PROBLEM-BASED AND TASK- BASED LEARNING APPROACHES FOR ENGLISH WRITING COURSES

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การเรียนการสอนโดยเน้นปัญหา และโดยเน้นชิ้นงาน ในวิชาการเขียนภาษาอังกฤษ

นางสาวพนิตพิมพ์ โศจิศิริกุล

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต
สาขาภาษาอังกฤษศึกษา
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PROBLEM-BASED AND TASK-BASED LEARNING APPROACHES FOR ENGLISH WRITING COURSES

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

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พนิตพิมพ์ โศจิศิริกุล : การเรียนการสอนโดยเน้นปัญหา และโดยเน้นชิ้นงานในวิชาการเขียนภาษาอังกฤษ (PROBLEM-BASED AND TASK-BASED LEARNING APPROACHES FOR ENGLISH WRITING COURSES) อาจารย์ที่ปรึกษา : อาจารย์ ดร. พีรศักดิ์ สิริโยธิน, 264 หน้า.

การวิจัยครั้งนี้มีวัตถุประสงค์ 5 ประการ คือ (1) เพื่อพัฒนาหน่วยการเรียนที่เน้นปัญหา เพื่อปรับปรุงทักษะการเขียนภาษาอังกฤษของนักศึกษาระดับปริญญาตรีที่ลงเรียนวิชา LNG104 (Content-based Language Learning I) ณ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี, (2) เพื่อหาประสิทธิภาพของหน่วยการเรียนที่เน้นปัญหา เพื่อพัฒนาทักษะการเขียนภาษาอังกฤษของนักศึกษาระดับปริญญาตรีที่ลงเรียนวิชา LNG104 (Content-based Language Learning I) ซึ่งหน่วยการเรียนนี้ได้ถูกพัฒนาขึ้นตามเกณฑ์มาตรฐาน 80/80, (3) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักศึกษาที่ได้รับการสอนด้วยการเน้นปัญหา และนักศึกษาที่ได้รับการสอนด้วยการเน้นชิ้นงาน, (4) เพื่อศึกษาความแตกต่างระหว่างผลสัมฤทธิ์ทางการเรียนและสาขาวิชาของนักศึกษา และ (5) เพื่อศึกษาเจตคติของนักศึกษาที่มีต่อการเรียนวิชาภาษาอังกฤษโดยการเน้นปัญหา

การวิจัยเรื่องนี้เป็นการวิจัยโดยใช้หน่วยการเรียนที่เน้นปัญหา เพื่อสอนการเขียนภาษาอังกฤษให้กับนักศึกษา กลุ่มตัวอย่างที่ใช้ในการวิจัยในครั้งนี้ประกอบด้วย นักศึกษาจำนวน 84 คน ซึ่งได้ลงเรียนวิชา LNG104 (Content-based Language Learning I) ในภาคการศึกษาที่ 2 ปีการศึกษา 2551 นักศึกษากลุ่มนี้มีระดับความสามารถหลากหลายในทักษะการใช้ภาษา การวิจัยครั้งนี้ใช้นักศึกษาจำนวน 2 ห้องเรียน ซึ่งถูกเลือกด้วยวิธีการการสุ่มตัวอย่างแบบเจาะจง แบ่งเป็น 41 คน สำหรับกลุ่มทดลอง ซึ่งจัดการเรียนการสอนโดยใช้หน่วยการเรียนแบบเน้นปัญหา และ 43 คน สำหรับกลุ่มควบคุม ซึ่งจัดการเรียนการสอนโดยเน้นชิ้นงาน กลุ่มทดลองจะประเมินหน่วยการเรียนที่เน้นปัญหาด้วยแบบประเมินหน่วย และแบบประเมินตนเองของผู้เรียน จะตอบแบบสอบถามเจตคติและจะได้รับการสัมภาษณ์ การวิเคราะห์ข้อมูลใช้การหาค่าเฉลี่ย ค่าร้อยละและการวิเคราะห์ความแปรปรวน (ANOVA)

ผลการวิจัยพบว่า

1. ผลจากการประเมินหน่วยการเรียนที่เน้นปัญหาในการสอนภาษาพบว่า หน่วยการเรียนที่เน้นปัญหา สามารถใช้ได้กับการสอนภาษา และนักศึกษาสามารถเรียนรู้ภาษา โดยผ่านกระบวนการเรียนรู้ต่าง ๆ ตามขั้นตอน ($\bar{x}$ = 3.80)

2. หน่วยการเรียนที่เน้นปัญหาที่พัฒนาขึ้น มีค่าประสิทธิภาพ 86.35/80.98 ซึ่งสูงกว่าเกณฑ์มาตรฐาน 80/80 ที่ตั้งไว้

3. นักศึกษาที่เรียนด้วยวิธีการเน้นปัญหา มีความตระหนักอย่างยิ่งและมีพัฒนาการทางด้านการเขียน โดยเฉพาะการใช้โครงสร้างภาษาตามบริบทของรายวิชา ($\bar{x}$ = 17.27)

4. ผลสัมฤทธิ์ทางการเรียนของนักศึกษาที่ได้รับการสอนโดยเน้นปัญหาสูงกว่านักศึกษาที่ได้รับการสอนโดยเน้นชิ้นงาน และมีความแตกต่างระหว่างผลสัมฤทธิ์ทางการเรียนและสาขาวิชาของนักศึกษาที่ระดับนัยสำคัญ .01

5. นักศึกษามีเจตคติที่ดีต่อการเรียนการสอนโดยเน้นปัญหา ($\bar{x}$ = 3.50)

สาขาวิชาภาษาอังกฤษ ลายมือชื่อนักศึกษา _____

ปีการศึกษา 2552 ลายมือชื่ออาจารย์ที่ปรึกษา_____

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม _____

PHANITPHIM SOJISIRIKUL : PROBLEM-BASED AND TASK-BASED LEARNING APPROACHES FOR ENGLISH WRITING COURSES.
THESIS ADVISOR : PEERASAK SIRIYOTHIN, Ph.D., 264 PP.

PROBLEM-BASED LEARNING/TASK-BASED LEARNING/ENGLISH WRITING COURSES

The purposes of this study were: (1) to develop a PBL unit to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi, (2) to determine the effectiveness of the PBL unit based on 80/80 standard to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi, (3) to compare PBL and TBL in the language learning of undergraduate students at King Mongkut's University of Technology Thonburi (4) to examine significant differences between the students' writing achievement and their fields of study, and (5) to explore students' attitudes towards language learning through PBL.

This study employed a problem-based learning unit for teaching the writing of students. The subjects were 84 students who enrolled in LNG104 (Content-based Language Learning I) in the second academic year of 2008. They were mixed-ability students regarding their language proficiencies. There were two intact classes involved in the study which were selected by a purposive-sampling method. The experimental group included 41 students and was implemented with problem-based learning approach. The control group included 43 students and was conducted with

task-based learning approach. For the experimental group, the assessment of the PBL unit, self and peer assessment, questionnaire and semi-structured interview were administered. The statistical analysis of the data included arithmetic mean, percentage and ANOVA.

The findings were as follows:

1. The results of the evaluation of the PBL unit indicated that the PBL approach could be implemented for teaching a language, and the students could learn a language through the processes of the unit ($\bar{x}$ = 3.80).

2. The effectiveness of the problem-based learning unit was 86.35/80.98 which was higher than the prescribed criteria 80/80.

3. The students who studied through problem-based learning approach had the full realization and very good performance in writing in the respect of the language focus ($\bar{x}$ = 17.27).

4. The students' writing achievement where the problem-based learning approach was implemented was greater than where the task-based learning approach was implemented, and there were significant differences between the students' writing achievement and their fields of study at the level of .01.

5. The students had positive attitudes towards the implementation of problem-based learning approach ($\bar{x}$ = 3.50).

School of English
Academic Year 2009

Student's signature _____

Advisor's signature _____

Co-Advisor's signature _____

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There are many people to whom I would like to express my gratitude. This dissertation results largely from generous support that many individuals and institutions extended to me. This study could not have been undertaken in its entirely without the financial aid from the Government of Thailand that supported me.

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My special appreciation is dedicated to my beloved father and mother, who have nurtured and implanted in me all virtues. I thank them for all their unlimited love, encouragement, and moral support. All errors and omissions are mine and mine alone.

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CHAPTER 1

INTRODUCTION

1.1 Introduction and Purpose of the Chapter

This study attempts to integrate a problem-based learning approach for improving the writing of undergraduate students who study LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi (KMUTT). This chapter is an introduction to the thesis and provides the background as well as the context for the present study. This section contains the rationale, purposes, research questions, research hypotheses, limitations and significance of the study.

1.2 Rationale

Traditionally, the content of a language course has been specified in terms of the linguistic items to be taught. "It is unlikely that learners will acquire a new pattern unless they are developmentally ready for it, no matter how many times they practice it" (Willis, 2004, p. 5). During the 21st century, teaching methodologies and pedagogies have changed and developed gradually and continuously. Obviously, the changes have been from the teaching of discrete grammatical points to the communicative teaching approach, and from teacher-centred to learner-centred approaches.

The traditional approaches are now regarded as ones which cannot develop communicative competence in the language use of students. The students study the

language for learning purposes only, not for the real purposes of language use. Therefore, the changes are attempts to explore how to enable students to use the language effectively and meaningfully in real situations. Since Lopes (2004) states that students who are not exposed to real language are not able to deal with real-life situations when they encounter them outside the classroom, it is believed that the students will learn better if they have a chance to explore the language for themselves. Therefore, the current approaches which focus on teaching real language use with approaches such as the communicative approach, the task-based learning approach, and the project-based approach, are more acceptable since they provide students with an environment in which they are exposed to meaningful language in a real context.

Moreover, as the principles of the current teaching approaches which focus on the language exposure of the learners themselves, autonomous learning has been regarded as an important aspect of becoming a good language learner. It appears that if the learners are actively involved in learning processes, they will positively foster, to some extent, a better performance in their own learning. These approaches also promote autonomous learning which did not exist in traditional styles of teaching. Little (1991, p. 4) mentions autonomy as "a capacity for detachment, critical reflection, decision-making, and independent action." By developing the learners' freedom, this will enable them to act more responsibly in running the affairs of society in which they live (Little, 1991). It means that learners achieve self-responsibility, self-discipline and self-motivation for their life-long learning.

Due to the current language teaching pedagogies and recent educational changes, most current curricula in Thailand promote the exposure of students to real language use and to autonomous learning. King Mongkut's University of Technology

Thonburi (KMUTT) is a case in point. A task-based learning approach (TBL) has been adopted and adapted since 1999. It could be the answer for the need for a meaning-focused approach that reflects real-life language use. Language in the real world can be situated not only in a location but also in the classroom. Moreover, learners are being prepared to take the responsibility for their own learning. A task-based learning approach rests on three basic premises (Willis, 2004). They are as follows:

First, language learning is a complex process. Teaching a discrete language item does not lead to immediate mastery of that item. Second, a language form is best learned if learners are ready for its meaning. This is due to the fact that language acquisition is an implicit process which occurs when learners are grappling with the effort of communication (Ellis, 2003). In task-based learning, in other words, tasks are designed in ways that the meaning is the primary focus, and also attention is given to the form. Finally, the opportunity to use the target language for a real purpose is essential.

With the principle of a task-based learning approach, the teacher will be a communication bridge between the students and the meaning they need to understand or express (Leaver and Willis, 2004). The teacher will act as a facilitator to provide the basic information that the students need in order to complete tasks successfully. S/he has to deliver direct instructions when and where necessary before, during, and after the task. Other responsibilities of the teacher are to give students guidance in individual groups as needed, correct errors, make suggestions and support the learning process.

Although the principle of task-based learning focuses simultaneously on the meaning and the form of language, Ellis (2003, p. 228) states that since TBL

syllabuses “do not generally seek to dictate what linguistic forms a learner will learn at a time, the need to ensure a precise match between the teaching syllabus and the learner’s syllabus no longer arises.” Regarding Ellis’s argument, it seems that, in TBL, the language form might not have to be demonstrated through a set of tasks that the students perform in their classroom. It could be said that while the students are involved in the process of performing a task, they may not pay much attention to the language form, or they might only make use of bits of language (rather than complete structures).

A fundamental English course at KMUTT, which is LNG104 (Content-based Language Learning I) is an example of this. LNG104 is a language course in which the students have to design their own e-zine or magazine in groups as a course project by selecting an interesting topic, writing columns, designing e-zine or magazine layout, and presenting their work. Each student has to produce a different column for their e-zine or magazine. A list of possible columns is provided. The language focus is on the organization of one’s writing; how to have general and thesis statements in the introductory part, how to generate ideas with appropriate transition signals, how to have a topic sentence for each paragraph, and how to summarize the content and give comments in the conclusion. All these aspects of organization are integrated into the process of writing the e-zine or magazine. Since this course is project-oriented, most of the class time is spent on consultations.

Regarding essay writing, it has been found that the students have not been aware of the writing patterns or organization they have studied in the class. Even with the outline, they produce an introduction in which neither the scope of the essay nor the thesis statement is specified. In the students’ essays there are long explanations of

the ideas, but a point-by-point discussion of the main ideas is rarely given. Often, the essay is not well-generated. Moreover, the students cannot conclude their essays appropriately when they should briefly restate the content with suitable expressions. Furthermore, since in designing an e-zine or magazine, the students have to search for a large amount of information, in cases where the original texts are in English, they will copy the wording. Only a few of them try to make use of their own words. It could be said that the students do not know how to paraphrase texts. If the texts are written in Thai, the students will translate the texts. There are as a result a great deal of mistakes and errors in their writing. Obviously, every student makes mistakes in terms of both grammar and organization of writing. This, therefore, leads to miscommunication since the meanings of the authors cannot be accurately conveyed.

As regards the teachers' responsibilities, the teacher provides considerable help through consultations. Initially, the outline of the content of the column has to be prepared to control themes and main ideas which will be generated later in the essay. Then, the students produce the first draft of their own column. They will receive feedback from the teacher pertaining to the appropriateness of the ideas generated and their grammar mistakes. Then, the students have to revise the draft of their column and submit their second draft. However, the problems regarding both the organization of the writing and the grammatical mistakes, which had occurred in the first round of writing are still found in the second round. In other words, the students are not aware of what they should have learned. This might be because they have never been asked to think deeply about, analyze or seriously correct their own problems in writing. The mistakes, then, are repeated several times over. As a result, the teacher's workload is not reduced and becomes very tedious.

Recently, an alternative and innovative teaching approach, which is known as a problem-based learning approach (PBL) has been introduced. It is known that education in the 21st century aims at developing intelligence. Learning how to learn and lifelong learning is important. One of the best ways to cultivate such intelligence is to make use of problem scenarios. In other words, the development of intelligence is about learning to deal with real-world problems in real-life contexts. To clarify what PBL is, Savin-Baden and Major (2004) state that the new method, which involves learning in ways to use problem scenarios to encourage learners to engage themselves in the learning process, is known as a problem-based learning approach (PBL). It is the learning which results from the process of working toward the understanding or resolution of a problem (Tan, 2003). Then, the new knowledge which occurs from the student's readiness for learning will be retained in the learner's memory for a longer time.

PBL was first launched in the medical curriculum at McMaster University, Canada, in September 1969. It is a curriculum revolution which uses problems as stimuli for learning. For the previous curriculum, the students sat in lectures, memorized facts and took tests. This huge assortment of knowledge was not applied or put into practice for real use. A study of Bridges and Hallinger (1995) shows the empirical evidence that the medical students retained little of the basic disciplines they had learned. In addition, a study of Balla (1990a, b) puts forward the idea that the students were often not able to apply accurate or appropriate knowledge of basic science in formulating and revising clinical diagnoses. Therefore, it could be said that the previous curriculum was not successful in preparing students for a career in medicine.

So problem-based learning has been developed as an alternative and it appears to bridge the gap between theory and practice. In PBL, the problem is focused on as the core of learning. The students are organized to work in groups, discuss different cases and suggest possible solutions. This initiates autonomous learning which helps move learners from the unconscious performance of a task to fully self-organized and lifelong learning (Gardner and Miller, 1996). This was the first step in the development of PBL. Since then, PBL has become more familiar in many medical faculties.

When adopting PBL, the extent of the entire curriculum to be designed is important. Savin-Baden and Major (2004, p. 36) point out that “the curricula where PBL is central to the learning are, in fact, largely constructivist in nature since students make decisions about what counts as knowledge and knowing.” The difficulty of such curricula is how a constructivist stance can be married to benchmark statements and culture in higher education. Recently, there has been a shift of focus so that there is more emphasis on outcomes rather than learning. In other words, it is likely for the curriculum to be based on knowledge or skill acquisition rather than learning. More recently, PBL has been implemented as either a teaching approach or as a basis of curriculum design (Savin-Baden and Major, 2004).

PBL has been a challenging approach for the new century. The history of its development shows that this approach has been mainly adopted and adapted in medical and business fields of study. Although there are a few clear research studies showing that PBL is appropriate and could be implemented in teaching English as a second language, it is worth conducting further research to establish the suitability of this particular pedagogy. In the present study, PBL has been considered as an

alternative and innovative teaching approach for language teaching, and it has been implemented in order to solve problems in students' writing in LNG104 (Content-based Language Learning I) as mentioned above. It was hoped that the students could learn or acquire more language forms through an approach which focuses on the learning process. If the students are ready and completely involved in their own learning, such as analyzing their own problems in writing, setting their own learning objectives to solve those particular problems, discussing their strengths and weaknesses in their writing with their friends, finding the best solutions to their own problems, being able to correct their own mistakes, and so on, the new knowledge acquired in this way will ideally be retained for a long period of time.

1.3 Purposes

The purposes of this study are:

1.3.1 To develop a PBL unit to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi

1.3.2 To determine the effectiveness of the PBL unit based on 80/80 standard to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi

1.3.3 To compare PBL and TBL in the language learning of undergraduate students at King Mongkut's University of Technology Thonburi

1.3.4 To examine significant differences between the students' writing achievement and their fields of study

1.3.5 To explore students' attitudes towards language learning through PBL

1.4 Research Questions

In order to achieve the purposes stated above, the study focuses on the following questions:

1.4.1 What are the elements and considerations in integrating a PBL unit to improve the writing skills of students of LNG104 (Content-based Language Learning I)?

1.4.2 Is the PBL unit effective regarding the 80/80 standard?

1.4.3 Are there any differences in language learning between the PBL and TBL approaches?

1.4.4 Are there significant differences between the students' writing achievement and their fields of study?

1.4.5 What are the students' attitudes towards language learning through PBL?

1.5 Research Hypotheses

This study postulates three research hypotheses:

1.5.1 The improvement of the writing skills of students who enroll in a fundamental English course LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi where PBL is implemented will be greater than those studying through TBL.

1.5.2 PBL is considered as an appropriate approach in language teaching.

1.5.3 The students have positive attitudes towards language learning through PBL.

1.6 Limitations

Although this study is designed to integrate a PBL unit for the improvement of students' writing in a fundamental English course: LNG104, at KMUTT, there are two limitations:

1.6.1 Integration of PBL Unit into a Fundamental English Course: LNG104

This study is designed to integrate a PBL unit for improving the writing of students who study LNG104 (Content-based Language Learning I). The PBL teaching approach could not be completely implemented as the syllabus for an entire course since this particular experimental group might be adversely affected with regard to the majority of students in terms of unequal assessment and the learning process. In other words, PBL has been planned as a single learning unit to give support and help to the improvement of students' writing.

In this case, the overall LNG104 course assessment is retained in its normal form. The students mainly receive marks for their project work, quizzes and formal exams. However, some assessments of the PBL unit are conducted quietly and separately to evaluate students' writing performance and also the effectiveness of the approach itself.

1.6.2 Student Experiences of the TBL Approach

As has already been mentioned, a task-based learning approach has been implemented in language teaching for all fundamental courses at KMUTT for many years, so the students are ready and familiar with principles, such as performing tasks for themselves, working in groups, being independent learners, etc. This might affect the results of the PBL implementation since one important aspect of PBL is that the students should be autonomous learners. In other words, it can be said that the learning environment at KMUTT in conducting PBL was quite positive and did not present any particular difficulties which undoubtedly facilitated the implementation of the research

1.7 Definitions of Key Terms

Along with the study of “Problem-based and Task-based Learning Approaches for English Writing Courses,” many terms are used and defined as follows:

1.7.1 “Problem-based learning” is the way the problem-based learning approach is implemented as a teaching approach for language teaching and is placed as a learning unit into a fundamental English course: LNG104 (Content-based Language Learning I) to improve the writing of the students.

1.7.2 “Task-based learning” is the way the task-based learning approach is implemented as a teaching approach for language teaching.

1.7.3 “English writing courses” is LNG104 (Content-based Language Learning I) which is a fundamental English course at KMUTT. “Writing” concerns the organization of the writing which includes having general and thesis statements in the introduction, appropriate transition signals for generating and linking ideas, topic sentences for controlling the ideas of particular paragraphs, and content summary and comments in the conclusion.

1.8 Significance of the Study

This study provides the following significance:

1.8.1 The concept of the plan can be applied in designing another language course or curriculum in another ELT context.

1.8.2 The findings of the study can be used as a guide to improve the teaching and learning of writing and to develop appropriate materials for the course.

1.8.3 The findings can provide key guidelines for further research and studies in the implementation of a problem-based learning approach in ELT, or in its development for courses or curriculum design.

1.8.4 The database for the implementation of problem-based learning in the teaching of writing will be increased.

1.9 Summary

In this chapter, an overview of the research study is provided along with its aims of integrating a PBL unit into a fundamental English course LNG104 (Content-based Language Learning I) to improve students' writing at King Mongkut's University Thonburi. The content includes the rationale, purposes, research questions, research hypotheses, limitations, definitions of key terms and significances of the study. The next chapter discusses the related literature review of PBL theory and research studies.

CHAPTER 2

LITERATURE REVIEW

In order to integrate a problem-based learning approach with the improvement of writing English for students, the literature review has integrated these two themes in an attempt to highlight and introduce the reader to the general conclusions regarding a problem-based approach to learning. A review of findings from secondary research sources specific to the problem-based learning approach will be presented. Also, the need for a study of theories related to the study, i.e. task-based learning, constructivism, instructional systems design, EAP writing, attitudes in language learning and efficiency criterion in media research and development: E1/E2 will be addressed.

2.1 What is Problem-based Learning (PBL)?

The goals of PBL involve content learning, acquisition of process skills and problem-solving skills, and lifelong learning (Tan, 2003). In PBL, complex and real world problems are used to motivate students to participate in their own learning and research the concepts they need to know and to learn. Duch, Groh, and Allen (2001) and Tan (2003) point out that PBL includes the following characteristics:

- The problem is the core of the starting point of learning.

- The problem is a complex and real-world one that appears unstructured and authentic.

- The problem calls for multiple perspectives. The key feature of PBL curricula is the use of cross-disciplinary knowledge. Knowledge from various sources has been encouraged as solutions of the problem.

- Students' current knowledge, attitudes and competencies are encouraged as a part of the identification of learning needs and new areas of learning which can be transferred between various life and work situations.

- Students' self-directed learning is the center. They have to be responsible and take charge of their own learning. They find, use and evaluate appropriate learning resources.

- Learning is collaborative and communicative. Students work collaboratively in teams and small groups with a high level of interaction for the sake of learning. They demonstrate versatile and effective communication skills in both verbal and written language.

- The development of inquiry and problem-solving skills is as important as the acquisition of content knowledge. The PBL teachers should act as facilitators to support students' learning through questioning and cognitive coaching.

- PBL calls for the integration of learning.

- PBL includes assessment and review of learners' experiences and learning processes.

To the researcher, problem-based learning provides the complete involvement of students in the learning process. An unstructured problem initiates learning. New knowledge is constructed and formulated through independent and collaborative learning. In this way, new knowledge will be retained in the students' memory for a long period of time.

