Word-processing				
Email				
Chat				
Web searches				
Multimedia programs				
Blackboard/Moodle				
Microsoft Excel				
Microsoft PowerPoint				
Databases				
Downloading music				
Downloading clipart				
Designing your own webpage				

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Appendix N

Assessment Rubric for Participation in Project-based Language Learning

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เกณฑ์การประเมินการเรียนภาษาผ่านโครงงาน

หัวข้อประเมิน	ดีมาก	ดี	ปานกลาง	ต้องปรับปรุง
	4	3	2	1
1. การวางแผนโครงงาน (Drafting the Project Plan)	นักเรียนมีการวางแผนการดำเนินงานโครงการแต่ละระยะอย่างชัดเจนและขั้นตอนการดำเนินงานทั้งหมดครบถ้วน ได้แก่ ขั้นวางแผน ขั้นดำเนิน งาน และขั้นนำเสนอผลงาน นักเรียนทุกคนในกลุ่มสามารถอธิบายการวางแผนโครงงานได้อย่างถูกต้อง	นักเรียนมีการวางแผนการดำเนินงานโครงการแต่ละระยะที่ค่อนข้างชัดเจนและขั้นตอนการดำเนินงานส่วนใหญ่ครบถ้วน ได้แก่ ขั้นวางแผน ขั้นดำเนินงาน และขั้นนำเสนอผลงาน นักเรียนทุกคนในกลุ่มสามารถอธิบายการวางแผนโครงงานได้อย่างถูกต้อง	นักเรียนมีการวางแผนการดำเนินงานโครงการแต่ละระยะค่อนข้างชัดเจน และขั้นตอนการดำเนินงานส่วนใหญ่ครบถ้วน ได้แก่ ขั้นวางแผน ขั้นดำเนินงาน และขั้นนำเสนอผลงาน นักเรียนส่วนใหญ่ในกลุ่มสามารถอธิบายการวางแผนโครงงานได้อย่างถูกต้อง	นักเรียนไม่มีการวางแผนการดำเนินงานโครงการแต่ละระยะที่ชัดเจน ขั้นตอนในการดำเนินงานแต่ละระยะไม่ชัดเจน และขั้นตอนการดำเนินงานส่วนใหญ่ไม่ครบถ้วน ได้แก่ ขั้นวางแผน ขั้นดำเนินงาน และขั้นนำเสนอผลงาน นักเรียนในกลุ่มไม่สามารถอธิบายการวางแผนโครงงานได้อย่างถูกต้อง

เกณฑ์การประเมินการเรียนภาษาผ่านโครงงาน (ต่อ)

หัวข้อประเมิน	ดีมาก	ดี	ปานกลาง	ต้องปรับปรุง
	4	3	2	1
2. การเก็บข้อมูล (Collecting Data)	นักเรียนสามารถหาแหล่งข้อมูลที่น่าสนใจด้วยตนเองในการทำโครงงานและสอดคล้องกับหัวข้อที่ได้รับ	นักเรียนสามารถหาแหล่งข้อมูลด้วยตนเองในการทำโครงงานและสอดคล้องกับหัวข้อที่ได้รับ	นักเรียนสามารถหาแหล่งข้อมูลโดยครูเป็นผู้ให้ความช่วยเหลือบ้าง และข้อมูลที่ได้สอดคล้องกับหัวข้อที่ได้รับ	นักเรียนไม่สามารถหาข้อมูลได้ด้วยตนเองต้องได้รับความช่วยเหลือจากครูทั้งหมด
3. การทำโครงงาน (Producing Group Project)	นักเรียนแต่ละคนสามารถอธิบายหน้าที่ที่ตนเองรับผิดชอบ และข้อมูลที่จำเป็นในการทำโครงงานในส่วนที่ตนเองรับผิดชอบได้อย่างชัดเจน	นักเรียนแต่ละคนสามารถอธิบายหน้าที่ที่ตนเองรับผิดชอบ และข้อมูลที่จำเป็นในการทำโครงงานในส่วนที่ตนเองรับผิดชอบได้	นักเรียนแต่ละคนสามารถอธิบายหน้าที่ที่ตนเองรับผิดชอบ และข้อมูลที่จำเป็นในการทำโครงงานในส่วนที่ตนเองรับผิดชอบได้	นักเรียนส่วนใหญ่ในกลุ่มไม่สามารถอธิบายหน้าที่ที่ตนเองรับผิดชอบ และข้อมูลที่จำเป็นในการทำโครงงานในส่วนที่ตนเองรับผิดชอบได้
4. การตอบคำถาม (Posting Questions)	นักเรียนตอบคำถามของครูได้อย่างครบถ้วนถูกต้องสมบูรณ์และมีข้อมูลรองรับ	นักเรียนตอบคำถามของครูได้อย่างครบถ้วนถูกต้องสมบูรณ์	นักเรียนตอบคำถามของครูได้ไม่ครบถ้วน	นักเรียนไม่ตอบคำถามของครู