2.2 Characteristics of Problems in Problem-based Learning

As already mentioned, in PBL, the problem is the core or the heart of learning. It is used as a stimulus for learning. The root of problem design is to select a real-world problem. Teachers should implement up-to-date knowledge when designing problems. Therefore, teachers should always keep in touch with real-world or modern challenges in society. Tan (2003, p. 74) points out that the ability of teachers "to use problems creatively is a major aspect of educational innovation."

In illustrating the principle of PBL, it will be seen that problem design is a complex issue about which there are relatively few straightforward answers (Savin-Baden and Major, 2004). There are, however, two types of problems which will be discussed below:

2.2.1 Ill-structured Problems

Regarding the concept of PBL, the initial stage of tackling a problem will be mainly ill-structured. When the students first encounter the problem, there is insufficient information in order to understand or solve it. In other words, the problem will be "ambiguous, incomplete, confusing or conflicting" (Barrows and Wee, 2007, p. 45), and additional information will be needed. Through inquiry, there will be many alternatives methods of solving a problem. The students have to clarify or justify reasons as well as integrate their previous knowledge to their new knowledge. "What worked with a previous problem may not work with the current problem" (p. 45). Despite deliberate and careful reasoning, students might not be able to determine whether their answers or solutions are the right or the best ones. Often, a problem needs to be followed up in order to discover if the solutions found are correct or whether the problems need to be revised.

2.2.2 Well-structured Problems

Unlike ill-structured problems, when a well-structured problem is encountered, all the information needed in solving the problem is provided. “There is usually a prescribed way to proceed in solving the problem” (Barrows and Wee, 2007, p. 46). There will be a right answer. The students will learn whether their solutions are correct or incorrect. Such a situation never occurs in the ill-structured problems of the real world.

The students’ task in PBL is to turn the initially ill-structured problem into a well-structured one by finding or summarizing facts or solutions to the problem. A well-structured problem is not appropriate for promoting problem-solving skills, because it is not challenging, it is not good for generating ideas, it cannot lead to free inquiry, and it cannot be practiced and even developed. “Once the learners have gone as far as they can with the knowledge and reasoning skills they have to transform an ill-structured problem into a well-structured problem, they proceed to conduct self-directed learning to find the new knowledge they need to solve the problem” (Barrows and Wee, 2007, p. 46).

In this study, the ill-structured problem was the focus for calling for students’ attention to their learning and to initiate students’ learning. It was expected that the ill-structured problem was able to activate students’ curiosity in learning which would bring about diversity and enthusiasm for learning.

2.3 Cognitive Modes in Problem-based Learning

Problem-based learning is a process which involves and promotes the cognitive domain. To quote Savin-Baden and Major (2004, p. 24), cognitive theories

focus on mental processes rather than products of learning "which … is more in keeping with the process approach of problem-based learning." Cognitive theories provide the in-depth understanding of how an individual learns and what happens in his/her mind when the learning process occurs. The development of cognition is essential for developing "capacity and skills for better learning, or to learn how to learn" (p. 24), which is one of the important goals of problem-based learning.

The existing cognitive structure is the principal factor and has an important effect on meaningful learning. In some cases, it appears that students will learn best if there is a relationship between their new knowledge and their existing knowledge. The principle of PBL promotes forms of active learning which involves students' pre-existing knowledge and cognitive modes. The core concept of the approach is to enable students to make use of their previous knowledge and ways of thinking, and construct it into a new form of learning that should be comprehensible and meaningful to them.

In PBL, the cognitive modes can be promoted through the intellectual complexity of problems. To illustrate how cognitive skills play an important role in PBL, Bloom's taxonomy provides us with a cognitive framework for consideration. There are six levels of cognitive domains: knowledge, comprehension, application, analysis, synthesis and evaluation. These categories are considered to be hierarchical. They are designed as levels ranging from the lowest cognitive learning task to the most complex one. However, this does not mean that the lower levels are easy and not important. "The information gained at the lower levels often forms the background knowledge needed to successfully complete tasks at the higher levels" (Sparks-Langer et al., 2000, p. 89). It can be assumed that a lower level will be included in a higher one. Each category will be considered in more detail.

2.3.1 Knowledge (Memorizing)

Knowledge is the first level of taxonomy. The tasks at this level will involve students into recalling, recognizing, listing, or reproducing what they have learned. The information may be in the form of a fact, a rule, a diagram, a sound and so on. Answers are predictable and tend to be right or wrong.

2.3.2 Comprehension (Understanding)

Comprehension is the second level of taxonomy. At the comprehension level, the students can understand the materials and can express their own understanding with their own words. They might recall the knowledge they have learned and express it in different ways. In other words, they can demonstrate their understanding of information by translating it into different forms.

2.3.3 Application (Using)

The third level of taxonomy is application where the students are required to "exhibit complex thought as well as the retrieval of information" (Sparks-Langer et al., 2000, p. 89). The students not only have to recall and understand the content, they have to do something with it or apply it appropriately in other ways. This can be done by drawing a figure, writing, handling equipment, etc.

2.3.4 Analysis (Taking apart)

At the analysis level, which is the fourth level of the taxonomy, the students have to deal with unfamiliar information that requires a more complex thought process than the one which is elicited from an application task. Analysis requires taking apart the content provided by a stimulus. Students examine the information and make inferences or hypotheses. Analysis demands that the students go beyond the information to draw conclusions. They have to be able to explain the reasons, and show comparisons and contrasts with the information they have learned.

2.3.5 Synthesis (Creating new)

The fifth level of taxonomy is synthesis. As Arends (1989) mentions, at this level students have to bring to bear information from various sources to create their own unique product. They have to be able to “create an original product, exhibit, or performance that involves the selection, organization and implementation of a number of concepts and principles and requires substantial thought” (Sparks-Langer et al., 2000, p. 90). The main difference between task at the synthesis level and those at other lower levels is the need to produce something that has not previously existed. The students have to put ideas together into “a new or unique product or plan” (Shrum and Glisan, 2000, p. 376).

2.3.6 Evaluation (Judging)

The highest level of Bloom’s taxonomy of cognitive domains is evaluation. At this level, students judge the value of materials or ideas on the basis of set standards or criteria (Shrum and Glisan, 2000). They have to make judgments about the value of two or more alternatives, select the most suitable, and justify their choice with specific criteria. Sparks-Langer et al. (2000) point out that, in an evaluation task, students must defend their decisions by using a combination of logical arguments presenting facts and the use of predetermined criteria.

It should be mentioned that by using PBL, all levels of the cognitive domains, especially the higher ones, are promoted since students have to tackle problems with a variety of cognitive skills in order to achieve learning outcomes. The following table briefly summarizes the information from Bloom’s taxonomy of cognitive domains.

Level	Description	Suggested action verbs
6. Evaluation (judging)	Students can use previously learned standard/criteria to determine the worth or merit of a complex product.	defend or reject, develop and critique, judge, state or support a position, justify, argue, decide, appraise
5. Synthesis (creating new)	Students can create an original and complex product out of a set of simpler components.	create, build, develop an original, compose, write, solve, perform, establish, predict, produce, modify, plan, formulate
4. Analysis (taking apart)	Students can take a complex set of material and break it down into its component parts and/or explain why a complex set of relationships is organized as it is or what caused it to be or predict from the present to the future.	compare and contrast, analyze, break down, explain why, show how, draw a diagram, deduce
3. Application (using)	Students can apply previously learned material such as concepts, rules, or generalizations to newly taught material.	classify, apply, find, choose, compute, sort, generate, organize
2. Comprehension (understanding)	Students can express previously learned material in their own way.	define, put in your own words, describe, summarize, translate, illustrate, restate, demonstrate
1. Knowledge (memorizing)	Students can recall, reproduce, or recognize previously learned information as it was taught to them.	reproduce, recognize, recall, list, identify, name, label, underline, place in order

Adapted from Sparks-Langer et al. (2000, p. 92)

Figure 2.1 Bloom's Taxonomy of the Cognitive Domain

2.4 Problem-based Learning Process

In a problem-based learning classroom, the roles of teacher and students are different from those in traditional ones. The teacher will act as a facilitator or a coach for the activities that the students have to perform by themselves. In traditional teaching approaches, the teacher presents the information, directs and controls the students' learning processes, and assesses the outcomes. In PBL classes, on the contrary, the teacher presents the problem, which is the core of learning, to the students, observes, gives support and feedback, and assesses their performance and participation in the working processes in order to help them achieve possible solutions of their learning.

There are many steps for the implementation of problem-based learning. However, Tan (2003) suggests that those steps can be grouped mainly into five general categories which are (1) introducing PBL, (2) presenting the problem and learning issues to be worked on, (3) discovering and studying, (4) presenting solutions and reflecting, and (5) evaluating progress. Each step will be clarified as follows.

2.4.1 Introducing Problem-based Learning

It is necessary for students to be prepared in terms of psychological readiness. Learning concepts have to be provided to students in order to avoid chaos and panic, since the approach might be unfamiliar and make great demands on their ability to carry out both collaborative and independent learning. At this stage, "the climate of learning and roles are set" (Wee and Kek, 2002, p. 40). The students have to work in groups and learn to solve the problems for themselves. Therefore, they must feel that they are free to share, discuss and express their ideas and opinions, and that they have to respect their friends' roles and contributions. Moreover, they have to be trained to provide positive or constructive feedback.

For the teacher, a model of learning behavior needs to be provided. S/he has to stay away from and should not interfere in the learning processes of the students, but should try to facilitate them. While facilitating the learning processes, the teacher has to ensure that students attain the following learning outcomes: problem-solving skills, team skills, self-directed learning skills and acquisition of new knowledge. The teacher has to focus on the processes and procedures of the group. S/he has to make sure that the students know how to learn as well as other lifelong skills.

2.4.2 Presenting the Problem and Learning Issues

The presentation of the problem allows the students to discover what they already know or understand about the problem. At the same time, they realize what they need to do to learn and solve it. Here, setting the specific learning objectives of the problem is important, because this helps the students to focus their learning, and know what they are expected to accomplish in their learning. This will provide guidelines for the students to focus on, since as their work in the group progresses, they might not tackle the main learning issues of the problem. With these objectives, the teacher can also monitor, guide and give feedback to the students' learning processes to help them achieve their tasks.

After the students have done as much work with the problem as they can using their own knowledge and skills, they then have to consider what needs to be tackled next. They have to make a decision about what the main learning issues should be and why. This creates a positive atmosphere and motivates their learning.

Although the students are expected to work independently, various sources of information have to be taken into account. The students will be asked to agree on the appropriate resources they will need to use in order to gather further knowledge for

their learning issues (for the solution of the problem). This is also a good opportunity for them to judge what are good or bad resources. The sources of information include primary ones, such as surveys, research, etc. and secondary ones, such as journals, textbooks, online databases, etc. Then, they will go to study and come back with "better-informed explanations to the issues and questions posed" (Tan, 2003, p. 36).

2.4.3 Discovering and Studying

When researching and studying, the students report their learning discoveries to the group. In other words, at this stage, the students are put together to share the new information they have discovered individually. It can be said that PBL promotes a peer-teaching stage, as this is an opportunity for students to practice group collaboration and communicative skills by questioning and seeking for further information. The teacher has to ensure that "the key areas to be learned are not overlooked and also quizzes students on the accuracy, reliability and validity of the information obtained" (Tan, 2003, p. 36).

It is at this stage that the students can learn new knowledge and apply it to the understanding of the problem (Wee and Kek, 2002). This also creates a link to their existing knowledge through constructivism. It seems probable that the students will then be able to recall and apply the knowledge to other situations or other problems.

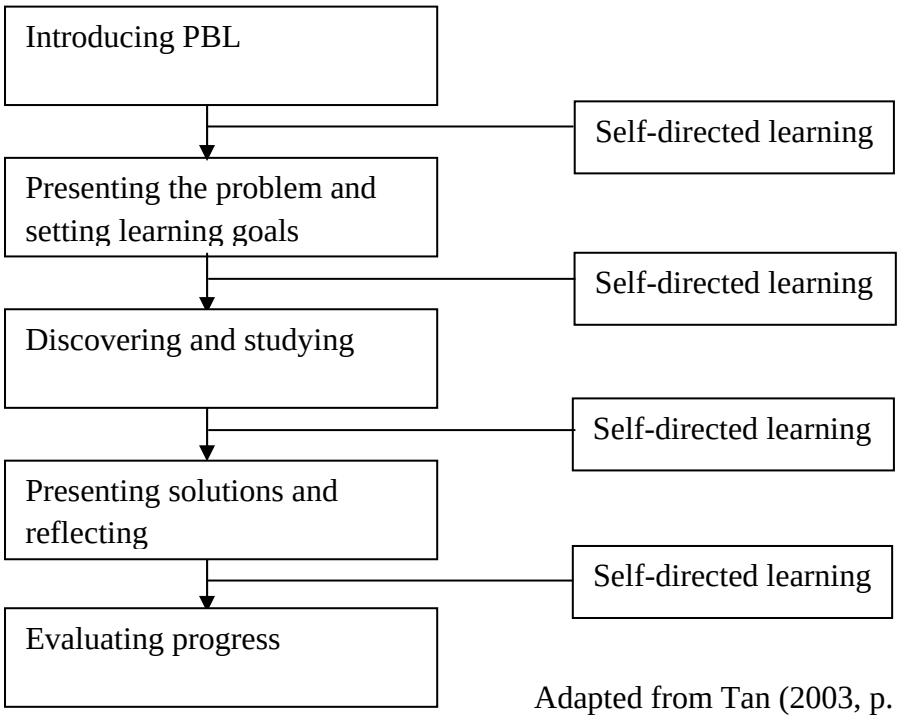
2.4.4 Presenting Solutions and Reflecting

After going through the process of discovery, the students have to report and present their solutions. When they present the solutions with regard to the problem scenario, a reflective and evaluative process is conducted. This involves "contextualization and application of the knowledge to the situation" (Tan, 2003, p. 37). The students rephrase and paraphrase the knowledge obtained and illustrate their

new knowledge. At this stage, a questioning approach is encouraged. The teacher's responsibility is to help students clarify doubts or be aware of any gaps in their knowledge or of any misconceptions.

2.4.5 Evaluating Progress

As already mentioned earlier, PBL focuses on self-directed learning and self-evaluation is an essential part of the evaluation, which is also viewed as an integral part of learning. Each student is encouraged to reflect on the new knowledge s/he has learned as a result of the problem-solving, and assesses his/her own performance pertaining to the learning objectives. The evaluation can be done with regard to how they performed as learners in terms of being a problem solver, a self-directed learner and as a member of the team. The students have to be trained to provide and receive criticism. The teacher should also summarize and integrate major principles and concepts at this stage. Moreover, s/he should be involved in the process of his or her own self-evaluation through the criticism of the student group. All the strengths and weaknesses of the students' performance will be useful for the next stage in solving the problem. The following is a brief description of the PBL process.



Adapted from Tan (2003, p. 35)

Figure 2.2 A Schema of a Typical PBL Process

According to the PBL process suggested by Tan, this study adapted and divided it into five main processes including (1) identifying known and unknown problems, (2) identifying learning objectives, (3) searching for information, (4) sharing ideas and (5) summarizing solutions.

2.5 Models of Problem-based Learning

Since the initial implementation of PBL was commonly known as curriculum development, the following review will involve different ways of putting the PBL curriculum into practice. The principles might also be adapted and applied for implementing PBL as a teaching approach. Savin-Baden and Major (2004) suggest eight models for implementing PBL in terms of curriculum development. However, this researcher will reorganize and adapt these models into seven practical models which are presented below:

2.5.1 Model 1: The Single Module Approach

In this approach, PBL will be implemented in one module in one year of a program, normally the last year. The model is to improve students' critical thinking since the tutor believes the students might not have developed their ability to think critically. The model is the duplication of that of McMaster's, where the students are engaged with one problem at a time and meet the tutor once or twice over the course. A lecture session will be provided if necessary. The tutor acts as a resource for the students, whilst letting them run the sessions themselves during which the teacher moves around to facilitate their learning.

Year 1	Lecture-based learning
Year 2	Lecture-based learning
Year 3	Problem-based learning

Figure 2.3 Model 1: The Single Module Approach

2.5.2 Model 2: Problem-based Learning on a Shoestring

This model of PBL requires minimum cost and interruption to other areas of the program. It is implemented by only a few tutors who are keen and interested in PBL, so it is done quietly and cheaply as part of a course. Regarding this model, it might be in isolation from the rest of the curriculum. PBL units will be scattered throughout the program, although as a result the students might not understand the rationale of its use, and the tutors who implement it might not be supported by the organization. Therefore, it is known as problem-based learning on a shoestring.

Year 1	PBL	Lecture-based	Lecture-based	PBL	Lecture-based
Year 2	Lecture-based	PBL	Lecture-based	PBL	Lecture-based
Year 3	Lecture-based	Lecture-based	Lecture-based	PBL	PBL

Figure 2.4 Model 2: Problem-based Learning on a Shoestring

2.5.3 Model 3: The Funnel or Foundational Approach

Savin-Baden and Major (2004) differentiate the funnel approach from the foundational one since they suggest the difference between these two approaches is that the former approach guides students towards PBL from the earlier stage whereas the latter approach believes that some knowledge is a necessary foundation for further knowledge. The students have to learn the foundation before they are ready to undertake PBL. However, this researcher considers that the overall structure of PBL conducted as the funnel approach and the foundational one is similar, except that the initial purpose of its use is different. Therefore, those two approaches can be placed in the same category.

In this model the students will learn through a lecture-based course in the first year of their study. The knowledge they learn might relate to their subject areas which is one of principles of the funnel approach, or it could relate to foundational knowledge since, regarding the foundational approach, it is believed that if the basic concept is taught first, the knowledge will be contextualized and will eventually be available to the students for future problem-solving. Then, in the later or final years of study, if they are ready for PBL, they will be able to start their PBL. If not, they can undertake problem-solving learning in the second year of study as offered by the

funnel approach. The students consider a problem which will be set in a discrete subject or disciplinary area, and they are then expected to discover the necessary information for their problem before they funnel it into PBL in the final year of their study. The solutions will be linked to specific curriculum content, and PBL is designed with a cohesive framework using problems that build upon one another.

Year 1	Lecture-based learning
Year 2	Problem-based learning or problem-solving learning
Year 3	Problem-based learning

Figure 2.5 Model 3: The Funnel or Foundational Approach

2.5.4 Model 4: The Two-strand Approach

This model will be adopted when the curriculum requirement is to undertake shared modules across the disciplines. PBL might be considered as a component of the curriculum that is implemented simultaneously with other learning methods. It can be said that the curriculum has a couple of strands running alongside one another. In other words, the modules in each strand are designed with interlocking themes so that the knowledge and capabilities in the mixed approach are fed to support PBL rather than to work against it.

Year 1	Problem-based learning
	Mixed-approach modules
Year 2	Problem-based learning
	Mixed-approach modules
Year 3	Problem-based learning
	Mixed-approach modules

Figure 2.6 Model 4: The Two-strand Approach

2.5.5 Model 5: Patchwork Problem-based Learning

Regarding this model, the whole curriculum is designed with PBL, but the modules do not run consecutively but concurrently. Thus, the students will take two or more problems simultaneously in different subject areas. In addition, the length of different modules varies. A problem might last four weeks whereas others might take a week. Students following this type of curriculum have found PBL to be a demanding process that results in the acquisition of chunks of knowledge, rather than a means of helping them to integrate it into their disciplines.

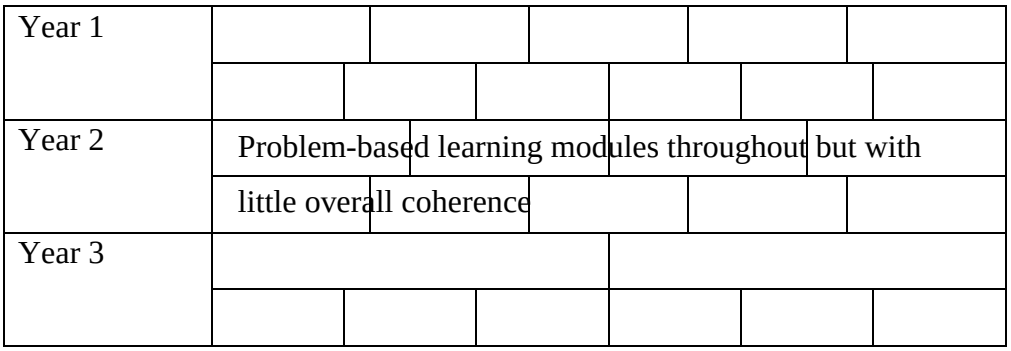


Figure 2.7 Model 5: Patchwork Problem-based Learning

2.5.6 Model 6: The Integrated Approach

For the integrated approach, PBL is not only implemented as a teaching strategy, but also a curriculum philosophy. The curriculum has been designed in an integrated fashion. There might be a number of problems presented each year and in all years of study. They have been put into sequences and linked to one another across disciplines. The students work in groups, encounter one problem at a time, and they will be guided by their tutors advice or suggestions.

Year 1	Problem 1	Problem 2	Problem 3	
Year 2	Problem 4	Problem 5	Problem 6	
Year 3	Problem 7	Problem 8	Problem 9	Problem 10

Figure 2.8 Model 6: The Integrated Approach

2.5.7 Model 7: The Complexity Model

The last model is the complexity approach, which is based on three domains: knowledge, action and self. The knowledge domain refers to discipline-specific competences. The action domain is performance or the implementation of those competences. The self domain includes the educational knowledge in relation to the subject areas. In a professional subject area, there is a high degree of integration across the three particular domains. The students will develop critical perspectives and critiques of other practices. In so doing, they will be provided with a kind of higher education that offers multiple models of action, knowledge, reasoning and reflection, and opportunities to challenge, evaluate, and discuss them. The following table illustrates the complexity model in practice.

Year 1	Problem-based learning
Year 2	
Year 3	

Figure 2.9 Model 7: The Complexity Model

Regarding the models of problem-based learning mentioned above, it could be pointed out that the concept of “PBL on a shoestring” was suitable for this study. The purpose of this study was to implement PBL quietly and cheaply as a part of LNG104

to help students improve their writing. Although PBL was implemented as a learning unit to help improve the writing skills of students, all its underlying principles were carefully designed as part of the learning steps.

2.6 Assessment in Problem-based Learning

One of the most frequently asked questions of PBL is whether the process can be evaluated. Many teachers wonder whether PBL can be developed to the same level of knowledge as in the traditional approaches. According to its principle, “knowledge is an area that is often assessed in a problem-based learning environment. If problem-based learning does not deliver on developing students’ knowledge and ability to critique, tutors will not adopt the approach” (Savin-Baden and Major, 2004, p. 121). Wee (2004) suggests six components should be taken into consideration in the assessment process. They are (1) role of assessment, (2) content and/or process skills to be assessed, (3) assessment tools, (4) frequency of assessment, (5) criteria setting and grading, and (6) assessors involved in assessment.

2.6.1 Role of Assessment

In PBL, assessment is primarily used as a form of feedback by both teacher and students to determine the development and progress of student learning. It is also used to influence the learning behavior of the students. They can be guided, intervened, or corrected in order to close any learning gaps. For teachers, assessment results can be used as an indicator of the effectiveness of the program.

2.6.2 Content and/or Process Skills to Be Assessed

The assessment of PBL goes beyond the content or subject knowledge. The PBL measurement also covers skills in reasoning, solving problems, communicating,

collaborating, directing self-learning, and so on. The assessment of the content should not focus only on what the students can recall or memorize, but also their ability to manage and apply the new knowledge. Therefore, the challenge in PBL is how the teacher can develop assessment tools to measure both content knowledge and process skills.

2.6.3 Assessment Tools

There is no difference in the tools used for the assessment of PBL and traditional approaches. However, in PBL, the assessment tools have to take account of whether they are to be used for content or process purposes. The key issue is to remember that, in the design of PBL assessment tools, the objectives or target learning issues to be evaluated – whether they are content or process skills – should be carefully considered. Wee (2004) gives examples of assessment tools as follows:

For tests and examinations, it is possible to have written essay questions, oral essay questions, multiple-choice questions, case-study questions, concept maps, written reports, portfolios, etc. Regarding presentations, it might involve oral presentations or the use of visual materials. For the reflective stage, learning logs, reflective journals and portfolios can be used. All of these tools can be used for both self and peer assessment.

2.6.4 Frequency of Assessment

For a PBL course, formative assessment can be continuously conducted whereas summative assessment should be done at the end of the semester. Formative assessment refers to giving feedback on student performance for the sake of their self-improvement. It is continuous and regarded as an integral part of the learning process. Therefore, formative assessment should be more carefully and frequently planned than summative assessment.

For summative assessment, it is the judgment of the students' work against the marking criteria. Although PBL focuses on the process of learning, in some cases, performance has to be judged. However, the number and timing of summative assessments need to be planned very carefully. It is possible to conduct the summative test monthly instead of once at the end. One important thing to be considered is whether summative assessment should also be concerned with the integration and application of knowledge the students have learned.

2.6.5 Criteria Setting and Grading

It is important to make sure that assessment is valid and reliable. To create validity, a variety of tools should be used to evaluate a certain target outcome. To create reliability, a type of tool should be used by more than one assessor in evaluating the same outcome to minimize and reduce their biases or differences in judgment.

To obtain validity and reliability in the assessment, the development of criterion in a matrix is needed. This will give a clear direction in the marking of students' levels of performance without any ambiguity. For grading, it is based on a variety of information gathered from different assessment tools and different assessors such as teachers, students, etc.

2.6.6 Assessors Involved in Assessment

According to Wee (2004), assessors mean groups of people possibly involved in the assessment process of PBL. The number of assessors involved helps create a sense of reliability from multiple assessments. However, the common assessors are teachers and students. Regarding the principle of PBL which focuses on self-directed learning, the students have to be able to evaluate and reflect on their own

performance. As in group work, they are also able to provide feedback to their peers. Involving students in assessment helps them to develo0p a self-directed learning style. For the assessment of teachers, it is better to involve more than one teacher. However, if it is impossible to do so, the proportion of marks from the teacher and the students should be considered.

In this study, both formative and summative assessments were used. The formative assessments were conducted through the assessment of the PBL unit, and self and peer assessment in order to illustrate the effectiveness of the problem-based learning plan. For the summative assessment, it was illustrated through the students' attitudes towards the plan itself and the knowledge they had gained after the implementation of the PBL unit.

2.7 Theories Related to the Study

There are five main theories related to this study: task-based learning, constructivism, instructional system design, EAP writing, attitudes towards language learning and efficiency criterion in media research and development: E1/E2. The following are descriptions of these related theories.

2.7.1 Task-based Learning

There are four main aspects of task-based learning: definitions, procedure, role of teacher, and assessment as follows:

2.7.1.1 Definitions of Task

In language pedagogy, the concept of 'task' becomes important in syllabus design and development. A number of definitions of task are provided in the following figure.

Nunan (2004, p. 4)

> A pedagogical task is a piece of classroom work that involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is focused on mobilizing their grammatical knowledge in order to express meaning, and in which the intention is to convey meaning rather than to manipulate form. The task should also have a sense of completeness, being able to stand alone as a communicative act in its own right with a beginning, a middle and an end.

Ellis (2003, p. 16)

> A task is a workplan that requires learners to process language pragmatically in order to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed. To this end, it requires them to give primary attention to meaning and to make use of their own linguistic resources, although the design of the task may predispose them to choose particular forms. A task is intended to result in language use that bears a resemblance, direct or indirect to the way language is used in the real world. Like other language activities, a task can engage productive or receptive, and oral or written skills, and also various cognitive processes.

Willis (1996, p. 23)

> Tasks are always activities where the target language is used by the learner for a communicative purpose (goal) in order to achieve an outcome.

Breen (1987, p. 23)

> … any structured language learning endeavour which has a particular objective, appropriate content, a specified working procedure, and a range of outcomes for those who undertake the task. 'Task' is therefore assumed to refer to a range of workplans which have the overall purposes of facilitating language learning—from the simple and brief exercise type, to more complex and lengthy activities such as group problem-solving or simulations and decision-making.

Long (1985, p. 89)

> … a piece of work undertaken for oneself or for others, freely or for some reward. Thus examples of tasks include painting a fence, dressing a child, filling out a form, buying a pair of shoes, making an airline reservation, borrowing a library book, taking a driving test, typing a letter, weighing a patient, sorting letters, making a hotel reservation, writing a cheque, … . In other words, by 'task' is meant the hundred and one things people do in everyday life, at work, at play and in between.

Figure 2.10 Examples of Definitions of 'Task'

While there is a good deal of variation among the experts on the description and definition of a 'task,' Skehan's (1998, p. 95) concept seems to capture the key characteristics. He defines task as an activity in which

- meaning is primary
- there are some communication problems to solve

- there are some sorts of relationship to comparable real-world activities
- task completion has some priority, and
- the assessment of the task is in terms of outcome.

Ellis (2003) states that all the above definitions address a number of dimensions: (1) the scope of a task, (2) the perspective from which a task is viewed, (3) the authenticity of a task, (4) the linguistic skills required to perform a task, (5) the cognitive processes involved in task performance, and (6) the outcome of a task.

First, the scope of a task refers to the role of the task in teaching. For a narrower view, a task is an activity that calls primarily for meaning-focused language use. An 'exercise' in contrast is an activity that calls for primarily form-focused language use. However, the overall purpose of the task is the same as the exercise"—learning a language—the difference lying in the means by which this purpose is to be achieved" (Ellis, 2003, p. 3). Nevertheless, when learners perform a task, they do not always focus on meaning and act as language users. In other words, they may switch momentarily to form as they temporarily adopt the role of language learners. Thus, "the extent to which a learner acts as language user or language learner and attends to message or code when undertaking tasks and exercises is best seen as variable and probabilistic rather than categorical" (p. 5).

Second, perspective refers to whether a task is seen from the task designer's or the learners' point of view. It could be said that the task-as-workplan, where the intention of the task designer is examined, may or may not match the task-as-process, where the learners' actual performance of the task is concerned. Most of the definitions of Figure 2.10 adopt the task designer's perspective where a task is a workplan which is intended to engage learners in meaning-focused language use.

Third, authenticity concerns whether a task needs to correspond to real world activity. The workplan might require learners to engage in a language activity of the real world. Usually, it might involve them in a language activity that is artificial. However, the processes of language use that result from performing a task will reflect those that occur in real-world communication.

Fourth, linguistic skills are involved in performing a task. Commonly a task involves both oral and written activities. However, in some cases, it may or may not involve the productive language skills, for instance, drawing a map while listening to a tape. Ellis states that a task will be used to refer to activities involving any of the four language skills.

Fifth, cognitive process refers to some processes of thought. Tasks which clearly engage cognitive processes are such as selecting, reasoning, classifying, sequencing information, and transforming information from one form of representation to another. It seems reasonable that there will be a relationship between the level of cognitive processing required and the kind of structuring and restructuring of language that a task is designed to bring about. Nunan (1989) puts forward the idea that a task involves learners to comprehend, manipulate, produce, or interact in the target language. Thus, there is a cognitive as well as linguistic dimension to a task.

Lastly, one feature of tasks on which most definitions agree is that they result in an obvious outcome. The idea of a definite outcome is an essential feature of a task. Outcome refers to what learners arrive at when they have completed the task. It serves as the goal of the activity for learners. The stated outcome of a task serves as the means of determining when learners have completed a task.

For task-based learning, it emphasizes the centrality of the tasks in a language course and the importance of organizing a course around those communicative tasks

that learners need to engage in outside the classroom. Task-based learning "views the learning process as a set of communicative tasks that are directly linked to the curricular goals they serve, the purposes of which extend beyond the practice of language for its own sake" (Brown, 2001, p. 50). The next section outlines the procedure of a task-based learning syllabus.

2.7.1.2 Procedures in Task-based Learning

The design of a task-based learning syllabus involves consideration of the stages or components that has a task as its principal component. There are commonly three principal phases: pre-task, during-task, and post-task.

The pre-task phase concerns the various activities that teachers and students can undertake before they start the task. It is "to prepare students to perform the task in ways that will promote acquisition" (Ellis, 2003, p. 244). Here, the importance of framing the task to be performed is described, and learners' motivation can be set. There are four ways to tackle the pre-task: (1) supporting learners in performing a task similar to the task they will perform in the during-task phase, (2) asking learners to observe a model of how to perform the task, (3) engaging learners in non-task activities designed to prepare them to perform the task, and (4) providing strategic planning of the main task.

Next, the during-task phase is "a vital opportunity for all learners to use whatever language they can muster, working simultaneously, in pairs or small groups, to achieve the goals of the task" (Willis, 1996, p. 53). Ellis (2003) identifies the kinds of processes that learners in a task performance need to strive for. These are (1) discourse that is essentially conversational in nature, (2) discourse that encourages the explicit formulation of messages, (3) opportunity for learners to carry out linguistic

tasks, (4) occasions where learners focus implicitly and/or explicitly on specific linguistic forms, (5) shared goals for the task, and (6) effective scaffolding of learners' efforts to communicate in L2.

Finally, the post-task phase affords a variety of options. It might be the place where students prepare to tell the class about their findings (Willis, 1996). Ellis (2003) states that there are three major pedagogical goals for this phase: (1) to provide an opportunity for a repeat performance of the task, (2) to encourage reflection on how the task has been performed and (3) to encourage attention to form, in particular to those forms that prove problematic to the learners when they perform them.

2.7.1.3 Roles of the Teacher

In task-based lessons, the teacher is generally a facilitator who always keeps the key conditions for learning in mind. Facilitating learning involves "balancing the amount of exposure and use of language, and ensuring they are both of suitable quality" (Willis, 1996, p. 40). In a task-based learning framework, the emphasis is on learners doing things, often in pairs or groups, using language to achieve the task outcomes and guided by the teacher. The teacher is involved in setting tasks up, ensuring that learners understand and get on with them, and drawing them to a close. Although learners do tasks independently, the teacher still has overall control and the power to stop everything if necessary.

2.7.1.4 Assessments in Task-based Learning

Assessment is viewed as a device for eliciting and evaluating communicative performances from learners in the context of language use that is meaning-focused and directed towards some specific goal (Ellis, 2003). Nunan (1996) states that the assessment should reflect what has been taught.

There are two key concepts for language assessment: direct versus indirect assessment and system-referenced versus performance-referenced tests. In direct (holistic) assessment, learners are required to reproduce, in the testing situation, the kinds of communicative behaviors they will need to carry out in the real world. For indirect (analytic) assessment, as the label implies, the test does not resemble outside-class performance (Nunan, 1996, Robinson and Ross, 1996 and Ellis, 2003).

A system-referenced test item requires the testee to demonstrate knowledge of the phonological, lexical or grammatical systems of the language (Nunan, 2004). It is designed to "evaluate language mastery as a psychological construct without specific reference to any particular use of it" (Baker, 1990, p. 76). A performance-referenced test, on the other hand, requires the testee to demonstrate an ability to use the language (Nunan, 2004). The following is the representation of the relationship between the concepts of direct versus indirect tests and system versus performance-referencing.

Mode	System-referenced	Performance-referenced
Direct	Sample of oral or written language via interview and/or composition	Communicative simulation of target tasks, e.g. library skills, reading test
Indirect	Grammar and reading multiple-choice tests	Breakdown of simulation into sub-tasks for multiple-choice formats

(Adopted from Robinson and Ross, 1996, p. 459)

Figure 2.11 Relationship between the Concepts of Direct versus Indirect Tests and System versus Performance-referenced Tests

Figure 2.11 shows that it is obvious that direct performance-referenced tests constitute a form of task-based assessment. The task-based assessment, then, will be taken to refer to assessment that uses holistic tasks involving either real world

behaviors or the kinds of language processing found in real life. As Ellis (2003, p. 285) mentions, the defining characteristic of task-based assessment is that "it is direct in nature, not that it is performance-referenced."

From a review of task-based learning principles, there are many advantages to the adoption of task-based learning. It is "more a matter of perceptive and sensitive management of the learning environment. Task-based learning involves examining existing beliefs and trying to look at learning and teaching in a realistic light. It entails coming to terms with the principles that underpin the components in a task-based learning framework and using them to create the right conditions for language teaching. This in turn entails seeing the lesson outline as a framework which accommodates sustained learner activity" (Willis, 1996, p. 148).

2.7.2 Constructivism Theory

Constructivist theory focuses on the relationship between learners and contents (Weimer, 2002). It suggests that the learners "construct their own systems of knowledge as experience is filtered through personal construct systems" (Benson and Voller, 1997, p. 6). According to the constructivist perspective, knowledge cannot be given to the learners, but the learners will construct their own knowledge (Weimer, 2002). This means that the learners construct their own knowledge rather than receive it from teachers and textbooks. Wright (2005) puts forward the idea that the learners create their own knowledge and understanding to make their own connection and to generate their own meaning.

William and Burden (1997) and Wright (2005) propose a study of Piaget who believes that people come to know things as they have developed from infancy to adulthood. Learners pass through a series of developmental stages of cognitive

complexity. Any new kind of knowledge will be built upon previously existing knowledge, skills and understanding. All kinds of knowledge are constructed from existing knowledge, regardless of any teaching. In other words, learners actively construct their own knowledge through exploration by determining their own knowledge and by deciding what is important to them.

Following are a number of important implications of constructivism for learning suggested by several constructivist pedagogues (Van Esch and St. John, 2003).

1. Authenticity, complexity, reality, relevance and the richness of the learning environment are essential characteristics.

2. The prior knowledge, experiences and beliefs of the learners are the departure points of the learning process.

3. Learning is viewed as a social event. Learning needs to be imbedded in social experiences, instructional goals, objectives, and the content should be negotiated and not imposed. Learners should work primarily in groups, and most of the learning outcomes result from cooperation.

4. The learners determine their learning process. They control and are responsible for the particular learning process, so they decide on what to learn and how to learn it.

5. Assessment and evaluation are continually interwoven with teaching and learning. Self and peer assessment is important. Continuous feedback is given for the purpose of increasing learners' understanding and awareness of their learning process.

Although the constructivist approach focuses on the freedom of learners to think as they wish and to act, in practice, it is widely argued that the construction of

meaning is subject to social constraints (Benson, 1997). This means that learners' perceptions in a particular area of knowledge result from a construct of their mental activity in which the environment, society or other people play an important part (Van Esch and St. John, 2003). In other words, learners' prior knowledge, experiences and beliefs are related to the environment which concern the contexts of other human beings.

Benson (1997) believes that constructivism supports the conception of language as the raw material of meaning. Language does not reflect reality, but it is constructed by subjective processes based on prior knowledge, experiences and views (Van Esch and St. John, 2003). Therefore, language cannot be described adequately through its forms, but the meaning is conveyed in a specific interaction. In language learning, the internalization of language should not be insisted upon. Learners will construct their own learning process and perceptions of the target language. They are responsible for their own learning. Creativity, interaction and engagement, and negotiation of meaning of a target language are emphasized in the constructivism theory.

To simplify the idea, it could be said that when teaching the students, the teacher should not expect them to reach the stage of reasoning, and to solely apply the forms of language. It is more important to provide experiences in the target language which are related to aspects of their own world (Williams and Burden, 1997). To explicitly shape the constructivist theory into practice, the students have to be told less and to discover more. This phenomenon is realized in problem-based learning where the students start with a problem, find the content in the related fields to explain, and answer or solve the problem (Weimer, 2002). Typically, they do the work in groups

since the constructivist approach “underpins collaborative classroom working, group-based activities and discussion methods” (Kerry and Wilding, 2004, p. 189). In this way, the teacher allows learners to raise their own questions, generate their own hypotheses and test them for validity (Weimer, 2002). Thus, knowledge “is constructed, rather than acquired” (Benson, 1997, p. 22).

According to Roberts (1998), a constructivist approach suggests the following learning cycle. The learners [1] filter new information according to their expectations and existing knowledge of the world, [2] construct the meaning of the input, [3] match the meaning with their prior internal knowledge relevant to the input, [4] confirm or disconfirm the existing knowledge, [5] maintain the meaning as presently constructed if there is a match, and [6] revise their knowledge of the world to incorporate the new information if there is a mismatch.

Briefly, Weimer (2002, p. 12) states “constructivism prescribes a whole new level of student involvement with content. It makes content much more the means to knowledge than the end of it. It and the empirical work in psychology change the function of content so it is less about covering it and more about using it to develop unique and individual ways of understanding.”

According to the principle of constructivism, it can be seen that the emphasis should be on the learners because they learn best if they construct their own learning. The problem-based learning approach obviously provides an opportunity to engage and enhance students learning in such a way.

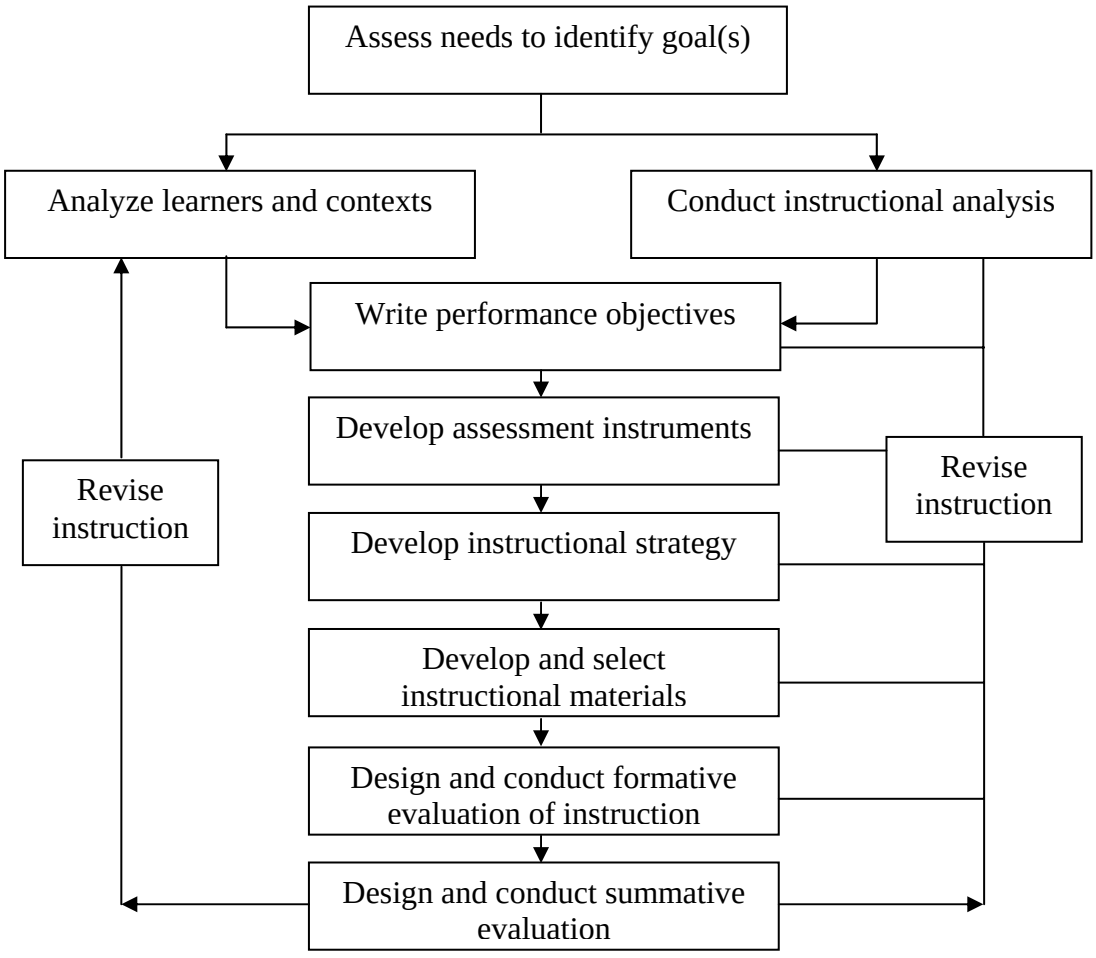
2.7.3 Instructional Systems Design

Instructional systems design (ISD) is a process to develop instruction. There are various models ranging from simple to complex. However, all describe the

relationship between content, learners and teacher. Two models of instructional system design are presented as follows:

2.7.3.1 Dick and Carey Model

The model includes ten interconnected boxes and lines which show the relationship and feedback of the first to the last boxes. The boxes represent the process and techniques employed by the designer to design, develop, evaluate and revise the instruction. The steps are illustrated below.



Adapted from Dick and Carey (2001, p. 2)

Figure 2.12 The Dick and Carey Systems Approach Model for Designing Instruction

Figure 2.12 illustrates the process of instructional systems development, and the description of each stage is illustrated as follows.

2.7.3.1.1 Assessing Needs to Identify Goal(s)

The first step of the model is to determine what the learners are expected to do in the instruction. The instructional goal might be derived from the learners' learning experiences, teacher's teaching experiences, needs assessment, analysis of people attitudes, analysis of other relevant instructional requirements, etc.

2.7.3.1.2 Conducting Instructional Analysis

After the instructional goal(s) has been identified, a step-by-step process of what learners need to do when they perform the goal(s) has been illustrated. 'Entry behaviors' i.e. skills, knowledge, and attitudes that learners need to achieve in the particular instructional design have to be determined.

2.7.3.1.3 Analyzing Learners and Contexts

In addition to the goal(s) of the instruction the needs of the learners need to be analyzed; the context in which they learn the skills and in which they will use them, also have to be identified. The learners' current skills, preferences, and attitudes are determined along with the characteristics of the instructional settings and the settings where the learners will use those particular skills. This information helps define the instructional strategy which is crucial for learners' learning.

2.7.3.1.4 Writing Performance Objectives

Based on the instructional analysis and the statement of entry behaviors, specific objectives of what learners are able to do in the instruction are written. These particular objectives will identify the skills to be learned, the conditions in which those skills have to be performed, and the criteria of performance.

2.7.3.1.5 Developing Assessment Instruments

In the statements of the objectives, the assessment to measure learners' ability in performance as stated in the objectives has to be prescribed. The key point that should be taken into account is that the assessment purposefully measures the kinds of behaviors mentioned in the objectives.

2.7.3.1.6 Developing Instructional Strategy

Based on the information of the five stages mentioned above, the strategy is identified to achieve the objectives of the instruction. The strategy includes various sections of pre-instructional activities, presentation of information, practice and feedback, testing, and follow-up activities. The constructed strategy is based on current principles of learning, the medium used to illustrate the instruction, the content to be taught, the nature of the learners etc. These particular features are used to develop materials for the strategies of the instruction which have been previously determined.

2.7.3.1.7 Developing and Selecting Instructional Materials

According to the instructional strategy, the instructional materials are prepared. The 'materials' are used in a broad sense which involves learners' manuals, materials, tests, teacher's guides, overhead transparencies, videotapes, computer-based multimedia formats, web pages, etc. The development of the original materials depends on learning types, provision of existing relevant materials, and available resources. The criteria for the selection have to be provided.

2.7.3.1.8 Designing and Conducting the Formative Evaluation of Instruction

After the instructional design of goal(s), objectives, strategy and materials has been developed, a series of evaluations has to be constructed to

assess the effectiveness of the instruction. There are three types of formative assessment: one-to-one evaluation, small-group evaluation and field evaluation. Each type of evaluation provides the instructional designer different types of information for instructional improvement.