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เกณฑ์การประเมินการเรียนภาษาผ่านโครงงาน (ต่อ)

หัวข้อประเมิน	ดีมาก	ดี	ปานกลาง	ต้องปรับปรุง
	4	3	2	1
5. กลวิธีการอ่าน (Applying Reading Strategies)	นักเรียนสามารถอธิบายการประยุกต์ใช้กลวิธีการอ่านอนุเฉท อย่างน้อย 4 ทักษะในโครงงาน ได้อย่างถูกต้องชัดเจน	นักเรียนสามารถอธิบายการประยุกต์ใช้กลวิธีการอ่านอนุเฉท อย่างน้อย 4 ทักษะในโครงงานได้	นักเรียนสามารถอธิบายการประยุกต์ใช้กลวิธีการอ่านอนุเฉท อย่างน้อย 4 ทักษะในโครงงานได้ โดยครูเป็นผู้ให้ความช่วยเหลือบ้าง	นักเรียนสามารถอธิบายการประยุกต์ใช้กลวิธีการอ่านอนุเฉท อย่างน้อย 4 ทักษะในโครงงานโดยต้องได้รับความช่วยเหลือจากครูทั้งหมด
6. การนำเสนอ (Presentation)	นักเรียนมีการนำเสนอโครงงานได้อย่างชัดเจน น่าสนใจ และมีระบบ ผู้ฟังสามารถเข้าใจได้อย่างง่ายดาย	นักเรียนนำเสนอผลงานได้อย่างชัดเจน มีระบบ ผู้ฟังสามารถเข้าใจได้อย่างง่ายดาย	นักเรียนนำเสนอผลงานได้อย่างชัดเจนในบางหัวข้อ และ ไม่มีระบบ ทำให้ผู้ฟังทำความเข้าใจได้ยาก	ผู้ฟังไม่เข้าใจในการนำเสนอผลงาน เนื่องจากการนำเสนอขาดระบบที่ดี

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Assessment Rubric for Participation in Project-Based Language Learning

Category	Very Good	Good	Average	Need Improvement
	4	3	2	1
1. Drafting the Project Plan	Students have developed a clear plan for organizing the information as it is gathered and in the final project that are classroom planning, carrying out the project, and reviewing and monitoring. All students can independently explain the planned organization of the research findings.	Students have developed a clear plan for organizing the information in the final project that are classroom planning, carrying out the project, and reviewing and monitoring. All students can independently explain this plan.	Students have developed a clear plan for organizing the information in the final project as it is gathered that are classroom planning, carrying out the project, and reviewing and monitoring. All students can independently explain most of this plan.	Students have no clear plan for organizing the information AND/OR students in the group cannot explain their organizational plan.

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Assessment Rubric for Participation in Project-Based Language Learning (cont.)

Category	Very Good	Good	Average	Need Improvement
	4	3	2	1
2. Collecting Data	Student can find the interesting texts that related to their group's topic by themselves.	Student can find the texts that related to their group's topic by themselves.	Students, with some teacher help, can find the interesting texts that related to their group's topic.	Students, with extensive teacher help, can find the interesting texts that related to their group's topic.
3. Producing Group Project	Each student in the group can clearly explain what information is needed by the group, what information s/he is responsible for locating, and when the information is needed.	Each student in the group can clearly explain what information s/he is responsible for locating.	Each student in the group can, with minimal prompting from peers, clearly explain what information s/he is responsible for locating.	One or more students in the group cannot clearly explain what information they are responsible for locating.
4. Posting Questions	The assigned questions are completely answered with considerable details.	The assigned questions are completely answered.	The assigned questions are partially answered.	The assigned questions are not answered.

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Assessment Rubric for Participation in Project-Based Language Learning (cont.)

Category	Very Good	Good	Average	Need Improvement
	4	3	2	1
5. Applying Reading Strategies	Students, clearly explain how to apply at least 4 reading strategies for the texts in the project work.	Students, explain how to apply at least 4 reading strategies for the texts in the project work.	Students, with some teacher help, explain how to apply at least 4 reading strategies for the texts in the project work.	Students, with extensive teacher help, explain how to apply at least 4 reading strategies for the passages in the project work.
6. Presentation	Students show a full understanding of the topic and present the information in logical, interesting sequence which audience can follow.	Students show a good understanding of the topic and present the information in logical sequence which audience can follow.	Students show a good understanding of parts of the topic and audience has difficulty following the presentation.	Students do not seem to understand the topic very well and audience cannot understand the presentation because there is no sequence of information.

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BIOGRAPHY

Miss Nantarat Kongkapet was born on the 9th October, 1982 in Petchaburi Province, Thailand. She received a Bachelor's Degree of Education majoring in English and Computer Education from Chulalongkorn University in the year 2005. After graduation, she continued her Master's Degree in Teaching English as a Foreign Language, Faculty of Education, Chulalongkorn University.

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