2.7.3.1.9 Revising Instruction

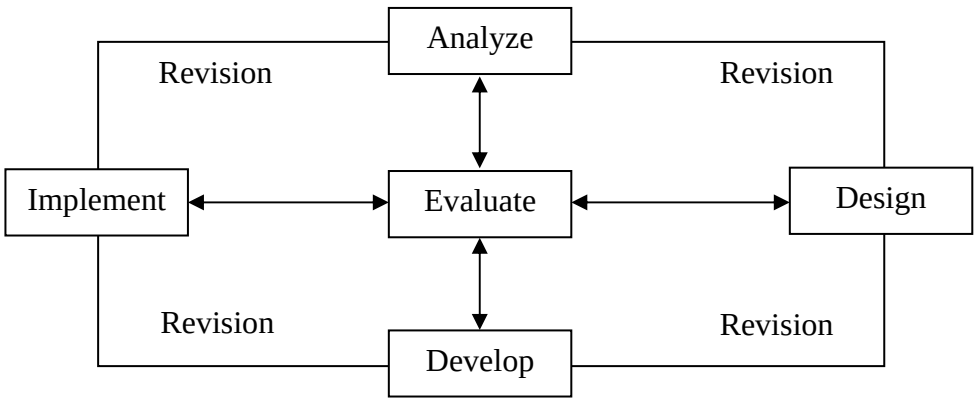
The final stage of the instruction is revision. The data from the formative assessment help illustrate the learning difficulties of learners and the deficiencies of the instruction. Such data cannot be simply used to revise the instruction itself, but are used to reexamine the validity of the analysis, the statements of entry behaviors, and characteristics of learners. In the light of the data, it is also necessary to re-examine the performance objectives and test items. In this way, the revision helps create more effective instructional tools.

2.7.3.1.10 Designing and Conducting Summative Evaluation

The summative evaluation is not a part of the design process, but an evaluation of the relative value or worth of the instruction. It usually occurs after the instruction has been formatively evaluated and revised to reach the standard of the designer. It is an independent evaluator.

2.7.3.2 ADDIE Model

The ADDIE model is a summary of the instructional systems designs from various authors. The development of core elements of instructional design (ADDIE) is presented as follows:



Adapted from Reiser and Dempsey (2002, p. 18)

Figure 2.13 Core Elements of Instructional Design (ADDIE)

From Figure 2.13, it was found that the ADDIE consists of the process of analysis, design, development, implement and evaluation. The following is a description of each stage:

2.7.3.2.1 Analysis

The analysis stage includes conducting a needs assessment, identifying a performance problem in a particular setting or some other environment, and stating a goal.

2.7.3.2.2 Design

The design stage involves writing objectives in measurable terms, classifying learning types, specifying learning activities, and specifying the media used in the instruction.

2.7.3.2.3 Development

At the developmental stage, the necessary instructional materials are prepared as the statements of the objectives.

2.7.3.2.4 Implementation

After the situational and learning analysis, objectives and relevant materials are developed, the instruction will be brought into practice in the settings for which it has been designed.

2.7.3.2.5 Evaluation

The evaluation stage includes both formative and summative assessments as well as revision. Formative assessment involves collecting data to identify necessary revisions of the instruction whereas summative assessment involves evaluating the overall worth or effectiveness of the instruction. Regarding the data of formative assessment, some changes are needed for revision.

As mentioned above, the models of instructional systems design of Dick and Carey and ADDIE demonstrate the advantages of on a syllabus, course and curriculum design. In this study, the model of ADDIE was adapted for the implementation of problem-based learning, and it could be seen as a learning unit to be integrated into a fundamental English course to improve students' writing skills.

2.7.4 EAP Writing

English for academic purposes (EAP) "is concerned with those communication skills in English which are required for study purposes in formal education systems" (Jordan, 1997, p. 1). Dudley-Evans and St. John (1998, p. 34) demonstrate that EAP refers to "any English teaching that relates to a study purpose."

Jordan (1997) divides EAP into two divisions: common core (English for General Academic Purposes: EGAP) or subject-specific (English for Specific Academic Purposes: ESAP). An awareness of the distinction between EGAP and ESAP is crucial to a full understanding of EAP. EGAP refers to the teaching of the

skills and language that are common to all disciplines whereas ESAP refers to the teaching of the features that distinguish one discipline from others (Dudley-Evans and St. John, 1998).

Dudley-Evans and St. John (1998) provide more viewpoints on these two terms. EGAP isolates the skills associated with study activities such as listening to lectures; participating in supervisions, seminars and tutorials; reading textbooks, articles, and other reading materials; and writing essays, examination answers, dissertations and reports. However, there are particular skills associated with each of these activities. For instance, reading any textbooks involves understanding the main ideas and the supporting details, making notes on the main ideas, evaluating the writer's point of view, skimming to understand the gist of an argument or scanning to find specific information. Another example is writing essays or reports which will involve the forming of accurate sentences, coherent structuring of ideas and adoption of an appropriate stance for citing previous work on the topic.

ESAP, in contrast, integrates the skill work of EGAP with help for students in their actual subject tasks. It adopts a developmental role by showing how students can transfer the skills they have learned in EGAP classes to the understanding of their actual lectures or reading texts, or in writing essays and reports required of them by the department. This kind of work generally involves some cooperation with the actual subject department.

EGAP is commonly known as study skills which can be categorized into six main areas: (1) academic reading, (2) academic writing, (3) lectures and note-taking, (4) speaking for academic purposes, (5) reference/research skills and (6) examination skills. By contrast, ESAP is the language needed for a particular academic subject.

Students study ESAP to equip themselves with the necessary tools to study specific academic subjects (Jordan, 1997).

According to the purpose of this study where problem-based learning was designed as a learning unit to be integrated into a fundamental English course to improve the writing skills of the students, our concern in the literature review was only with academic writing. There are many approaches to EAP writing. In this study, six approaches to EAP writing are explained.

2.7.4.1 The Product Approach

This term refers to concentration on features of the actual text – the end–product – that students have to produce. The product approach to writing involves the presentation of a model text, which is analyzed and forms the basis of a task that leads to the writing of an exactly similar or a parallel text (Dudley-Evans and St. John, 1998). In other words, language learning involves imitation, repetition and habit formation. The view of language that underlay this approach is that of language as a set of fixed patterns that students manipulate in order to produce new patterns (Paltridge, 2001). The method is summarized in the following way: *Model Text* → *Comprehension/Analysis/Manipulation* → *New Input* → *Parallel Text* (Robinson, 1991). This is a purely mechanical task which involves no real thought about the purpose of the writing, the readership or the expectations of the discourse.

2.7.4.2 Rhetorical Functions

As the product approach is generally regarded to be insufficient, and there is a need to do more than enable students to write just grammatically correct sentences, this leads to an emphasis on more extended writing activities. This new movement, often referred to as ‘current-traditional rhetoric’, takes textual manipulation beyond the sentence level to the discourse level (Paltridge, 2001, p. 56).

Jordan (1997) maintains that the rhetorical-functional approach is known as the functional approach. In this respect, the focus is on essay development with its structure of introduction, body and conclusion. The product approach has often been combined with the functional approach so that the functional-product approach might be a more suitable description. The writing contains practice in some of the main language functions commonly found in academic writing. Moreover, attention is given to the organization of writing, its structure, cohesion, various grammatical aspects and academic writing style.

The teaching of rhetorical functions focuses on, for instance, Description (including processes and sequencing), Narrative, Instruction, Explanation, Definition; Exemplification; Classification; Comparison and contrast; Cause and effect; Expressing: purpose, means, prediction, expectancy, reservation, result; Generalization and specificity; Discussion and argumentation (problem and solution) and Drawing conclusions (Paltridge, 2001). In this approach, students' attention still remains focused on form, but at a broader level.

2.7.4.3 The Genre Approach

It has been pointed out that EAP writing must be acceptable to the host academic institution (Silva, 1990). In other words, readers should have well-developed schemata for academic discourse and stable views of what is appropriate. The primary focus of academic writing should be on academic discourse genres and the range and nature of academic writing tasks which are aimed at helping to socialize students into the academic context (Jordan, 1997).

The genre approach in EAP settings concentrates on teaching particular academic genres, such as essays, reports, case studies, projects, literature reviews,

exam answers, research papers/articles, dissertations and theses. Each of these will have its own content structure or format, style and various conventions. In other words, these include a focus on language and the discourse features of the texts, as well as the context in which the text is produced (Paltridge, 2001).

2.7.4.4 The Process Approach

Paltridge (2001) points out that the process approach emerges in reaction to the product approach and rhetorical functions. It has been thought that the prevailing approach to teaching writing ignores individual thought and expressions, and that students are "restricted in what they could write and how they could write about it" (Jordan, 1997, p. 164). It becomes more important, then, to guide rather than control students, and to let content, ideas and the need to communicate determine form, rather than commence with the form of a text (Silva, 1990). The teacher's role from this perspective, therefore, becomes less central, and classroom practices become more learner-centered.

This approach has emphasized the idea of writing as problem-solving, with a focus on *thinking* and *process*, or on the *fore* rather than *form* (Dudley-Evans and St. John, 1998 and Jordan, 1997). The stages of thinking and process involve translating the plan into paragraphs and sentences, reviewing the first draft and then revising the text to produce a number of subsequent drafts. The skills of editing and reviewing are taught through peer review and group work. It could be said that the process approach encourages students to take more responsibility for their own learning. By means of discussion, tasks, drafting, feedback, revisions and informed choices, students can make clearer decisions about the direction of their writing.

Dudley-Evans and St. John (1998, p. 117) demonstrate how the first stage of the process approach, the thinking stage, follows the sequence: *Generate Ideas Select Ideas → Group the Ideas → Order the Ideas*. Robinson (1991, p. 104) shows the subsequent writing stages in the following way: *Writing → Task Draft 1 → Feedback → Revision → Input → Draft 2 → Feedback → Revision → Draft 3*.

2.7.4.5 Summarizing, Paraphrasing and Synthesizing

Summary writing is an important aspect of academic writing, and is also linked to academic reading by means of note-taking. It is the way that students reconstitute their notes into paragraph summaries of the original text. Johns (1988b) points out that the summarizing method results in a more accurate processing and written gist of the original text than does most of the surface script or rule-based instruction presently found.

Next, an integral part of reading and summarizing is paraphrasing. This means that students express their own ideas in their own words, structure and style. Regarding Campbell (1990), apart from paraphrasing, academic writing should include facts, ideas, concepts, and theories from other sources by means of quotations, summaries, and brief references.

Lastly, the integration or synthesis of other people's writing is essential for EAP writing. It is the ability to integrate information from previous researchers in relevant areas of study (Campbell, 1990). The academic writing class has to move away from a writing task that requires students only to tap their own opinions and experiences. However, it should move toward the work that encourages students to integrate those opinions and experiences with external sources of information and argument (Leki and Carson, 1994).

2.7.4.6 Feedback and Evaluation

No matter which kind of academic writing students undertake, they will need feedback regarding its acceptability and accuracy. Giving feedback and evaluating writing, especially in a process-oriented classroom, is a “thorny issue” (Brown, 2001, p. 356). The role of being a judge and a guide at the same time is one of the primary dilemmas of all teachers. The key to being a judge is fairness and explicitness in what is taken into account in the feedback and evaluation.

It is well-known that most feedback is written by the teacher, so Jordan (1997) suggests many forms of feedback. The first one is code devices. There is evidence showing that the use of *correcting codes* assists students to engage actively in the process of self-correction, and is effective with grammatical errors (Fathman and Whalley, 1990). Second, *grammar* is fundamental to all language learning. Many EAP courses attend to students’ needs for grammatical help by the provision of grammar workshops in which common difficulties can be explained and practiced. Third is students’ *self-evaluation* or self-monitoring. As students are actively involved in the process of correction, they are likely to be more receptive to the teacher’s comments. Fourth is *reformulation* which aims to have students accept responsibility for editing, correcting and proof-reading their own texts. Final is the use of *peer-correction*. The opportunity to talk about their essays and discuss ideas with their peers gives valuable feedback as well as developing a sense of audience (Mendonca and Johnson, 1994).

With regard to the approaches to EAP writing, we can summarize by saying that EAP writing courses should, as far as possible, combine both product and process approaches to academic writing. Whichever approach to academic writing is adopted,

it is useful to involve students in initial awareness-raising activities. For instance, they can be provided with a list of academic writing skills and discuss their relative importance, and their own needs and difficulties, e.g. making an outline, describing tables and charts, being concise, summarizing, revising, evaluating, etc. (Waters and Waters, 1995). Here, all EAP writing approaches can be harmoniously and meaningfully integrated and demonstrated.

According to this study, which aimed to improve students' writing through a problem-based learning approach, all approaches of EAP writing were applicable. Although the students were provided with a list of columns and asked to write the columns for their magazine, the column style and elements of writing organization were set as problems, and the students had to solve the problems by themselves. Moreover, the acceptability and accuracy of the writing had to be achieved through the students' efforts.

2.7.5 Attitudes in Language Learning

Nunan and Lamb (1996) demonstrate that attitudes of learners towards the target language, learning situations and roles that they are expected to play within the particular learning situations will have an important effect on the learning process. If the learners have negative attitudes towards language, culture, classroom or teacher, learning can be impaired or rendered ineffective. A study of Lawrence and Andrich (1987) shows that although the students had positive attitudes towards the target culture and language, there were some negative factors, and that this had an effect on the learning situation.

If Nunan and Lamb were right that attitude affects the learning process, Larsen-Freeman (2001) puts forward the idea that there is also the influence of learner

attitudes on language learning success. A study of Kuhlmeier, van den Bergh and Melse (1996) finds that the students who entered a first-year German course with a positive attitude rated higher in achievement than those having a negative attitude both at the beginning and at the end of the school year.

Attitude is closely related to motivation. In fact, it could be said that learners' motivation will be largely determined by their attitudes towards the target language, culture and learning environment. Commonly, negative attitudes develop because the students see the subject as irrelevant. If the negative attitudes of students need to be dealt with, the context and environment in which the teaching takes place also need to be considered (Nunan and Lamb, 1996).

In other words, students' attitudes and misconceptions about the language learning process could be changed by a systematic instructional program, so that they will not hinder students' progress in language learning (Mantle-Bromley, 1995). If we consider that an enhanced conceptualization of learner factors is an important concern, it is found that "they are not only mutable but that they also vary in their influence, depending on the learners' stage of acquisition" Larsen-Freeman (2001, p. 20). Spolsky (1989) suggests that attitude has more of an effect in early language acquisition than at later stages.

Scharle and Szabo (2000) also point out that doing pair and group work helps the development of responsible attitudes in many ways. It reduces the dominance of learner-teacher interactions, encourages students to rely on each other and on themselves, and spreads responsibility for the achievement of a task more evenly among students.

As known, learning proceeds more smoothly when teacher and students have the same agenda (Brown and Attardo, 2000), and as this study aimed to implement an innovative teaching approach, PBL, to teach writing to students, preparations in terms of psychological readiness and knowledge of the PBL process were provided at the initial stage of learning. Moreover, through group work where the students could learn, listen to and respond to each other, positive attitudes were expected to be established and to move students towards the achievement of learning.

2.7.6 Efficiency Criterion in Media Research and Development: E1/E2

Brahmawong (1978, pp. 135-136) defines the efficiency criterion as an efficiency degree of a certain instruction moving learners towards learning. It is the degree which satisfies the designer in cases where the instruction meets the determined efficiency criterion, and then it is worth adapting it for pedagogical and commercial purposes.

The efficiency criterion is applied through the evaluation of the learners' learning behaviors in two main aspects: transitional behavior and terminal behavior. The former is known as E1: the effectiveness of the process, and the latter is E2: the effectiveness of the product.

For the transitional behavior, it is an on-going assessment which includes various kinds of behaviors. This is known as the learning process of learners. It can only be obtained by noticing group work participation and writing personal reports under the assignments or projects. According to the terminal behavior criteria, however; it is the evaluation of learners' learning outcomes which is known as the product. This can be done by means of quizzes and exams.

The efficiency of the instruction is prescribed as a criterion in which the instructor expects learners' behaviors to be satisfactorily changed. The criterion is

described as the percentage of average scores all students obtained from the exercises against the average scores all students obtained from the tests. In other words, E1 is the effectiveness of the process whilst E2 is the effectiveness of the product

The percentage efficiency criterion of E1/E2 varies upon the instructor's judgment, and normally it is prescribed as 80/80. This can be explained as taking place after the students have learnt by means of a certain instruction method, the average scores of students obtained from the exercises are 80% and those from the tests are 80%. The greater the percentage criterion of instruction prescribed, the more effective it is.

2.8 Problem-based Learning and Other Current Teaching Approaches

Many current language teaching approaches prefer to implement teaching through the use of integrated language skills and they aim at developing intelligence and promoting many of the essential learning skills that a good language learner should acquire, such as meta-cognition, cooperation, autonomy, self assessment, etc. It appears that by developing these learning characteristics, learners will be enabled to "act more responsibly in running the affairs of society in which they live" (Little, 1991, p. 6). This means that learners achieve self-responsibility, self-discipline and self-motivation for life-long learning.

At present, the most common language teaching approaches which are widely used share such similar characteristics as task-based learning, content-based learning, project-based learning and problem-based learning. Therefore, in this study, it is will be useful to give an overview of the principles of those approaches which will show how the PBL approach is different.

The first language teaching approach which will be mentioned is task-based learning (TBL). Willis (1996, p. 23) said “tasks are always activities where the target language is used by the learner for a communicative purpose in order to achieve an outcome.” Krahnke (1987, p. 57) maintains that tasks are different from other activities to the degree that “they have a non-instructional purposes and a measurable outcome”. It could be said that TBL focuses on the authentic language use for meaningful communicative purposes beyond the language class (Brown, 2001). Moreover, all illustrated tasks have a specific purpose that must be achieved in a given time. In other words, all tasks should have an outcome (Willis, 1996).

Leaver and Willis (2004) put forward the idea that the design of a task-based lesson involves consideration of the stages or components of a lesson that has a task as its principal component. There are, in common, three principal phrases: pre-task, during-task and post-task. In TBL, “language is not taught per se, but is supplied as needed for the completion of the task” (Krahnke, 1987, p. 57). The learners are free to choose the language forms they wish to convey their meaning in order to fulfill the task goals (Willis, 1996).

For the second language teaching approach, which is content-based instruction (CBI), Brinton et al. (1989, p. 2) believe it is “the integration of particular content with language-teaching aims.” It refers to the form and sequence of language presentation which is dictated by the content materials (Brown, 2001). Krahnke (1987, p. 65) states that CBI is “the teaching of content or information in the language with little or no direct or explicit effort to teach the language itself separately from the content being taught.” It could be said that, in CBI, the language is not taught in isolation from the content, but is taught simultaneously with the content as a vehicle or medium to accomplish the content goals.

Since CBI aims at eliminating the artificial separation between language and the subject matter, “the activities of the language class are specific to the subject matter being taught, and are geared to stimulate students to think and learn through the use of the target language” (Brinton et al., 1989, p. 2). In this approach, students are exposed to study skills and, at the same time, learn a variety of language skills which “prepare them for the range of academic tasks they will encounter” (p. 2).

The third language teaching approach which has been widely implemented and will be discussed in order to make a distinct comparison with other approaches is project-based learning. Nunan (2004, pp. 133, 135) states that “projects can be thought of as ‘maxi-tasks,’ that is a collection of sequenced and integrated tasks that all add up to a final project. The projects, then, are integrated ‘maxi-tasks’ that could last over the course of a semester, or even over a year”. The project to be taught can either constitute the main elements of instruction to a language class, or run in parallel with more traditional instruction.

In project-based learning, since the approach includes the number of tasks to be involved, Nunan (2004) names them as first-, second- and third-generation tasks which are built upon one another. The first-generation tasks mainly focus on the development of communicative ability. The second-generation tasks are created to develop not only communicative competence, but also cognitive aspects of the learners. For the third-generation tasks, they aim at personality development through foreign language education. The third-generation tasks “fulfill wider educational objectives (attitudinal change and motivation, learner awareness, etc.) and are especially appropriate for the school setting, where motivation for the learning of the foreign language needs to be enhanced” (p. 134).

In Lang (2006, p. 23), project-based learning is known as project work which is an assignment or activity that “centres around either a theme or a problem.” It focuses on the application of knowledge and skills from two or three disciplines, and it also relates to the real world. Students have a chance to work collaboratively, select their own project, plan their work, construct their own learning, gather the information and identify relevant resources.

Although the explanation given of project-based learning is similar to the principles of the problem-based learning approach (PBL), which is the investigation of this study, Lang differentiates PW and PBL in the following two aspects. First, PW concerns teachers and teaching. “A scenario is given to students to decide, explore, select and present any relevant information for the project” (Lang, 2006, p. 24). However, PBL focuses on students and learning where a specific problem is given to students to develop solutions to the problem. Second, in PW, either teachers or students can craft the project which is anchored on a theme, a problem, a situation, or an event. In PBL, it is the teacher who crafts and presents a problem to students, which is anchored in a real-world context. The problem is usually ill-structured so that the students can experience solving real world problems.

To substantiate the differences between project-based learning and PBL, an overview of the principles of PBL will be briefly presented. PBL displays an obvious direction in using problems as the centre of learning. In other words, real world problems are the heart of the PBL model. PBL is the way to use problem scenarios to encourage learners to engage themselves in the learning process. Learning, then, results from the process of working toward the understanding or resolution of a

problem. According to the principle of PBL, an ill-structured problem helps engage curiosity, inquiry and thinking in a meaningful and powerful way (Tan, 2003).

In PBL, independent learners work in groups to confront the problem, identify learning issues, and develop possible solutions which will provide a bank of new knowledge and experience (Savin-Baden and Major, 2004). They will be given the opportunities to find knowledge, restructure their own and apply it to other situations (Tan, 2003). Therefore, it can be seen that PBL focuses on the process of learning rather than the product. This means the solutions or outcomes are open-ended and they do not have any right or wrong answers.

2.9 Research Studies on Problem-based Learning and Language Teaching

As previously mentioned, PBL was initiated in the academic field of medicine. At present, it is well-known and widely implemented in medical, scientific and business teaching pedagogies throughout the world. Regarding its challenges, there have been a number of research studies conducted in certain areas. However, there has been very little evidence and very few research studies showing that PBL can be implemented in language teaching. Therefore, it is worth trying to implement PBL as an alternative and innovative approach in language teaching. The following are an article and two research studies concerning the implementation of PBL in language teaching which deserve attention.

Mathews-Aydinli (2007) presented an article about PBL and adult English language learners. He suggested four steps in implementing PBL: [1] meeting the problem, [2] exploring knowns and unknowns, [3] generating possible solutions, and

[4] considering consequences and choosing the most viable solution. He also gave suggestions for teachers to consider in PBL teaching. After the implementation, the results were positive. There are a number of benefits and challenges of PBL in second language acquisition (SLA). For example, it promoted meaningful and authentic interaction, and such an interaction promoted SLA, it developed the students into autonomous learners, and knowledge of the real world was acquired. Therefore, in this case, it was possible to implement PBL in language teaching.

Wood and Head (2004) conducted research to implement PBL in EAP: a course in biomedical English. It was taught by researchers at the University of Brunei Darussalam (UBD). The students on the course were premedical students on a joint program between UBD and the University of Queensland, Australia (UQ). The researchers described the characteristics of the PBL class and also the advantages of the approach. The results demonstrated that the PBL approach “cannot only teach the kinds of processes that were traditionally taught in EAP, but also go further than this by fostering the kinds of learning and study skills that PBL developed” (p. 3).

Barron (2002) investigates two important aspects of EAP as taught at the University of Hong Kong. The first problem was the conflict between subject teachers and EAP teachers and other problems. The second aspect was the difference between task-based learning and problem-based learning. Even if the teaching methods and the content taught by the subject and English teachers were appropriate, if the teachers did not perceive their own area as suitable for being taught with another field of study (e.g. science teachers did not see science as an appropriate means of teaching English), conflict resulted. Since English teachers saw their subject in terms of the use of learning (functionalism), but science teachers saw their subject as learning

objective knowledge of the real world (realism), their ideas of the nature of their teaching in terms of why it was taught were different. The author suggested that constructivism (i.e. seeing the subject as an area about which students created their own understanding) may provide a common ontological ground between the two teachers.

With regard to the research study of problem-based learning in ELT, it can be said that problem-based learning provides positive aspects in language teaching and learning. It seems probable that the implementation of PBL will result in an improved pedagogy. It is therefore proposed that the implementation of a problem-based learning approach in the teaching of writing can be shown to be realistic and achievable.

2.10 Concept of the PBL Unit of Study

The purpose of this study was the integration of PBL into a fundamental English course which was known as LNG104 (Content-based Language Learning I). PBL was only used as a chunk or a learning unit to be integrated into the course, not for the entire language course or curriculum development. LNG104 had been selected for the research purposes since its nature was suitable for the implementation of PBL.

Since PBL has been rarely used in language teaching, in order to avoid unfairness regarding the learning process and assessment compared with those of TBL classes, the principle of the research study was to carry out the research with a minimum of disruption or inconvenience. In other words, in the PBL class, the students had to go through the same standard criteria as set in the original LNG104 course. Simultaneously, working in groups, the students had to learn how to write an

essay, solve their writing problems, and, to a certain extent, were assessed through the PBL process. It could be said that the concept of “PBL on a shoestring” was applicable. It was done quietly and cheaply as a part of LNG104 to help students improve their writing. Although PBL was implemented as a learning unit to help improve students’ writing, all its merits were demonstrated within the time period of the unit. The details of how the PBL approach was integrated into the study will be explained in the following chapter.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this chapter is to describe how the study is carried out. It explains the research methodology, which consists of research subjects, research design, research instruments, construction and effectiveness of research instruments, research procedure, and data analysis of the study. The last part of the chapter presents the pilot study to illustrate how the data obtained results in the adaptation of the study.

3.1 Research Subjects

In this study, the subjects were two intact classes selected by a purposive-sampling method. They were third-year undergraduate students at King Mongkut's University of Technology Thonburi studying Printing Technology in the Faculty of Industrial Education and Technology, and fourth-year students studying Mechatronics Engineering in the Faculty of Engineering. The subjects enrolled in LNG104 (Content-based Language Learning I) in the second academic year of 2008. They were mixed-ability students regarding their language proficiencies and divided into two classes. One class included 41 students and was designated as the experimental group where problem-based learning approach was conducted; the other included 43 students and was designated the control group which was conducted with task-based approach. For the experimental group, there were 24 males and 17 females. For the control group, there were 35 males and 8 females. They were around twenty years old.

3.2 Research Design

Both control and experimental groups were instructed by the researcher in the second semester of the academic year of 2008. The control group was taught by task-based learning approach whereas the experimental group was taught by problem-based learning approach. The written tasks of both groups were compared to find out the differences regarding their writing performance. Since the researcher intended to investigate students' writing performance and attitudes towards the implementation of PBL, the questionnaire and semi-structured interview were administered to the experimental group. The research design is illustrated as follows:

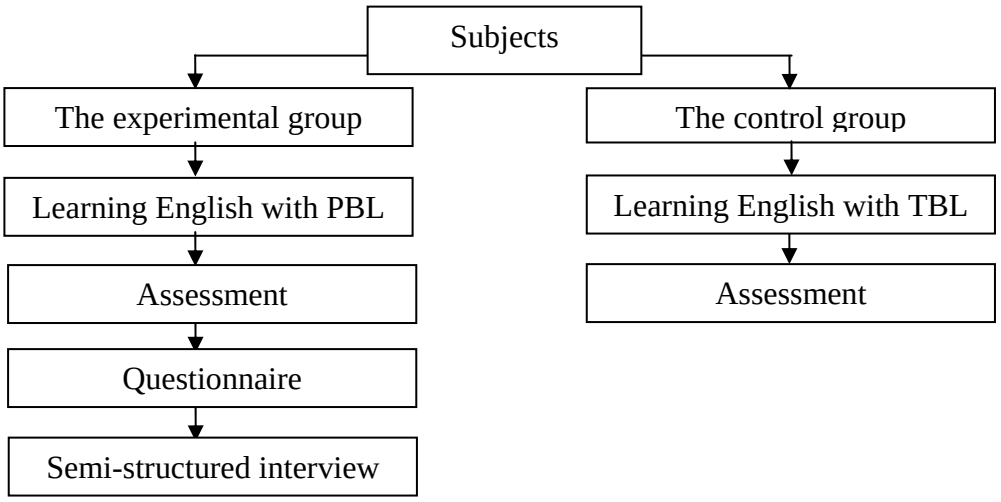


Figure 3.1 Research Design

3.3 Variables

The theoretical framework indicated two main types of variables: independent and dependent variables.

3.3.1 Independent Variables

The independent variables included the two types of methods of teaching approaches: the problem-based learning and the task-based learning approaches.

3.3.2 Dependent Variables

The dependent variables, which could be affected by the independent variables, were students' writing achievement and attitudes towards learning through problem-based learning approach.

3.4 Research Instruments

Seven groups of instruments were used: (1) problem-based learning unit, (2) material and its lesson plan, (3) students' writing tasks, (4) scores of writing tasks and tests, (5) two kinds of formative assessments: PBL unit, and self and peer, (6) questionnaire, and (7) semi-structured interview. These were employed to achieve the goal of the study and described as follows:

3.4.1 Problem-based Learning Unit

The problem-based learning unit on English teaching constructed by the researcher was employed to develop the problem-based learning unit for teaching writing organization. The unit was evaluated by an expert on curriculum and instructions before its implementation. The information gathered from the evaluation was used to revise the unit. The construction of the PBL unit and plan will be described in detail in 3.6.

3.4.2 Material and Lesson Plan of the Problem-based Learning Unit

The material which was known as "the problem log for column writing" (see Appendix A) and its lesson plan of problem-based learning unit (see Appendix B) were used for the experimental group. The problem log included five main learning stages: identifying problems, identifying learning objectives, searching for information, sharing ideas and summarizing solutions. The lesson plan was used to provide the descriptions how the problem log was conducted.

3.4.3 Students' Writing Tasks

For both experimental and control groups, students were assigned to produce an e-zine or magazine with a variety of columns. In both groups, the students helped each other write columns for their e-zine or magazine. In producing those particular columns, each student was responsible for a different column. For the experimental group, the students provided self-marking on their own writing performance by using the rubric given (see Appendix C). Regarding the pieces of writing tasks of the experimental group, the students' language performance in writing was assessed to find out in a broad sense what they were able to do with the language focus stated by the objectives of the course.

3.4.4 Students' Scores on Writing Tasks and Tests

The students' scores of the two main aspects were taken into consideration whether the students improved their writing. Those scores included ones of writing tasks and ones of tests. According to the scores of the tests, they were from two sources: one quiz and the final exam.

3.4.5 Formative Assessments

There were two kinds of formative assessments used to investigate the effectiveness of the PBL unit of the study, described as follows:

3.4.5.1 Assessment of the PBL unit

To find out the effectiveness of the PBL unit for language teaching and learning, every aspect or process involved in working through the unit was assessed. More than five processes stated in the problem log were involved. Those particular processes were (1) identifying known and unknown problems, (2) identifying learning objectives, (3) sharing ideas with classmates, (4) summarizing solutions, (5) self and

peer assessment, and (6) working in groups. The form of the PBL unit assessment (see Appendix D) was open-ended. The assessment was conducted at the end of each process of the PBL unit.

3.4.5.2 Self and Peer Assessment

Students' self and peer formative assessment (see Appendix E), was designed to investigate their learning performance through PBL. There were two main aspects to be investigated. The first part of the self and peer assessment was for students' learning performance through group dynamics which focused on (1) identifying problems, (2) identifying learning objectives, (3) summarizing solutions and (4) working in groups. The other part was for individual dynamics regarding the above four aspects. The form of self and peer assessment was the customary five-point rating-scale: 5 = excellent, 4 = very good, 3 = good, 2 = fair, and 1 = needs improvement. The self and peer formative assessment was conducted at the end of each process of the PBL unit.

3.4.6 Questionnaire

The questionnaire (see Appendix F) was administered at the end of the course after the implementation of PBL. It was divided into two main parts. For the first part, there were two sub-sections. The first sub-section of Part I investigated the students' attitudes towards the knowledge they had gained through this particular teaching approach. The second sub-section of Part I was for students' attitudes towards the effectiveness of the approach itself. All questions of Part I were rating-scale. The students were asked to rate their attitudes about the implementation of PBL according to a five-point rating-scale: 5 = strongly agree, 4 = agree, 3 = slightly agree, 2 = disagree, 1 = strongly disagree.

Part II of the questionnaire was open-ended and called for suggestions addressing students' difficulties in using PBL.

3.4.7 Semi-structured Interview

After the data from all instruments, especially those of the questionnaire, were analyzed, the semi-structured interview (see Appendix G) was randomly and purposively conducted as a focus group for further information and clarification in the implementation of PBL. The interview was planned to be conducted with six subjects with different language proficiencies: two above-average, two average and two below-average. The relevant data were grouped and interpreted to support the findings from the other research instruments.

3.5 Construction and Effectiveness of Research Instruments

The PBL unit of the study was designed by the researcher. The construction and effectiveness of the research instruments were carried out with the consultation of the research expert. The following are the procedures of instrument construction and the determination of the instrument effectiveness:

3.5.1 Problem-based Learning Unit

1. The researcher reviewed and studied related literature on problem-based learning approach, instructional systems design (ISD) and comparisons of ISD processes of many educators such as Dick and Carey, Reiser and Dempsey, etc.

2. The researcher determined the components of the PBL unit and constructed the unit of the study.

3. The unit was examined by a lecturer at the Department of Curriculum and Instructions, the Faculty of Education, Kasetsart University, who served as an expert consultant.

4. The unit was revised according to the suggestions of the expert.

5. To validate the effectiveness of the PBL unit, the pilot study was conducted with an intact class of 23 students at KMUTT. They were second-year IT undergraduate students who enrolled in LNG104 in the first semester of the academic year of 2008. The students' scores for the exercises and the tests were determined to establish the effectiveness of the PBL unit based on criteria of the 80/80 standard level (Brahmawong, 1978).

Achievement scores of the exercises and the tests were calculated by using E1/E2 of the following formula;

$$E1 = \frac{\overline{X}}{A} \times 100$$

E1 = Effectiveness of the process

$\overline{X}$ = Average scores all students obtained from the exercises

A = Total scores of the exercises in the lessons

$$E2 = \frac{\overline{X}}{B} \times 100$$

E2 = Effectiveness of the product

$\overline{X}$ = Average scores all students obtained from the tests

B = Total scores of the tests in the lessons

(adapted from Brahmawong, 1978)

The results of the pilot study showed 81.15/79.90 (see Appendix H). This indicated that the effectiveness of the PBL unit of the study reached the prescribed criteria of 80/80.

3.5.2 Material and Lesson Plan

1. The researcher studied the objectives of LNG104 course.

2. The researcher studied how to create the material and lesson plan of problem-based learning unit related to the literature on problem-based learning and course design.

3. The researcher designed the material for problem-based learning unit. The lesson plan of how to use this particular material for the teaching was also provided.

4. The material and lesson plan were examined by the expert on PBL and ISD who is an Assoc. Prof. Ph.D. lecturer at the Department of Curriculum and Instructions, the Faculty of Education, Kasetsart University.

5. The material and lesson plan were revised according to the suggestions of the expert.

6. To evaluate the effectiveness of the material and lesson plan, the pilot study was conducted with an intact class of 23 second-year IT undergraduate students of LNG104 in the first semester of the academic year of 2008 at KMUTT.

7. The material and lesson plan were revised again according to the feedback of the pilot study.

3.5.3 Assessments of the PBL Unit

1. The researcher reviewed and studied the related literature of PBL assessments.

2. Three kinds of assessment for the PBL unit of the study which consisted of rubric for writing assessment, assessment of the PBL unit and self and peer assessment were constructed.

3. All kinds of assessments were examined by the expert.

4. The assessment was adapted and revised due to the suggestions of the expert.

5. Regarding the self and peer assessment which was designed in the form of rating scale, the pilot study of its effectiveness was reached. The reliability of the assessment form was tested by the method of Cronbach's Alpha (A-kakul, 1999). Its reliability coefficient value was 0.887, thus meeting the prescribed criteria of 0.85.

3.5.4 Questionnaire

1. The researcher reviewed and studied the literature on how to design a questionnaire.

2. The statements of the questionnaire were constructed based on the literature review on how to design a questionnaire and problem-based learning approach.

3. All statements were examined by the expert.

4. The statements of the questionnaire were adapted and revised according to the suggestions of the expert.

5. The pilot study of the effectiveness of the questionnaire was conducted. The reliability of the questionnaire was tested by the method of Cronbach's Alpha (A-kakul, 1999). Its reliability coefficient value was 0.944, thus reaching the prescribed criteria of 0.85.

3.5.5 Semi-structured Interview

1. The researcher reviewed and studied the literature related to problem-based learning approach.

2. Relevant aspects were adapted as the questions to be designed.

3. All questions were examined and revised according to the suggestions of the expert.

4. The semi-structured interview was piloted with six students who belonged to three different levels of language proficiencies: two above-average, two average, and two below-average. The criterion of language proficiency discrimination was the grade in the previous English course. The interview was conducted in the form of the focus group.

5. The questions of the semi-structured interview were revised again according to the feedback of the pilot study.

Regarding the effectiveness of the research instruments which were carried out, it had been found that the PBL unit of the study reached the standard and could be implemented for the research purposes.

3.6 Research Procedure

This part is to explain how the research was conducted in detail. It consists of two main parts: the current course description of LNG104 (Content-based Language Learning I) and the PBL unit of the study.

3.6.1 Current Course Description of LNG104 at KMUTT

Before the PBL unit was described as a research procedure, background information about the target course needs to be described. PBL had been planned to be implemented into LNG 104, a fundamental English course at KMUTT. In this course, the students have to design their own e-zine or magazine (in group of four or five) as a course project by selecting an interesting topic, writing columns, designing

e-zine or magazine layout, and presenting their work. The nature of the course makes it most amenable to being used with a PBL approach, which is why it was selected as the target course of this study.

In LNG104, each student has to produce a different column for their group e-zine or magazine. The content of every column must be related to the theme of the project. The following is the list of columns provided: (1) Recommended reading/websites, (2) History/Biography, (3) Culture, (4) Opinions/Criticism, (5) FAQ's (Frequently Asked Questions), (6) Interesting facts, (7) Anecdote, and (8) Interview. The length of each column is about 800-1,000 words, and the students must also provide one more column: Editor's note, for their e-zine or magazine as a group work. They have to submit their essay by the 10^{th} week of the semester.

Since this course is project-oriented, most of the class time is spent on consultations. There are two lessons a week, and a lesson lasts two hours. There are totally sixty hours or fifteen weeks a semester. The following is the current tentative schedule of LNG104 and its assessment.

Week 1	Lesson 1	Warm-up activity Introducing the goals of the course	In class
	Lesson 2	Introducing the magazine	In class
Week 2	Lesson 1	Identifying a topic	In class
	Lesson 2	Finding resources	Outside class
Week 3	Lesson 1	Finding resources	Outside class
	Lesson 2	Writing in-text citations and references	In class
Week 4	Lesson 1	Writing a proposal	In class
	Lesson 2	Having the topic approved	In class
Week 5	Lesson 1	Writing organization	In class
	Lesson 2	Outlining column contents	In class
Week 6	Lesson 1	Having outlines approved	In class
	Lesson 2	Collecting data	Outside class
Week 7	Lesson 1	Collecting data	Outside class
	Lesson 2	Designing & writing columns	Consult
Week 8	Lesson 1	Designing & writing columns	Consult
	Lesson 2	Designing & writing columns	Consult
Week 9	Lesson 1	Designing & writing columns	Consult
	Lesson 2	Editing	In class
Week 10	Lesson 1	Editing	Consult
	Lesson 2	Submitting the first draft of columns	Consult
Week 11	Lesson 1	Receiving feedbacks on writing drafts	In class
	Lesson 2	Designing a magazine / website	Consult
Week 12	Lesson 1	Designing a magazine / website	Consult
	Lesson 2	Designing a magazine / website	Consult
Week 13	Lesson 1	Designing a magazine / website	Consult
	Lesson 2	Designing a magazine / website	Consult

Figure 3.2 Current Tentative Schedule of LNG104

Week 14	Lesson 1	Designing a magazine / website Submitting the second draft of columns	Consult
	Lesson 2	Presenting the project	In class
Week 15	Lesson 1	Presenting the project	In class
	Lesson 2	Evaluating the course	In class

Figure 3.2 Current Tentative Schedule of LNG104 (Continued)

Course assessment:			
Attendance	5%	Column writing	20%
Group consultation	10%	E-zine/magazine	10%
Oral presentation	10%	Quiz	10%
Proposal	5%	Final exam	30%
		Total	**100%**

Figure 3.3 Current Course Assessment of LNG104

3.6.2 The PBL Unit of Study

Since PBL has been rarely found in language teaching, its effectiveness in this pedagogy has not been explicitly demonstrated. Thus, to avoid any impact on other groups of students studying LNG104 in terms of assessment, this study was to integrate PBL into a fundamental English course (LNG104) as a learning unit to help improve students' writing and to investigate whether PBL was an appropriate teaching approach in language teaching.

Reiser and Dempsey (2002) suggest five main elements for any instructional systems design (ISD). They are (1) analysis, (2) design, (3) development, (4) implementation and (5) evaluation (ADDIE). Under the similar main theme of ISD concept, Dick and Carey (2001) generate ten approaches for the ID system. It consists

of (1) assessing needs to identify goal, (2) conducting instructional analysis, (3) analyzing learners and contexts, (4) writing performance objectives, (5) developing assessment instruments, (6) developing instructional strategy, (7) developing and selecting instructional materials, (8) designing and conducting the formative evaluation of instruction, (9) revising instruction, and finally (10) designing and conducting summative evaluation.

In this study, both ISD concepts of Reiser and Dempsey, and Dick and Carey were integrated and adapted for the sake of the study. As the research had been developed, the course analysis would be initially conducted to identify problems and analyze learner needs. For the next stage which was the design and development system, objectives were stated, learner contexts were identified, PBL syllabus was outlined, materials were prepared to reach those particular requirements, and assessment was provided. After that was the piloting stage to investigate the effectiveness of PBL plan and to make a suitable change. For the experimental stage, PBL plan was implemented and investigated as an alternative teaching approach in English language teaching. Finally, assessment and revision was, of course, inevitable. The development of PBL plan is presented as follows:

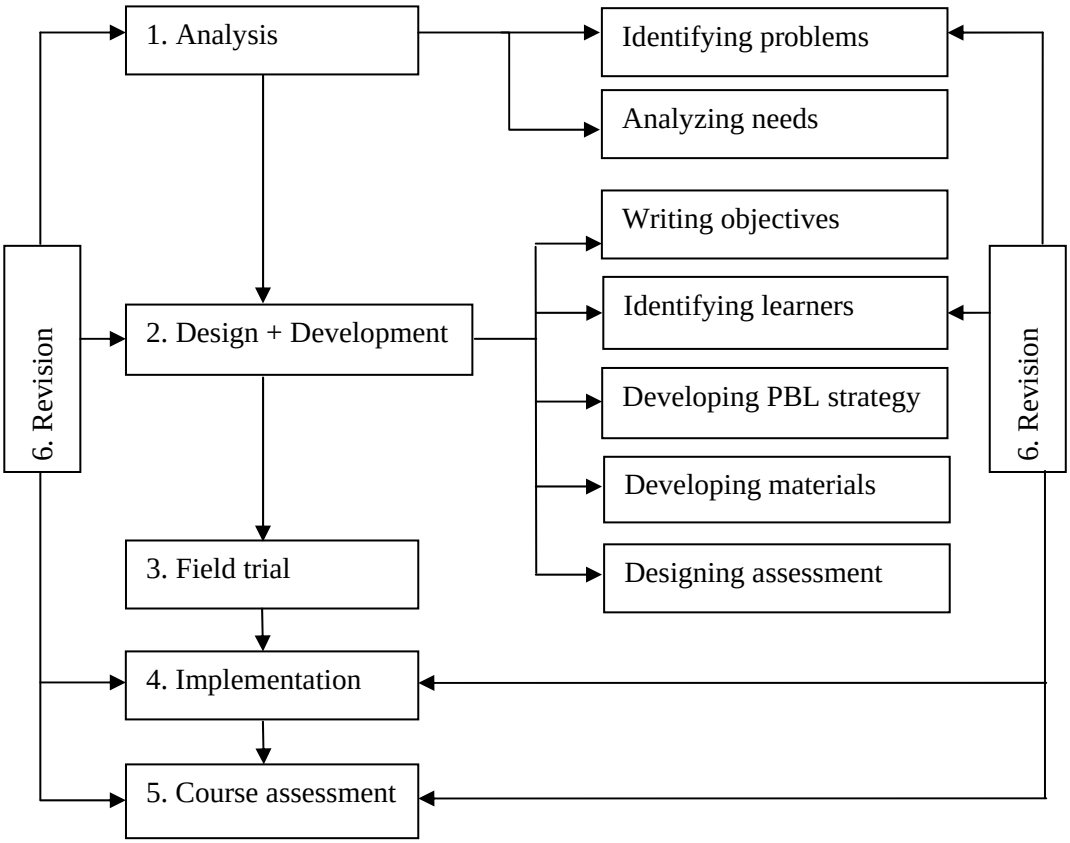


Figure 3.4 The Development of the PBL Plan

From Figure 3.4, it could be seen that there were six main stages of the development of PBL plan. The following is the description of each stage.

3.6.2.1 Analysis

As a particular language course has been developed, it is not planned for just language purposes, but also simultaneously for other participants with a variety of purposes (Pratt, 1994). The analysis has to be conducted to gather the information which results in the identification of the needs of individuals, groups, institutions, communities, or society (Pratt, 1994). Before shaping a PBL unit of LNG104, there were two aspects of the analysis process which had to be done initially: identification of problems and need analysis.

3.6.2.1.1 Identifying Problems

Identifying problems helps determine causes of the situation that need to be addressed. Problems often reflect a failure in achieving the goals of an organization and can identify improper use of skills (Dick and Carey, 2001). If the goals have been achieved, no analysis of problems needs to be done. Therefore, the purpose of the problem identification is to acquire information on the components in order to verify problems and identify possible solutions.

In LNG104, the data received regarding problem identification from students' tasks showed that the students had lots of problems on their column writing. Although they were trained to draft the outline before starting writing, the contents were sometimes redundant. The students could not create the main ideas or the topic sentences for individual paragraphs. In other words, they came up with many directions of thoughts in the same paragraph and even in the same passage. They sometimes had no ideas how to develop and how to conclude their passage. Moreover, there were many mistakes in the written tasks. The students themselves were not aware of their problems and often repeated the mistakes.

3.6.2.1.2 Analyzing Needs

Needs assessment is "a crucial process of the total design process" (Dick and Carey, 2001, p. 21). The analysis of needs could be done through gathering information to serve the basis for developing a training course that would meet the learning needs of learners (Brown, 1995). There were two main parties involved in the need assessment process: teachers of the Department of Language Studies, and student desires of their language course.

3.6.2.1.2.1 Language Teachers

Regarding their experiences and language proficiencies, the language teachers were the best sources of linguistic aspects and content areas to be taught which met students' needs. After the interview, 82% of those who had taught LNG104 reported that most students made mistakes on writing organization and grammar. To solve the problems, the students had to learn grammar as an initial stage of language improvement. This evidence supported the data of identification of situational problems that indicated that students had problems in writing an English essay.

3.6.2.1.2.2 Student Desires

Pratt (1994) states that there is no better place to begin instructions than where the students already are. The students' background, interests, aspirations, and motivation are essential for course planning; therefore, their needs should be served.

Regarding Krejcie and Morgan (1970, see Appendix I), 1,360 (18.95%) out of 7,175 students from all 4 years of study at KMUTT were randomly queried by questionnaires (see Appendix J). It was found that, for the first three answers (see Appendix K), 643 students (47.3%) wanted to learn grammar, 581 (42.7%) wanted to learn how to write in English and 560 (41.2%) wanted to practice speaking and listening. Most students stated that they wanted to study grammar and writing since, as they said, it was the basic knowledge for the better improvement of their language proficiency.

3.6.2.2 Syllabus Design and Development

After the process of problem identification and needs analysis, the approaches of PBL design and development were formulated and produced. They are described as follows:

3.6.2.2.1 Writing Objectives

An initial important step in the development of a language course is to identify learning objectives (Nunan, 1988). This provides the pedagogical rationale of the course, which often is based on the requirements of the educational institution. Since PBL focuses on unstructured and authentic real world experiences, it is taken for granted that the objective of the course was the attention to the use of grammatical forms of learners as well as to their ability to match those structures with real communicative functions (Yalden, 1987). Through PBL, the use of language would go beyond the acquisition of structure and the ability to make appropriate choices in the realization of a particular language function. It covered the ability to produce a language that fit or made sense within a given discourse, and also the ability to interpret the meaning of a language produced by others.

3.6.2.2.2 Identifying Learners

The identification of learners is important since it is the factor which could seriously affect the success of the new course (Dubin and Olshtain, 1986). As it had been mentioned, since LNG104 focused on column writing for an e-zine or magazine design, the undergraduate students who took this course were those who wanted to improve their writing since this would be beneficial to their future use. Therefore, it appears that the students had intrinsic motivation in learning. Moreover, they were familiar with the task-based approach used in language teaching at KMUTT. This might, to some extent, facilitate the language acquisition using PBL. The students were also mixed-ability regarding language proficiencies.

3.6.2.2.3 Developing PBL Strategy

For the development of PBL strategy, PBL was integrated into LNG104 as a learning unit to help improve students' writing. Regarding the design of

the PBL unit, there were three main teaching phases. For the first month of the course, there were four topics the students learned through TBL; introduction to a magazine, identification of a topic, citations and references, and proposal writing. After the topic of the e-zine or magazine was approved, the students worked on their column writing in groups through PBL. For the final phase which was around a month at the end of the course, the students turned to TBL again for designing their e-zine or magazine. The three teaching phases which lasted one semester (fifteen weeks) proceeded as follows:

Phases	Topics	Time spent
1 (TBL)	Introduction to a magazine Identification of a topic Citations and references A proposal writing	~ 4 weeks
2 (PBL)	Column writing	~ 7 weeks
3 (TBL)	E-zine or magazine design Project presentation	~ 4 weeks

Figure 3.5 The Integration of the PBL Unit into LNG104

From Figure 3.5, it shows that the problem-based learning was conducted for teaching writing organization which was the language focus of the course. It took about seven weeks for column writing starting from Week 5 to Week 11. To give a clearer picture how PBL was conducted during the fifteen weeks, the comparison of tentative schedules of the experimental and control groups is provided as follows:

Week	Control Group		Experimental Group
1	Introducing a magazine	⇨	Introducing a magazine
2	Identifying a topic	⇨	Identifying a topic
3	Citing and referencing	⇨	Citing and referencing
4	Writing a proposal	⇨	Writing a proposal
5	Writing organization		Identifying known + unknown
			Setting learning objectives
6	Having outline approved		Searching for information
7	Collecting data		Sharing ideas
8	Writing columns		Preparing an outline
9	Writing columns		Writing columns
10	Editing		Writing columns
11	Designing a magazine		Summarizing solutions
12	Designing a magazine	⇨	Designing a magazine
13	Designing a magazine	⇨	Designing a magazine
14	Presenting	⇨	Presenting
15	Evaluating the course	⇨	Evaluating the course

Figure 3.6 The Comparison of Tentative Schedules of the Experimental and Control Groups

For the PBL process, the students began by discussing what they knew and did not know about the areas of both the column content and writing organization. After they specified the unknown areas, they set their learning objectives to discover what they had to know or to learn. Next, they searched for information for those learning objectives. After the search, they discussed and shared the ideas with their classmates. Here, the teacher had to be sure that the language focus concerning writing organization stated by the objectives of the course was being successfully delivered. The focus of the language here dealt with general and thesis statements in the introductory part, generating and

linking ideas with appropriate cohesive devices, establishing clear topic sentences for each paragraph, and providing a content summary in the conclusion.

When the students had enough knowledge to write a column, they started their writing. They were reminded to be aware of the editing process. When they finished writing, they were asked to reflect and evaluate their strengths and weaknesses in solving the problems. The following is the development of the PBL unit of the study (see Appendix B) which is described in detailed comparison with the original course.

Week	Lesson	TBL activities	PBL activities
5	1	Writing organization	- Identifying known and unknown problems of column content and writing organization
	2	Outlining column contents	- Setting learning objectives for column content and writing organization
6	1	Having outlines approved	- Searching for information
	2	Collecting data	- Searching for information
7	1	Collecting data	- Sharing ideas to learn about column content
	2	Designing & writing columns	- Sharing ideas to learn about writing organization
8	1	Designing & writing columns	- Preparing the outline for column writing (1st draft)
	2	Designing & writing columns	- Preparing the outline for column writing (2nd draft)

Figure 3.7 Learning Activities of the PBL Unit Compared with the Original LNG104

9	1	Designing & writing columns	- Writing columns
	2	Editing	- Writing columns
10	1	Editing	- Writing columns
	2	Submitting the first draft of columns	- Writing columns
11	1	Receiving feedbacks on writing drafts	- Summarizing solutions
	2	Designing a magazine / website	- Wrapping up

Figure 3.7 Learning Activities of the PBL Unit Compared with the Original LNG104 (Continued)

As can be seen in Figure 3.7, the main concept of teaching and learning of the experimental and control groups, especially in the beginning phases, would be the same. However, the differences between these two groups were that the control group concerned teacher and teaching whereas the experimental group concerned learner and learning. The students had to move through all steps of learning by themselves.

3.6.2.2.4 Developing Materials

Teaching materials are the key components in a language program. They provide exposure to support learning through stimulating cognitive processes, and providing a structure for learners to follow. Besides, good materials can also motivate learners through challenges and interesting contents (Richards, 2001). In following, the principle of PBL, the approach and syllabus would affect the choices to be made in the development and implementation of materials (Brown, 1995). Although the main sources of information are derived from the students themselves, the materials that are prepared for in-class use, then, have to be used as the core of learning for learner practice and communicative interactions (Richards, 2001).

In this study, the problem log (see Appendix A), a handout was provided to identify known and unknown problems in writing regarding the knowledge of the column content and language focus; writing organization, to set learning objectives, and to summarize solutions.

3.6.2.2.5 Designing Assessment

PBL is a process-oriented approach which focuses on the outcomes of the instruction as well as on the classroom activities themselves (Nunan, 1988). Or, in other words, the students are mainly assessed through formative assessments.

Although the original LNG104 course content and assessment were kept as it was, the PBL unit held its own assessment which was separately conducted and different from those of the main course in that it would investigate issues unique to PBL, including PBL characteristics and effectiveness in language teaching. As already mentioned, there were three kinds of formative assessment conducted in the plan of the study.

The first kind of assessment was the rubric for assessing students' writing performance. The students were asked to evaluate their own and their friends' writing performance by using the rubric given. The written tasks were also marked by the teacher afterwards. Second was the assessment of the strengths and weaknesses of all PBL learning steps. The last one was self and peer assessment to assess students' learning performance. In this study, students' abilities to identify problems, set learning objectives, summarize solutions and work in groups needed to be assessed.

3.6.2.3 Field Trial

At this stage, the designer attempts to use a learning context that closely represents those of the instructional materials for which they are constructed.

The purpose is to determine whether the changes in the instruction made after the small-group stage are effective. Another purpose is to see whether the instruction can be used in the context for which it is intended. To reach those particular purposes, all materials should be revised and ready to go (Dick and Carey, 2001). The field trial was conducted with a fundamental English course: LNG104 in the first semester of the academic year of 2008.

3.6.2.4 Implementation

This stage is to bring the design of PBL into practice. Reiser and Dempsey (2002) state that the implementation stage includes delivering the instruction in the setting for which it has been designed. The implementation of a new course should build a climate of acceptance for the change (Pratt, 1994). "It may be facilitated by establishing a climate of trust, ensuring the change meets recognized needs, consulting widely, establishing clear goals, developing support systems, … providing … resources, and maintaining a focus on instructional growth" (p. 320). Nothing should be regarded as permanent installation, but as subject to continual improvement and renewal. The implementation of PBL was conducted in the second semester of the academic year of 2008.

3.6.2.5 Course Assessment

The PBL course assessment was done to illustrate the characteristics and the effectiveness of PBL in language teaching pedagogy. There were two main aspects: student writing achievement and course assessment.

3.6.2.5.1 Student Writing Achievement

Students' language proficiency in writing is assessed to find out in a broad sense what they are able to do in the language. The assessment of

proficiency provides the teacher with a starting point as the students embark on the course since it gives the teacher an idea of their ability level with respect to what is being assessed. It has to be sure that the objectives and materials of the course are appropriate with respect to level of difficulty in the target skills (Grave, 2000). In the PBL design, there were two sources used to illustrate the student writing achievement: the scores of students' writing tasks and of the tests. The test scores consisted of those of the quiz and the exam.

3.6.2.5.2 Course Assessment

The purpose of the course assessment is to help the teacher make decisions on both an ongoing and final basis about the course (Grave, 2000). The aspects of the course assessment might be addressed as objectives, course content, needs assessment, course organization, materials and methods, and so on. The course assessment could be conducted formatively and summatively. The purposes of formative assessment are (1) to evaluate the effectiveness of the course whether it meets students' needs, (2) to give the students a voice of their learning, and (3) to provide information for the redesign of the course. In this study, the data from the formative assessment were derived from the assessment of the PBL unit and self and peer assessment, which were conducted at the end of each stage of learning.

The purposes of the summative assessment, on the other hand, are (1) to make decisions about whether the course should be continued, (2) to assess the achievement of the course, and (3) to provide information for the redesign of the course. To yield those findings, questionnaires and semi-structured interview were conducted at the end of the course.

3.6.2.6 Revision

After the data of the instructional system assessment have been collected and summarized, the revision process is clear. This process is used to "reexamine the validity of the instructional analysis and the assumptions about the entry behaviors and characteristics of learners" (Dick and Carey, 2001, p. 8). It is necessary to reexamine the statements of all steps in the system in the light of collected data. The analysis, performance objectives, instructional strategy, etc. have to be reviewed and finally incorporated into revisions of the instruction to make it as a more effective system design.

3.7 Data Analysis

The data obtained from different methods are analyzed and interpreted quantitatively and qualitatively.

3.7.1 Quantitative Data Analysis

Quantitative data analysis included the data obtained from the students' scores on writing, self and peer assessment, and Part I of the questionnaire.

3.7.1.1 Students' Scores on Writing Tasks and Tests

The data from students' scores on writing tasks were calculated for the arithmetic means. These means showed students' opinions towards their writing achievement. The criteria of means were from a range divided by number of level created. This was (20-0.95)/5 = 3.81. For each level, the value of 3.81 was added to each mean. The following criteria are used for interpretation.

Mean	Interpretation
0.95-4.76	Writing task is not achieved.
4.77-8.57	Writing task is attempted but not adequately achieved.
8.58-12.38	Writing task is reasonably achieved.
12.39-16.19	Good realization of writing task.
16.20-20.00	Full realization of writing task.

Figure 3.8 Criteria for Marking Interpretation of Writing Task

To compare students' writing achievement, the scores of writing tasks and tests of the experimental and control groups were considered. Additionally, students' fields of study (in this case, Engineering and Industrial Education and Technology) were taken into consideration as potential factors affecting students' writing achievement. Thus, the Analysis of Variance (ANOVA) model by Scheffe was used to compare the results among four groups to see if there were any significant differences among them.

3.7.1.2 Self and Peer Assessment

The data from the five-point rating scale was calculated for arithmetic means. The means showed students' opinions towards their own learning performance from two perspectives: group and individual dynamics. The criteria of means were from a range divided by number of level created. This was (5-1)/3 = 1.33. For each level, the value of 1.33 was added to each mean. The following criteria are used for interpretation.

Mean	Interpretation
1.00-2.33	Students have bad learning performance through PBL.
2.34-3.67	Students have good learning performance through PBL.
3.68-5.00	Students have very good learning performance through PBL.

Figure 3.9 Criteria for Rating-scale Interpretation of Self and Peer Assessment

3.7.1.3 Part I of Questionnaire

Only Part I of the questionnaire was quantitatively analyzed. The data from five-point rating scale was calculated for the arithmetic means. These means showed students' attitudes towards the knowledge they gained and the effectiveness of the PBL unit constructed by the researcher. The criteria of means were from a range divided by number of level created. This was (5-1)/3 = 1.33. For each level, the value of 1.33 was added to each mean. The following criteria are used for interpretation.

Mean	Interpretation
1.00-2.33	Students have bad attitudes towards PBL.
2.34-3.67	Students have good attitudes towards PBL.
3.68-5.00	Students have very good attitudes towards PBL.

Figure 3.10 Criteria for Rating-scale Interpretation of the Questionnaire

3.7.2 Qualitative Data Analysis

Qualitative analysis was applied to the semi-structured interview and Part II of the questionnaire. Themes were grouped by the coding techniques and the number of students with similar ideas was also counted. The aspects of students' writing performance which were illustrated through their pieces of work were also considered and analyzed to substantiate the findings from other research instruments.

3.8 The Pilot Study

It has been known in problem-based learning (PBL) that the ill-structured, confusing and incomplete problem is used as the core of learning. Student learning is motivated through problem-solving process, and this approach focuses on team

working. PBL has been widely implemented in medical and business fields of study, and it has been rarely found in language teaching pedagogy. Regarding its merits, this study provides an attempt to place PBL in ELT (English as a Second Language Teaching).

The purpose of the study was to design a PBL unit and integrate it into LNG104 to help improve student writing and to investigate other aspects of applying PBL towards student learning of English. The pilot case was conducted with an intact class of 23 second-year IT undergraduate students at KMUTT in the first semester of the academic year of 2008. After the implementation, it was found that the students had a better performance in writing and positive attitudes towards the approach. They learned better from the discussions and preferred team work.

However, one main difficulty during the pilot study was that the students felt very frustrated at the beginning of the teaching process. This was the first time that the students studied with this great degree of self-directed learning. It was confusing and difficult for them to illustrate the unknown areas and the objectives of learning since they were asked to work on those of both column content and writing organization at the same time. They also stated that they were not sure whether the objectives they listed covered the knowledge they needed to study.

Nevertheless, when the students had a chance to share ideas with their classmates, they felt better. At the end of the PBL unit, a majority of students indicated they liked learning in this way. It helped change the learning atmosphere, and they could make decisions about their own learning.

Regarding the students' frustration in learning, it was found that the students' learning readiness before the implementation of PBL was very important. The

preparation in terms of psychology and knowledge of PBL process needed to be settled before the learning started. This was not only to provide the students the obvious concept of learning process, but also to build the sense of confidence in learning through PBL. Furthermore, the steps of identifying the known and unknown problems and setting learning objectives for column content and writing organization should be conducted separately. This would become the main concern for the implementation of the PBL unit in the following semester.

3.9 Summary

In short, this chapter proposed the research methodology. It included subjects, research design, research instruments, research procedure, data analysis, and the pilot of the study. Although the effectiveness of PBL was the case study, it was expected that the result could be further applied for the sake of another context.

CHAPTER 4

RESEARCH RESULTS

This chapter presents the research findings which are organized according to the four main purposes of the study as stated in Chapter 1, which are:

1. To develop a PBL unit to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi

2. To determine the effectiveness of the PBL unit based on 80/80 standard to improve the writing skills of undergraduate students of LNG104 (Content-based Language Learning I) at King Mongkut's University of Technology Thonburi

3. To compare PBL and TBL in the language learning of undergraduate students at King Mongkut's University of Technology Thonburi

4. To examine significant differences between the students' writing achievement and their fields of study

5. To explore students' attitudes towards language learning through PBL

4.1 The Results of the Development of the PBL Unit

4.1.1 The Results of Assessment of the PBL Unit

The researcher developed the PBL unit, and the assessment form of its unit was distributed to the students. As it had been mentioned that, for the assessment of the PBL unit, every aspect or process involved in working through it was assessed,

more than five stages of learning stated in the problem log were included. The data collected from the assessment of the PBL unit was analyzed and presented below:

When asked to assess the effectiveness of the PBL unit regarding six overall processes in learning which include identifying problems, identifying learning objectives, sharing ideas in class, summarizing solutions, assessing and working in groups, the students responded positively. There were five main findings found and presented accordingly.

First, the majority of students (87%) stated that they liked the process of working in groups. Through teamwork, the students said they had not only a chance to work with others, but also a chance to talk more and be more familiar with others. They also expressed the belief that they learned to solve problems and support their friends. They shared a lot with each other, and this showed the project was successful. By learning in this way, the students said they developed responsibility, punctuality and the ability to adapt. The students' comments are as follows:

'*Working in groups is a good characteristic of working where every member can help each other. However, everybody has to be aware of his duty and responsibility.'*

'Teamwork helps facilitate working. Since everyone has his own competence, helping each other provides the success on the project.'

For the second aspect, most of the students (79%) liked the process of sharing ideas in class and assessing their own learning. For the process of in-class discussions, the students found that their own problems were common and similar to their friends'. It was mentioned that the students gained more new knowledge and understanding of their own problems through the discussions and demonstrations of various kinds of

authentic sources. Besides, they made use of the knowledge from the discussions to solve their own problems in writing. This illustrated that this particular process of learning was successfully conducted as a peer teaching stage. The students' comments are as follows:

'*Sharing ideas provides more understanding of the content … more information about it especially in case of some certain points missing.*'

'*It is very good for asking students to share ideas. This creates learning.*'

'*Sharing ideas with friends is good. It lets me have an obvious picture of the work from the authentic sources. Variety of ideas affects the master piece of work.*'

For the process of assessment which also belonged to the second rank regarding the effectiveness of the PBL unit, it was found that the students agreed to have self and peer assessment and were able to assess their own and their friends' performance in working. While assessing, they had to remind themselves about the criteria of working, and, simultaneously, they had consciously developed themselves through those particular criteria. The following are their statements of attitude:

'*It is good since we could have known about the criteria of our marking.*'

'*Self and peer assessment gives me a chance to do and correct the mistakes by myself. I can better remember those mistakes.*'

'*This process is good. When we assess ourselves, we know our own proficiency. This creates the sense of self-improvement.*'

Then, the students (74%) expressed their confidence in the process of summarizing solutions as the third aspect of the effectiveness of the unit. According to this process, the students reported the solutions of their problems. In other words, they reported what they achieved for their learning objectives. In fact, they prepared

an outline to control the ideas that had three main components: introduction, body and conclusion in their writing due to the principles of essay organization, they used cohesive devices to generate ideas and so on. After several attempts and many difficulties, they knew what writing organization was and were able to write an essay. As they said:

'I have known how to write an essay and how to form a sentence structure. I have reflected on knowledge of what I have done.'

'Summarizing solutions lets me realize what I have gained after the work.'

'Summarizing solutions makes the solutions of the problems clearer… .'

Next, the fourth effective process (69%) belonged to the process of identification of known and unknown problems. The students said they had a chance to think about what they knew and did not know about column content and writing organization. In other words, they were analyzing their own strengths and weaknesses in language learning, and they knew their writing proficiency. At this stage, the students shared and learned many problems with others. It could be said that the students learned, to a certain extent, what and how to write an essay through the analysis of the problems. The following are the students' illustrations:

'It is very good to let us realize on what we know and what we do not know, so we can find out the answers of our unknown problems.'

'Thinking about problems by ourselves is regarded as a good process of learning since it is the brainstorm of what we know and do not know. This makes us know our own competence.'

'I like this process because it makes me know how much knowledge I have had. This also lets me know my own ability and gives me a chance to really work on what I want.'

For the last issue regarding the data collected from the assessment of the PBL unit, the students (67%) attributed the effectiveness of the unit on the process of identifying the learning objectives. They pointed out that they knew what they needed to know and to learn. They were thus able to direct their own learning. They put forward the ideas that this process was really student-oriented which served their needs in learning.

'*The process of identifying learning objectives is good since I could know an obvious scope of the work, and I would not be confused when working.*'

'*It makes me know for what purposes I have learned and done it.*'

'*It is good since it is student-centered.*'

'*It is comprehensible and practical in reality.*'

From the findings, it could be observed that the students considered the PBL unit to be effective. However, regarding the students' feedback, there were certain points which needed to be considered with regard to the use of the unit. Some students (26%) explained that it was quite difficult for them to think about what they knew and did not know about writing since they were not sure whether the problems they listed covered the knowledge they needed to learn. Moreover, they said the more problems they had, the more work they had to do for their learning objectives.

4.1.2 The Results of Self and Peer Assessment

To illustrate the effectiveness of the PBL unit, students' learning performance through each process of the unit was investigated. When the students finished writing the columns for their e-zine or magazine, they assessed themselves and their friends' performance in learning. The data collected from the five-point rating scale of self and peer assessment were calculated for the arithmetic mean (see Appendix L). The

results of the first part of the analysis were for the group dynamics and are presented in Table 4.1.

Table 4.1 The Results of Self and Peer Assessment for Group Dynamics

The Process of	$\overline{x}$	SD
Identifying problems	3.67	.53620
Identifying learning objectives	3.85	.50601
Summarizing solutions	3.58	.48660
Working in groups	4.11	.53099
Total	**3.80**	**.51495**

Table 4.1 shows that the students had a very good learning performance (3.80) through group dynamics, and the students learned best when working in groups.

When the data for each process were analyzed, there were some items rated important and worth consideration. Whilst identifying particular problems, the students rated highly those problems that were researchable (4.0) and realistic (3.92). In the process of identifying the learning objectives, the students stated that they had a chance to seek new knowledge (4.14), and they had enough sources to search for such kinds of information (4.0). When the process of summarizing solutions was considered, it was found that the students were able to make use of new ideas from their discussions about solving their problems (3.73). Last but not least, nearly every item regarding working in groups was rated high. The students stated that they learned to support the opinions of others (4.46), they distributed equal roles among themselves (4.24), they helped each other to learn (4.12), and they were able to work independently (4.07).

According to the self and peer assessment, apart from the aspects of group dynamics, the students were also asked to assess their own and their friends' performance individually in the four main processes of learning mentioned above. To substantiate the results of the group dynamics which illustrated that the students learned best when they learned in groups, the results of the other analysis were for the individual dynamics and are presented in Table 4.2.

Table 4.2 The Results of Self and Peer Assessment for Individual Dynamics

The Process of	$\overline{x}$	**SD**
Identifying problems	4.00	.64363
Identifying learning objectives	3.88	.65926
Summarizing solutions	3.91	.65206
Cooperating with others	4.15	.66600
Total	**3.98**	**.65523**

Table 4.2 shows that the students also had a very good learning performance (3.98) through individual dynamics. Due to students' self-perceptions on individual learning performance, it showed that the students learned best when cooperating and sharing with others. They were able to discover their problems, identify objectives in learning, and solve their own problems.

According to the results of the assessment of the PBL unit and of the self and peer assessment, it could be stated that the development of the unit was effective and it could be implemented in language teaching. This corresponded well to the second hypothesis in Chapter 1.

4.2 The Results of the Effectiveness of the PBL Unit based on 80/80 Standard Level

The researcher conducted trials on the PBL unit in order to improve it. There were two trials to assess the unit: pilot and field study tests (see Appendix M). The results of two trials are presented in Table 4.3.

Table 4.3 The Results of Two Trials of the Unit

Trials	E1 (Effectiveness of Process)	E2 (Effectiveness of Product)
Pilot test	81.15	79.90
Field study test	86.35	80.98

The analysis of the trials indicated that the effectiveness of the process and product for the pilot study (81.15/79.90) was nearly close to the prescribed criteria of 80/80. It could be explained that the teaching steps and the instructions might not be clear enough for students to go through. Regarding students' feedback, it was found that they did not understand and were not sure about how to find out the problems and also how to set objectives for their learning. It might be because the processes of identification of known and unknown problems of column contents and language focus were conducted at the same time. The students may be confused, and it might be difficult for them to find out problems and to set objectives of learning of the two aspects simultaneously. This, therefore, affected their learning. Thus, the PBL unit was revised and implemented for the second round.

The results of the field study demonstrated that the effectiveness of the process and product (86.35/80.98) was improved to meet the criteria of 80/80. In this turn, the

teacher paid much attention on the process of identification of problems and objectives of learning. To make it clearer, the students were initially asked to work on the problems of writing styles of particular columns. When the students had enough knowledge of different writing styles, the language focus, which was about writing organization, was handled. In this turn, it was found that the effectiveness of the unit reached the criteria. This corresponded well to the second hypothesis in Chapter 1.

4.3 Students' Writing Performance through PBL Pertaining to the Language Focus of the Study

To illustrate that the experimental group had very good writing performance, the data collected from scores of writing tasks were analyzed and calculated for the arithmetic mean. It was 17.27 (see Appendix M). It could be said that the students had full realization of writing task which provided a very positive effect on the target reader.

To substantiate the statistic results, the students' writing tasks were considered in detail regarding the language focus stated in the course objectives. The students had successful performance in writing in the four main areas of the language focus; [1] having general and thesis statements in the introduction, [2] generating ideas with appropriate transition signals, [3] having a topic sentence for each paragraph, and [4] summarizing the content and giving comments in the conclusion.

Firstly, in the introductory part, general and thesis statements were clearly and meaningfully illustrated. At the very beginning of the part, the students knew to have general statements to give readers an overview and purposes of the column they wrote. Then, they narrowed down the general statements to specific directions of

ideas to be discussed. From students' writing tasks, it was obvious that they knew to place the thesis statement at the last sentence of the introductory paragraph to let the readers know the main concepts of a particular column. The following are excerpts of students' writing:

Subject 4:

"The choice of creating happiness for living of everyone is different, and it depends on that person. Bio-organic may be that choice. Now, there are lots of opinions about it. Someone may think this trend is good because it can make oneself useful. But there are also some people think bio-organic is not good enough and disagree to have it. They think it is complicated, expensive and lack of nutrition. How do you think of bio-organic lifestyle, expenses and kids versus bio-organic?"

(Topic: Bio-organic, Column: Opinions)

Subject 8:

"Nowadays, most families have their own camera whereas only a few owners can use it perfectly and understand the art of photography. Therefore, this column provides readers some resources of useful information and knowledge about photography so that people who are interested in taking a photograph can possess and use their own cameras fluently. In this column, the readers will obtain the information about techniques of photography, camera handbook, photographic software and photo collection."

(Topic: Photography, Column: Recommended Readings/Websites)

From the excerpts given, it could be mentioned that the students realized the concept of their own column. When they wrote it, they tried to place the right concept in the right column. In the excerpt of Subject 4, for instance, he mentioned about good and weak points of a particular thing since he wanted to introduce the concept of criticism in his column: opinions. For the other excerpt of Subject 8, the subject provided the concept of the column with the words '*provide…some resources of useful information and knowledge about… .*' It was to emphasize the meaning of 'recommended readings/websites' column.

Moreover, from the excerpts, it could be seen that the students could have an obvious thesis statement at the end of the introductory part. For example, in the excerpt of Subject 4 which stated that *'How do you think of bio-organic lifestyle, expenses and kids versus bio-organic?'* This was to give the readers ideas about three kinds of information they were going to read in the column. For the other excerpt of Subject 8, it was said that *'In this column, the readers will obtain the information about techniques of photography, camera handbook, photographic software and photo collection.'* It showed there were four main points discussed in the content.

Secondly, the next area of language focus the students had achieved was whether the paragraphs were fully and completely developed with appropriate transitions or cohesive devices. The students were able to use transition signals to generate the ideas. To illustrate the students' writing performance on this particular aspect, the excerpts of their writing tasks are provided as follows:

Subject 20:

Paragraph

1 *…This column is consisting of three parts: the popular characteristic taste of Thai food in different parts of the country, the culinary heritage and the differences of Thai food in each religious ceremony.*
2 *First, the popular characteristic taste of Thai food in the central part…*
3 *Second, …north…*
4 *Third, …northeast…*
5 *Lastly, …south…*
6 *The first of the Siamese court in Ayutthaya…*
7 *The second of … in Ayutthaya…*
8 *The last of … in Ayutthaya…*
9 *The first difference of Thai food…northeast…*
10 *The other difference of …south…*
11 *In conclusion, …*

(Topic: Thai Cuisine, Column: Culture)

Subject 21:

Paragraph

1 *…the history of tea which its origin was in China and, after that, it was spread to other countries.*
2 *At first, …the origin … was China. …*
3 *In 2737 B.C., …*
4 *About 350 A.D., …*
5 *About 780 A.D., …*
6 *In the first place, Chinese tea came to Japan. …*
7 *The next place, … Korea …*
8 *Then, … Portugal …*
9 *In next step, … Holland …*
10 *Next, … France …*
11 *Next, … England …*
12 *And later, … Thailand …*
13 *Therefore, it could be concluded that …*

(Topic: Chinese Tea, Column: History)

From the excerpts, it could be seen that the students knew to use transition signals for generating ideas in writing. They started the paragraphs with certain kinds of transition signals to let the ideas be followed easily. In the excerpt of Subject 20, there were three main ideas found. The subject used the word 'first' to start the new ideas i.e. '*First, the popular characteristic taste…*' for the first main idea which was about *the popular characteristic taste of Thai food in different parts of the country*, '*The first of the Siamese court in Ayutthaya…*' for the second main idea which was about *the culinary heritage*, and '*The first difference of Thai food…*' for the last main idea of the essay which was about *the differences of Thai food in each religious ceremony*.

Similarly, for the excerpt of Subject 21, the word 'first' was also used to start the new ideas i.e. '*At first,…*' for the idea of the origin of tea and '*In the first place,…*' for the idea of its spread. Although it was found that the students were able to use

some transition signals for generating the ideas, it was also found that they could not use various others. The very common and basic ones were mostly and popularly found in students' writing. However, in some cases, there was a variety of transition signals found. For instance, in the excerpt of the subject 21, the subject avoided to repeat the same transition signals by using the time line of its history to identify the new ideas.

Thirdly, according to the language focus of the course, the students succeeded in having an obvious topic sentence in each paragraph. The students used it to control the ideas for a particular paragraph. Mostly, it was found in the first sentence of the paragraph. The following are the illustrations of this certain aspect in the students' writing.

Subject 5:

There are many questions about 'archery', and the answers can be clarified by the method of science. Generally, you can see the feather at the end of the arrows. But, have you ever thought about this? … That is for the arrow's stability when the arrow lances from the bow. The stabilization is very important for the target shooting. For an accurate shooting, the wind's direction and friction of the air have dominant effects. If the arrows have no feather or fletches, they will slant from the shooter's desired path. This causes the aerodynamic effect. …

(Topic: Archery, Column: Frequently Asked Questions)

Subject 37:

The last issue of the column was about the rules of Thai boxing. They are written by 'The World Thai Boxing Association' for the standard in the fighting of Thai boxing. These rules reach the international regulations. The principle rules are the number of round, the dress of boxer and the trainer.

The first rule is about the number of round. Normally, the fight does not exceed five rounds, and a round commonly takes three minutes. The break between the rounds is about two minutes. In case that if there is an accident causing the fight cannot perform, and it is necessary to get the result, there must be more than three rounds, and the result can be decided by points.

(Topic: Thai Boxing, Column: Interesting Facts)

Regarding the above excerpts, it could be mentioned when the students had a topic sentence, the direction of the ideas was controlled and narrowed to a certain point. In other words, there was only one main idea for a paragraph. When the excerpt of subject 37 was considered, it was found that the topic sentences were found in the first sentences in both paragraphs. The rest were the details supporting the topic sentence.

However, in a few cases, the topic sentence was found in the second or third sentence. In the excerpt of subject 5, the topic sentence was in the third sentence which said that '*Have you ever thought why there is the feather at the end of the arrows?*' The other kind of information was the supporting detail which was the answer of the question. It could therefore be said that the students could successfully illustrate an accurate purpose in the use of the topic sentence.

For the last aspect of the language focus of the course the students had achieved, the findings showed that summary and comments were obviously and meaningfully found in the conclusion. The students' excerpts on this performance are provided as follows:

Subject 19:

In conclusion, as talking to Kru (Teacher) 'Oad', we have learned a lot about how to practice Yoga and how to become a Yoga trainer from her tough experiences. Practicing Yoga could be performed in our normal life. Everyone can learn to practice it by self-study or from classes in schools. According to her experience, to me, I have learned that if we know what we love to do or to learn, we should take it and do it best at all cost. That success will, eventually, belong to us.

(Topic: Yoga, Column: Interview)

Subject 31:

In conclusion, from the trip to the Museum of Siam, I have gained a great unforgettable memory. I was very impressed with its new appearance and various arts objects from Thai famous artists. Many visitors I talked to also had the same positive

feelings towards the Museum. In my opinion, The Museum of Siam has to be more promoted that there is a variety of knowledge provided, and it is not a boring place anymore. I hope you will enjoy there as all of my stories.

(Topic: Museums in BKK, Column: Anecdote)

From the above excerpts, it shows that the students knew how to include the summary of the content in the initial part of the conclusion. Afterwards, the comments on a particular column were provided. For the excerpt of Subject 19, she left a slogan or a viewpoint she had gained from the interview as the comment to motivate people's inspiration in doing something.

For the other excerpt of Subject 31, the case was similar. After the summary, it was the comment about calling for attention for the value and conservation of a particular thing. From these two cases, although the students used the comments with different purposes, it could be seen that they had the purposes in giving comments and sharing their own feelings and attitudes with the readers.

According to the four main areas of the language focus of the course, from the findings, it could be mentioned that the students had the full realization and very good performance on that particular language focus in writing. This corresponded well to the first hypothesis in Chapter1.

4.4 The Results of the Students' Writing Achievement for the Experimental and Control Groups

4.4.1 The Results of the Students' Writing Achievement for the Experimental and Control Groups

The experimental and control groups produced essays and took the tests. The results showed that the students' writing achievement of the experimental group was higher than those of the control groups. The data are presented as follows:

Table 4.4 The Results of the Students' Writing Achievement for the Experimental and Control Groups

Groups	Sources	Scores	Mean	SD	n
Experimental	Writing task	20	17.27	1.46	41
	*Tests	40	32.39	4.35	41
Control	Writing task	20	15.94	1.45	43
	*Tests	40	30.27	6.52	43

Note: Scores of the tests included quiz (10) and final examination (30).

Table 4.4 shows that the students' writing achievement of the experimental group on producing a writing task and on the test was higher than those of the control group. In addition, to examine whether the students' writing achievement increased significantly, the scores among students' fields of study of each group were compared and calculated for statistical differences. The results are presented in Table 4.5 and 4.6.

Table 4.5 The Statistical Differences for the Experimental Group regarding Students' Fields of Study

Experimental Group	Independent-Samples T-Test							
	Mean	SD	Mean Difference	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Writing task								
1A	18.20	1.08	1.46	0.67	2.26	3.748	35.55	.001
1B	16.73	1.40						
Tests								
1A	36.05	1.94	5.77	3.91	7.64	6.279	38.39	.000
1B	30.27	3.92						

1 = Experimental group, A = Engineering students, B = Industrial education and technology students

$p \leq .01$

Table 4.6 The Statistical Differences for the Control Group regarding Students' Fields of Study

Control Group	Independent-Samples T-Test							
	Mean	SD	Mean Difference	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Writing task								
2A	16.62	1.01	2.46	1.89	3.02	8.918	28.42	.000
2B	14.16	0.71						
Tests								
2A	32.91	3.94	9.47	4.86	14.09	4.410	13.77	.001
2B	23.43	7.02						

2 = Control group, A = Engineering students, B = Industrial education and technology students

$p \leq .01$

According to Table 4.5 and 4.6, it is apparent that there were significant differences between students' fields of study and the scores of writing tasks and tests of both experimental and control groups at the level of .01. This also indicated that the students who studied writing through problem-based learning approach had a better writing achievement.

4.4.2 The Results of Comparison of the Students' Writing Achievement for the Experimental and Control Groups

The students' fields of study and the mean scores of the writing tasks and the tests of the experimental and control groups were compared with the analysis of variance or the ANOVA model. Table 4.7 and 4.8 present the results to show that there were significant differences.

Table 4.7 The Results of Comparison between Students' Achievement in Writing and the Fields of Study for the Experimental and Control Groups

Groups	n	Mean	SD		Sum of Squares	df	Mean Square	F	Sig.
1A	15	18.20	1.08	Between Groups	109.914	3	36.638	28.689	.00
1B	26	16.73	1.40						
2A	31	16.62	1.01	Within Groups	102.166	80	1.277		
2B	12	14.16	0.71						
Total	84	16.58	1.59	Total	212.080	83			

1 = Experimental group, 2 = Control group and A = Engineering students, B = Industrial education and technology students

p ≤ .01

Scheffe

Groups	$\overline{x}$	1A	1B	2A	2B
		18.20	16.73	16.62	14.16
1A	18.20	-	1.4692*	1.5710*	4.0333*
1B	16.73		-	0.1017	2.5641*
2A	16.62			-	2.4624*
2B	14.16				-

1 = Experimental group, 2 = Control group and A = Engineering students, B = Industrial education and technology students

p ≤ .01

Table 4.7 shows that the mean of writing task scores of the engineering students of the experimental group was highest at 18.20. The lower mean scores were 16.73, 16.62, and 14.16 belonging to the industrial education and technology experimental group, the engineering control group and the industrial education and technology control group respectively.

From the analysis of variance (ANOVA), it was found that there were significant differences between the mean scores of the writing tasks and the students' fields of study between the experimental and control groups at the level of .01.

From the analysis of Scheffe, there were five significantly different pairs at the level of .01: (1A, 1B), (1A, 2A), (1A, 2B), (1B, 2B), and (2A, 2B). The mean of 1A (18.20) was higher than those of 1B (16.73), 2A (16.62) and 2B (14.16). The mean of 1B (16.73) was higher than 2B (14.16), and the mean of 2A (16.62) was higher than 2B (14.16).

Table 4.8 The Results of Comparison between Students' Achievement on Tests and the Fields of Study for the Experimental and Control Groups

Groups	n	Mean	SD		Sum of Squares	df	Mean Square	F	Sig.
1A	15	36.05	1.94	Between Groups	1189.464	3	396.488	21.875	.00
1B	26	30.27	3.92						
2A	31	32.91	3.94	Within Groups	1450.014	80	18.125		
2B	12	23.43	7.02						
Total	84	31.30	5.63	Total	2639.478	83			

1 = Experimental group, 2 = Control group and A = Engineering students, B = Industrial education and technology students

$p \leq .01$

Table 4.8 The Results of Comparison between Students' Achievement on Tests and the Fields of Study for the Experimental and Control Groups (Continued)

Scheffe

Groups		1A	1B	2A	2B
	$\bar{x}$	36.05	30.27	32.91	23.43
1A	36.05	-	5.7795*	3.1428	12.6208*
1B	30.27		-	2.6366	6.8413*
2A	32.91			-	9.4780*
2B	23.43				-

1 = Experimental group, 2 = Control group and A = Engineering students, B = Industrial education and technology students

$p \leq .01$

Table 4.8 shows that the mean score of the tests of the engineering students of the experimental group was highest at 36.05. The lower mean scores were 32.91, 30.27 and 23.43 belonging to the engineering control group, the industrial education and technology experimental group and control group respectively.

From the analysis of variance (ANOVA), it was found that there were significant differences between the mean scores of the tests and the students' fields of study between the experimental and control groups at the level of .01.

From the analysis of Scheffe, there were four significantly different pairs at the level of .01: (1A, 1B), (1A, 2B), (1B, 2B), and (2A, 2B). The mean of 1A (36.05) was higher than those of 1B (30.27) and 2B (23.43). The mean of 1B (30.27) was higher than 2B (23.43), and the mean of 2A (32.91) was higher than 2B (23.43).

Briefly, the above tables show that there were significant differences between the students' achievement on writing and the tests among students' fields of study of the experimental and control groups at the level of .01. Most importantly, the mean scores of the writing tasks (17.27) and the tests (32.39) of the experimental group were higher than those of the control group which was 15.94 and 30.27 respectively. The results corresponded well to the first hypothesis as stated in Chapter 1.

4.5 The Results of Students' Attitudes towards Language Learning through Problem-based Learning

4.5.1 The Results of the Questionnaire

To investigate the attitudes of students towards the implementation of problem-based learning approach, the researcher collected the data by using a five-point rating scale questionnaire. The collected data from the five-point rating scale

questionnaire was calculated for the arithmetic mean. The results of the analysis are presented in Table 4.9 and 4.10 below.

Table 4.9 The Results of Students' Attitudes on Learning through the Problem-based Learning Approach for the Main Aspects

Statements	$\bar{x}$	SD
Knowledge gained	3.64	0.77
Effectiveness of the PBL unit	3.53	0.79
Self-study	3.01	0.88
Working in groups	3.82	0.70
Total	**3.50**	**0.78**

Table 4.9 demonstrates that the students expressed good attitudes towards problem-based learning approach (3.50). The results revealed that the students had very positive attitudes towards learning through teamwork (3.82). This substantiated the results from the formative assessments of problem-based learning unit which illustrated that the students preferred the process of working in groups since they could share and help each other to learn. Moreover, regarding the results from self and peer assessment, it was revealed that the students learned best when they worked in groups. According to individual items of the questionnaire, the results are provided in detail in Table 4.10.

Table 4.10 The Results of Students' Attitudes on Learning through the Problem-based Learning Approach for Individual Items

Statements	$\bar{x}$	SD
I. Knowledge gained		
1. I have learned many styles of writing.	3.74	0.72
2. I have developed my piece of writing as stated in the outline.	3.87	0.70
3. I have general and thesis statements in the introduction.	4.10	0.68
4. I have topic sentences for all paragraphs to control the content.	3.43	0.68
5. I have a conclusion of content summary and also comments.	3.12	0.89
6. I have acquired new knowledge from class discussions.	4.00	0.92
7. I have gained various kinds of knowledge from the lessons.	3.76	0.87
8. I could retain various kinds of knowledge such as writing organization, vocabulary, grammar, etc. for much longer.	3.43	0.72
9. My thinking skills have been developed.	3.58	0.64
10. Problem-based learning is appropriate for studying English.	3.35	0.90
II. Effectiveness of the PBL unit		
11. The number of problems is appropriate.	3.61	0.81

Table 4.10 The Results of Students' Attitudes on Learning through the Problem-based Learning Approach for Individual Items (Continued)

Statements	$\bar{x}$	SD
12. The amount of content of each problem is reasonable.	3.48	0.76
13. Teaching and learning steps are arranged systematically.	3.74	0.79
14. The evaluation is appropriate.	3.30	0.83
III. Self-study		
15. I could search for information myself.	3.79	0.83
16. I could solve any difficulties by myself.	3.41	0.94
17. I did not need the teacher's help.	1.84	0.87
IV. Working in groups		
18. I could work well with others.	3.79	0.70
19. I have been open to others' opinions.	3.92	0.62
20. Learning through PBL develops my discipline e.g. punctuality, responsibility, etc.	3.74	0.79
Total	**3.55**	**0.78**

From Table 4.10, it is revealed that, according to the knowledge gained, the students could have the general and thesis statements in the introduction (4.10), and they had acquired new knowledge from class discussions (4.0). If the effectiveness of the unit was considered, it was found that the steps of teaching were arranged systematically (3.74). Regarding the mode of self-study, the students mentioned they could search for the information by themselves (3.79). Furthermore, most importantly, every item in the aspect of teamwork was highly rated. The students revealed they learned to share (3.92), work with others (3.79), and develop disciplines (3.74) through problem-based learning approach.

Although the findings illustrated that the problem-based learning approach could promote learning, self-study mode and teamwork atmosphere, the students (3.16) mentioned that they still needed teacher's help.

Nevertheless, the results of the questionnaire, which illustrated the students' positive attitudes towards the implementation of problem-based learning approach, corresponded well to the third hypothesis as stated in Chapter 1.

4.5.2 The Results of the Semi-Structured Interview

The results from the semi-structured interview showed positive responses to the PBL unit in many aspects. All students commented positively on learning through the approach, group work, systematic learning processes and knowledge gained from the independent study. These particular results and others are presented as follows:

With regard to attitudes towards learning by means of the problem-based learning unit, the students (100%) responded positively. The reasons why they liked learning how to write an essay in English by means of the problem-based learning approach were, for example, that the approach was useful since it was a way of increasing their knowledge through independent study. Regarding the mode of independent study, the students said they had opportunities to seek the knowledge which they wanted to know and that it served their needs. The students' comments are:

Subject 24: *'It provides learners opportunities to have an in-depth study. If we have to seriously work hard, we have gained a certain kind of knowledge. … You have to exactly know what you want, so you can do it. It directed to the real learning objectives.'*

Subject 26: *'I think it is good because we know this is the problem, and this is the way to solve it. We still do not know what the problem is since we do not take it serious to study. We will not know what will happen until we study and do it ourselves.'*

Subject 35: *'It helps increase the knowledge and we are enthusiastic to acquire the knowledge. Since I have not known anything before, when I have received the topics to be studied, I have searched for information … , and my knowledge is increased. … By learning in this way, we have to rely on ourselves. Others provide less relevance.'*

When asked about how or when they knew about the language focus they had to study, most of the students (66%) said that they knew what to study through the class discussions. They pointed out that after they had searched for the information about their own problems, they had to present to the class the data of column styles and the language focus. When the process of the discussions was repeated, they began to learn the main concepts. More importantly, when they had to produce the first draft of their essay writing, they (17%) returned to that particular information, and applied it in their writing. A few of them (17%) stated that they learnt about the language focus from the consultations. The students' comments are:

Subject 2: *'Initially, it is confusing … , but I try to do and to search for the information. I am not sure whether it is right or wrong. When I share the information with my friends in class, I know my own problems in writing. When the process is repeated, I know this is what I have to know and study.'*

Subject 28: *'When the teacher asks me to search for the information, I still do not know what I can do with it. However, when I write the essay, I go back to that information again. I know there should be this and that, and I still lack them.'*

Subject 35: *'I know this is what we have to know when we have the presentations of information and share the ideas in class.'*

Regarding the process of PBL they liked the most, the students (100%) stated that they liked the process of teamwork. Through teamwork, they had a chance to share and support each other in many aspects. Moreover, the students provided additional comments which showed that sharing ideas was also another process which played an important role in their learning. They (17%) liked class discussions since they acquired a variety of new information, and they were able to make use of others' ideas to help solve their own problems. Furthermore, there were some students (17%) who said that they liked the consultations provided by the teacher. They said this provided a relaxing and personal atmosphere for learning, and any doubts they had about their learning could be clarified. The students' comments are as follows:

Subject 26: *'I like working in groups. At least, we do not work alone. Sometime, we can think about one certain point, but my friends might be able to think about another.'*

Subject 24: *'I like sharing ideas in class … because I can propose my ideas, and I can share with others.'*

Subject 35: *'I like the consultation because I could have face-to-face consultation with the teacher. If I have any questions, I could ask her.'*

Concerning their difficulties in learning and the ways to solve their problems, most of the students (67%) said they were not confident about the information they had received, so they were not sure about the writing organization. The problem-based learning approach was still new to them. This might be the reason, more or less, why the majority of students said that they needed the teacher's help, and it might also

be the reason why the consultations were needed. Nevertheless, when faced with problems, the students tried to study by themselves and talked to their friends. The following are the students' comments.

Subject 2: *'Starting with the setting of the problems, since we do not know whether the problems we have set are correct, we want the teacher to provide more if it is needed.'*

Subject 24: *'When I face with difficulties, I try to solve them, talk to those who know, and consult with my friends. … It is new in learning in this way'*

Subject 26: *'When I have already received a piece of information and shared with my friends in the class, the teacher does not direct what the right answer is. … It seems we propose the problems and ways to solve them, but the teacher does not say 'yes' or 'no'.'*

Subject 28: *'Initially, we do not understand why the teacher asks us to set the problems and search for the solutions because we still do not know the process of learning. It is confusing. … However, it is eventually better.'*

Subject 35: *'It is nervous. For instance, when I have a presentation and make mistakes, I am awkward since I am not so smart. Since I am a below-average student, I place a lot of attempts, but it still is not good enough. I try to give myself confidence that I have done my best. There is nothing I have to be nervous. … I have never learned in this way before. It is new to me.'*

When asked about the improvement of any the processes used in the problem-based learning approach, the students (100%) stated that all steps had already been systematically arranged and were comprehensible. However, there were a few miscellaneous comments which showed that learning through a problem-based learning approach was time-

consuming. Since there were some students studying in the fourth year, they mentioned they did not have much time to search for information and analyze the data. They suggested the approach should be conducted during their first year of study. Moreover, some students suggested that there should be a group representative for the presentation to avoid chaos and make it more interesting. The students' comments are as follows:

Subject 3: *'It is a time-consuming process, so it might be better to have this kind of study at the first academic year of study.'*

Subject 28: *'When presenting and sharing ideas in class, instead of having everyone to present, it might be more interesting if we have a representative for each group.'*

As for the benefits of learning by means of the PBL approach which they could make use of in the future, the students (100%) said that they had gained more knowledge through the process of independent study. They stated that they felt more confident in learning by themselves. Most importantly, the particular knowledge they had gained would be retained in their memory for a long period of time.

Subject 2: *'I think I could remember this kind of knowledge for years because I learn it by myself.'*

Subject 24: *'It is as we have to synthesize our knowledge. We have to study for it.'*

Subject 28: *'I think I have gained more knowledge comparing with my friends studying in another group. When I talked to them whether they have to search for any kind of information, they said they do not. Thus, I think I have more knowledge. … Besides, I would longer retain this kind of knowledge since I work by myself.'*

Subject 35: *'Learning in this way is better than sitting in a lecture section. If we only listen to the teacher, we will not understand. However, if we do it ourselves, we will comprehend in what we do.'*

From the results of the interview, it was found that the students had positive attitudes towards the problem-based learning unit. It promoted the mode of independent study, and this led to a positive atmosphere of sharing ideas and working in groups. This corresponded well with the third hypothesis as stated in Chapter 1.

4.6 Summary

In short, this chapter revealed the research results in conformity with the stated hypothesis. The results showed that the students' learning achievement where the problem-based learning of the experimental group was implemented was higher than the achievement of the control group. The problem-based learning approach was regarded as an appropriate one for language teaching. Finally, the students had positive attitudes towards the approach. Chapter 5 will present the discussions and conclusions of the study.

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

The present study attempted to design a problem-based learning unit to improve the writing skills of students. This chapter presents the discussions, overview of the study, summary of the results, and conclusions.

5.1 Discussions

In the initial statements of the problems of this study, it was indicated that the students had some problems with writing organization: the thesis statements were rarely found in the introductory part, students came up with many directions of ideas without cohesive devices, topic sentences were hardly stated, and students could not end their essay with an appropriate conclusion. The PBL unit, then, was developed for improving the writing skills of students. The results of the study showed that the students had been successful in the learning. There are four main points to be articulated as follows:

5.1.1 The Development of Peer-teaching Atmosphere

The PBL unit could create the peer-teaching atmosphere. In the process of peer teaching or sharing ideas, the students had learned and gained variety of knowledge according to the authentic examples of the columns and writing organization. In the respect of students' success in learning, it might be because of the fact that the students were provided the opportunity to have an in-depth study for their

own problems. Initially, the students explored their known and unknown areas of column content and writing organization. To clarify their unknown problems, they had to search for information and talk to their friends. By learning in this way, the students, to a certain extent, were ready in the knowledge they had gained and in sharing that with the classmates since it was they who took charge of and were involved in every process of learning. To substantiate the point, Moon (2000) states that peer-teaching allows students to work at their own paces and be successful at what they do since they become more involved in the language-learning process.

Another factor affecting the students' success in learning might be that the peer-teaching approach might reduce the tension and help create a more relaxed learning atmosphere. In traditional classes, it is common for the teacher to take control and do the teaching. This might, to some extent, cause the students' nervousness and affect their contribution and participation in learning. However, it was not the case of the study. In this study, the students had a chance to conduct peer teaching. They felt free to share ideas with their friends. The teacher was there as an observer and helper. It was found that the atmosphere of sharing ideas was active and friendly. A study of Stoddart (1981) shows that the involvement of peers in a learning role can promote lively discussion. Therefore, the aspects mentioned above might be the implications why the students liked and were able to learn through the peer teaching method.

5.1.2 The Development of Language Proficiency among Mixed-ability Students

The quantitative and qualitative results show some improvements in the students' writing ability. This can be seen clearly from the students' writing work.

This shows that the PBL unit was able to develop students' language proficiency. There are four areas of discussions with respect to the development of language proficiency among the different levels of the students who were using the problem-based learning approach.

First, it could be said that group work might be the best method in finding the right place of students' learning. A number of theorists agree that the language proficiency of mixed-ability students can be directly developed through group work (Moon, 2000, Harmer, 1998, Nunan and Lamb, 1996, and Willis, 1996). Through group work, the students' participation could be maximized. Students of different abilities naturally find their own level and ways of coping. The better students can help the weaker ones (Harmer, 1998 and Moon, 2000). In other words, weaker students can benefit by hearing what better students say, and better students improve through having to paraphrase and explain. By learning in this way, the students can help each other to explain things, and/or provide good models of language performance in learning, especially the weaker students. To Moon (2000), the differentiation enables academically weaker students to work successfully on similar types of activities to their peer through supports. Therefore, according to the results of the study, it was not surprising why the students really preferred the method of group work and were able to learn through it.

Apart from the group work that directly helped develop the students' language proficiency, there were other indirect aspects in the nature of PBL approach that might move mixed-ability students towards the development of language proficiency. Omaggio (1986, pp. 44-53) explains the environments that promote proficiency. Some of them might match and explain the phenomena of the study why students'

proficiency in learning was developed and are discussed as the following areas of proficiency development.

Second, opportunities have to be provided for students to practice using language in a range of contexts and functions likely to be encountered in the target culture. A study of Coughlan and Duff (1994) reveal that learners' willingness to go beyond only getting the task over and done with as quickly as possible was highly context dependent. A proficiency-oriented method, thus, gives students ample opportunities to [1] learn language in context and [2] apply their knowledge to coping with real-life situations. Moreover, to reach the intermediate range of proficiency ILR Level 1 and 1+, students need to be able to create with the language.

This hypothesis in promoting proficiency supports the principle of problem-based learning of the study where the students themselves had been provided a chance to conceptualize the purposes and elements of writing organization, and the possible ways in which that particular purposes and writing principles could be applied to other actual academic writing situations. When the students' awareness of these particular points was raised, the writing was more meaningful and realistic. This brought about the development of students' language proficiency.

Third, a proficiency-oriented methodology has to promote active communicative interactions among students. The use of small-group communicative activities that allow students to practice language in context for some simulated or real communicative purposes should lead more readily to the development of language proficiency than do methods that are primarily teacher-centered or that focus mainly on language forms and convergent answers (Omaggio, 1986). This might be because of the fact that the communicative interactions provide the encouragement of linguistic accuracy development.

Recently, the conceptualization of the term ‘proficiency’ includes specifications about the levels of competence attained in terms of the functions performed, the contexts in which the language user functions, and the accuracy with which the language is used. In brief, the interrelated criteria underlying the proficiency descriptions are context, function and accuracy. Since ‘proficiency’ is defined as ‘a high degree of competence through training’ (The American Heritage Dictionary of the English Language, 1978, p. 1045), it refers to somewhat idealized level of competence and performance. A study by Campbell and Wales (1970) reports that the degree of students’ production or understanding of the language is related to the context in which it takes place. Hymes (1972) also puts forward the ideas that the rules of language use are closely related to the rules of social interaction and behavior.

In this study, the students had been provided a situation of the actual communicative interactions for collaborative learning at every stage of their own learning. To start, the students shared their known and unknown areas with their friends. Then, they had to set their own learning objectives, search for information, share those data with their classmates, and summarize solutions. It was obvious that the students comprehended about their purposes in learning. Most importantly, the students had to share problems and successes in preparing outlines, writing and revising columns with their friends until the task was done successfully. It could be seen that all steps of learning involved collaborative learning which promoted active communicative interactions among students. If the students failed to communicate, the success of the work might not be found. Therefore, it could be interpreted that problem-based learning promoted a great degree of communicative interactions and collaboration which, to some extent, gradually led to the development of language proficiency.

Finally, proficiency has to respond to both cognitive and affective needs of students. In terms of cognitive needs, proponents of humanism believe that learning should be aimed at the deeper levels of understanding and personal meaningfulness to be maximally effective. Such humanistic methods emphasize the need to reduce anxiety and tension, which hinder performance and create resistance to natural language acquisition and to learning. Stevick (1980) emphasizes the close relationship between poor performance and anxiety and tension in the learning environment. This relationship corresponds to Krashen's (1982, p. 25) filter hypothesis, based on the concept of the affective filter, which is somewhat similar to a mental block: "With acquirers who do not have self-confidence, where the situation is tense, where they are on the defensive, the filter goes up." When the affective filter goes up, the feelings are conflict, anxiety, aloneness, and a sense of guilt for failing. These feelings are clearly out of harmony with the positive conditions for acquisition (Stevick, 1980). Shiel (1994) shows that when the students' attitudes were changed positively by giving them greater responsibility for their own learning, this, in turn, changed their learning behavior and brought about the success, especially among slow learners.

In this study, it was found that the students had positive attitudes towards the approach. As they said, they liked working in groups, studying by themselves, and sharing ideas with their friends. The positive attitudes placed them into the readiness and willingness areas of learning. As it had been known that the problem-based learning approach demanded a high degree of self-study, the students had to face with many difficulties in learning. Therefore, positive thinking helped move them towards the positive language improvement and achievement.

According to the above evidence in the respect of proficiency, it could be stated that the problem-based learning approach could develop students' language proficiency since it was qualified by those afore-mentioned phenomena. Thus, it was not surprising that the mixed-ability students in the class of problem-based learning approach had a better performance and achievement on learning than those would do in TBL. Most importantly, the key success of student learning came from the cultivation of curiosity in the learner. To Omaggio (1986, p. 26) "the command of a language is a matter of practice. Language learning is overlearning; anything else is of no use."

5.1.3 The Development of Disciplines in Learning

Through collaborative learning, the students consciously and unconsciously developed responsibility and punctuality. Regarding the principle of problem-based learning in which the students are geared to reach a great degree of self-directed learning, they have to plan and manage every step of learning very carefully by themselves. Thus, self-discipline plays an important role of the success in learning.

Brown (2001) points out that learning disciplines could be acquired by various factors, self study being the main factor. Dickinson (1987) puts forward the ideas that self-direction differs from other concepts because it refers to attitudes rather than techniques or modes of instruction. In other words, "success in learning very much depends on learners having a responsible attitude" (Scharle and Szabo, 2000, p. 4). Setting objectives for themselves, students feel more responsible for reaching them (Scharle and Szabo, 2000). Kohonen (1992) points out that, through self-directed learning, students are encouraged to manage their own learning.

From the above evidence, it could be said the problem-based learning approach could develop the disciplines of responsibility and punctuality. These

disciplines brought students towards successful learning. To substantiate the inference, the PBL classroom situations were cited. Since most of students' workloads were conducted outside class hours in a limited time such as searching for the information about column content and writing organization, preparing the outline for column writing, writing columns, and revising drafts, role and duty distributions needed to be well-organized. It could be inferred that successful learning could not be achieved unless the students' self disciplines in learning were well established. Therefore, it could be said that the students had achieved success in learning through the development of self-disciplines. Most importantly, according to the principle of problem-based learning, these disciplines will be retained for a long period of time which, to some extent, facilitates students' life of the real world.

5.1.4 The Request for Teacher's Help and the Possible Answer

Due to the results of the pilot and field study, the students disagreed that they could learn without the teacher, implying that they still needed help. At the very beginning of the learning process, the students mentioned they were not sure whether they could include all unknown problems about column content and writing organization of all members, the objectives to cover all aspects of knowledge they had to study, whether the information they had searched was adequate for the writing principle, and so on. Briefly, the students were not confident with the knowledge they had studied even though all of them showed similar aspects of the knowledge gained from the search. Therefore, they felt they needed teacher's help. Especially at the end of the sharing idea sections, they asked for teacher's comments or conclusions although the teacher might not have thought it to be necessary.

For Moon (2000), if the students are doing the task confidently and successfully, then it is probably time to reduce support. If they are having difficulty,

they may need more support. Support is a kind of help the teacher provides for students “to enable them to carry out language learning activities successfully by themselves” (p. 85). Besides, the principle of problem-based learning also aims to gear students as independent learners. In this study, the teacher’s support, then, should be provided in case of necessity. Thus, there are two possible ways to reduce the need of teacher’s help: building trust among students and providing some training on learning strategies at the very beginning of the course.

5.1.4.1 Building of Trust

According to the students’ need of teacher’s help, it could be said that the students did not trust themselves or their friends, but they trusted their teacher. In PBL, peer teaching is an important aspect of the approach. The atmosphere of security and trust among friends needs to be raised. However, it was not the case of this study. The students might not be familiar with peer teaching. Besides, they might not be confident with knowledge in which there is no right or wrong answer. The students need to be trained so that they are able to trust and learn from their friends.

Legutke and Thomas (1991) believe that the self-confidence of the individual student and trust in others is essential because classroom procedures demand of students’ flexibility, cooperation, willingness to learn in different group formations and ability to accept increasing responsibility for their own learning. Various complex factors affecting building the groundswell of trust are analyzed, for instance, the attitude and behavior of the teacher, the character of the group, etc. A possible way to create trust is to establish the interpersonal behaviors. To promote such characteristics, a certain classroom activity has to involve the free exchange of (personal) information and the involvement of all participants including the teacher.

In this study, it could be interpreted that problem-based learning approach includes the above two aspects, but the involvement of the teacher. Due to the free exchange of information no matter whether that personal is explicitly involved or not, it is successfully conducted through the process of working in groups. In this way, the students could share any aspects of their hopes and fears in learning with their friends. Through sharing feelings, it creates “confidence, particularly to students with low self-esteem” (Moon, 2000, p. 50).

When the aspect of the involvement of all participants including the teacher is considered, it was found that the problem-based learning, as expected, successfully involved the students in their own learning. The teacher, however, acted as organizer (Harmer, 1991) who did not take students’ part on students’ learning. In order to build trust, the teacher’s role should be reconsidered as that of someone who gets more involved in promoting the process of students’ learning, not just as an observer or an organizer. A study of Brown and McIntyre (1993) reveals that a good teacher that the students want should care more about their students’ learning than their own teaching.

To put the concept of teacher’s involvement into practice and improve the PBL unit of the study, the teacher has to take the part of students or be put in the students’ shoes (Wallace, 1991). In other words, the teacher will act as a participant (Harmer, 1991) who works (closely) with other students in performing a task (Wright, 1987). In the process of sharing ideas, the teacher has to act as a student to ask questions and share ideas. The sample illustrations in the respect of column content and writing organization have to be ready in hand for any immediate doubts. This might help narrow the gap between the information the students have searched for and the learning objectives they have set. This might also help fulfill the students’

confidence that the knowledge they have gained regarding column content and writing organization is sufficient. As Stobart (2006) and Crooks (2001) have said, through trust-building, the teacher has to be constructive and encouraging. Likewise, Legutke, and Thomas (1991, p. 292) have said, “a crucial element in trust building is the participation of the teacher as part of the group.” In this way, the students might be able to trust themselves and their friends. When the students’ sense of trust has been already established, their confidence through peer teaching might provide more positive feedback. Thus, the teacher’s help might not be demanded any more. The teacher’s role described in the lesson plan needs to be revised (see Appendix N).

5.1.4.2 Provision of Training on Learning Strategies

The other method to reduce requests for the teacher’s help was to provide the students some training on learning strategies. From the results of the study, some students said they were a bit confused learning by problem-based learning since they were not familiar with learning in which there was no right or wrong answer. Although the results were positive, and it could be inferred that problem-based learning could be implemented in teaching writing, the teacher had to be cautious that learning strategies needed to be provided as a guideline to help students to know how to learn by themselves.

O’Malley and Chamot (1990) identify three types of strategy: *metacognitive* (e.g. organizing, monitoring, and evaluating one’s learning, etc.), *cognitive* (e.g. advance preparation for a class, using a dictionary, listing/categorizing new words, making comparison with other known language, etc.) and *social* (e.g. asking for help, interacting with native speaker, etc.). The students have to be aware of such strategies, and they may benefit from actual training in particular strategies (Willis, 1996).

Scharle and Szabo (2000, p. 8) mention that learning strategies are regarded "as tools to improve one's language competence, and learners can really only be held responsibility for their competence if they are aware of these tools." If the students are helped to discover how and when to use these strategies, they will be brought to the thrilling experience of exploring and expanding their own abilities. The learning strategies should be taught explicitly since it is believed that "awareness and reflection are essential for the development of responsibility" (p. 10). There are a number of studies showing that learners with various levels improved their comprehension and production of a foreign language through strategies-based instruction (Chamot and O'Malley, 1994a, Cohen et al., 1998, Dörnyei, 1995, McDonough, 1995, Nunan, 1996 and Oxford, 1993). A study by Oxford (1996a) puts forward the idea that proficiency differences may have more to do with appropriate choice of strategies. Cohen (1998) and Ehrman and Oxford (1995) also point out that learning strategies are also linked to learning styles, personality, gender and culture.

Scharle and Szabo (2000) suggest various activities aimed at raising students' awareness of learning strategy and opening students' eyes to new ways of thinking about their learning. One of them will be adopted for the sake of the study (see Appendix O). Its purpose is to find out about the students. It is also suggested that the information of the students' existing attitudes to learning and to the foreign language is the starting point for developing responsible attitudes. There are the areas that are explored in order to help students realize how they can contribute to their learning. The activity will be arranged to get the students ready before learning through problem-based learning is started. Then, the lesson plan has to be revised (see Appendix N.)

Briefly, in diminishing the teacher's help, the building of trust and training on learning strategies will be provided. To create trust building, the teacher will act as a student in learning and sharing any learning aspects with the students. This might make the students have more confidence in the knowledge they have learned. For the provision of learning strategies, it will be conducted before the problem-based learning is started in order to give the students concept of how to learn. It is the hope that when the two methods are implemented, the students will have more confidence and be able to learn by themselves more effectively.

5.2 Overview of the Study

5.2.1 Purposes of the Study

This study aimed to design, develop, implement, and evaluate a problem-based learning unit to improve the writing skills of students at KMUTT.

5.2.2 Research Questions

To achieve the purposes of the study mentioned above, the following research questions were asked:

1) What are the elements and considerations in integrating a PBL unit to improve the writing skills of students of LNG104 (Content-based Language Learning I)?

2) Is the PBL unit effective regarding the 80/80 standard?

3) Are there any differences in language learning between the PBL and TBL approaches?

4) Are there significant differences between the students' writing achievement and their fields of study?

5) What are the students' attitudes towards language learning through PBL?

5.2.3 Subjects

The subjects of the study were two intact classes: 84 students, selected by a purposive-sampling method. Both classes consisted of those who were third-year students from the Faculty of Industrial Education and Technology, and fourth-year ones from the Faculty of Engineering. The experimental group where the problem-based learning was implemented consisted of 41 students, and the control group where the task-based learning was conducted consisted of 43 students. They were mixed-ability students regarding their language proficiencies and were around twenty years old. The subjects enrolled LNG104 (Content-based Language Learning I) in the second academic year of 2008.

5.2.4 Research Instruments

Six categories of research instruments: PBL unit, two kinds of formative assessments: PBL unit, and self and peer, students' writing tasks, scores of writing tasks and tests, questionnaire and semi-structured interview, were used to answer the research questions. To answer each research question, one or more instruments were used. The assessment of problem-based learning unit and self and peer assessment which were designed as formative assessments were used to answer Research Question 1. The criteria of the 80/80 standard level for determining the effectiveness of the PBL unit was used to answer Research Question 2. Students' writing tasks and the scores on writing tasks and tests, which were derived from quiz and final exam, were used to answer Research Question 3. Questionnaire and semi-structured interview were used to answer Research Question 4.

5.2.5 Research Procedure

In order to develop a problem-based learning unit to improve the writing skills of students, there are two main parts which are as follows:

5.2.5.1 Procedures for Developing the Instructional System Model and Determining of the Effectiveness of the Problem-based Learning Unit

There were six main stages involved: (1) analysis, (2) PBL syllabus design and development, (3) a field trial of the PBL unit, (4) implementation, (5) assessment, and (6) revision.

For the analysis stage, the problems of the context were analyzed and summarized. The opinions of the students about the needs of a language course were investigated by administering a questionnaire. The needs of the language teachers were ascertained by means of an interview. A target language course was selected. A basic analysis of how to integrate a problem-based learning into a fundamental English course was also conducted.

With regard to the PBL syllabus design and development, the factors in designing a course for the use of the PBL approach for teaching writing were analyzed. The conceptual framework for the study was set up. The factors and the process of the unit were synthesized. To ensure the appropriateness of the factors and the process of the PBL unit, an unstructured interview with an expert in curriculum and instruction in PBL was conducted. The unit was evaluated by the expert.

Regarding the effectiveness of the PBL unit and reliability of the research instruments, a field trial was conducted. The unit and the instruments were piloted with an intact class of 23 IT students at KMUTT in the first academic year of 2008.

The fourth stage was the implementation. The revised PBL unit together with the instruments were implemented with two intact classes of 84 students in Industrial Education and Technology and in Engineering at KMUTT in the second academic year of 2008.

Next was the assessment stage. The effectiveness of the language course with the PBL unit integrated was conducted and analyzed. Revisions were suggested.

Finally, from all of information derived from comments, suggestions, and assessments, all stages including the analysis, objectives, instructional strategy, etc. of the PBL unit were reviewed and re-examined to make it more effective for language teaching.

5.2.5.2 Comparison of English Writing Achievement and Exploration of Students' Attitudes

The comparison of the students' writing achievement in the experimental group where problem-based learning was conducted and the control group where task-based learning was conducted was analyzed. The students' attitudes towards the implementation of the PBL unit were explored. To gather the data, six categories of research instruments were used: the PBL unit, formative assessments, scores of writing tasks and tests, students' writing tasks, questionnaire and semi-structured interview.

5.2.6 Data Analysis

Data obtained for the study were analyzed using both quantitative and qualitative approaches. The quantitative data were analyzed by the criteria of the 80/80 standard level for determining the effectiveness of the unit and by the descriptive statistics including mean, standard deviation, independent-samples T-Test

and the analysis of variance (ANOVA). The qualitative data were read, summarized, and presented in writing.

5.3 Summary of Results

According to data presented in Chapter 4, the research findings can be summarized as follows:

5.3.1 The Results of the Development of the PBL Unit

Due to the data from the assessment of problem-based learning unit where every aspect or process of working through the approach was involved: (1) identifying problems, (2) identifying learning objectives, (3) sharing ideas, (4) summarizing solutions, (5) assessing and (6) working in groups, the effectiveness of the unit was ranked for the processes of working in groups, sharing ideas, assessing, summarizing solutions, identifying problems, and identifying learning objectives respectively. According to the data from the self and peer assessment, it substantiated the above findings that the students could learn best when working in groups.

5.3.2 The Results of the Effectiveness of the PBL Unit based on 80/80 Standard Level

The effectiveness of the problem-based learning unit for teaching the writing skills of KMUTT students was 86.35/80.98 which was higher than the prescribed criteria 80/80.

5.3.3 Students' Writing Performance through PBL Pertaining to the Language Focus of the study

The writing performance of students through problem-based learning was successful regarding the language focus of the course. In writing tasks, the students could illustrate general and thesis statements in the introduction, the use of

appropriate cohesive devices in generating ideas, an obvious topic sentence for a particular paragraph, and summary and comments in the conclusion.

5.3.4 The Results of the Students' Writing Achievement for the Experimental and Control Groups

The students' writing achievement of the experimental group where problem-based learning was implemented was higher than those of the control group where task-based learning was conducted.

5.3.5 The Results of Students' Attitudes towards Language Learning through Problem-based Learning

Students had positive attitudes towards learning through the problem-based learning approach. They liked using teamwork since they were able to help each other learn. Through the use of the PBL unit, they developed learning discipline.

5.4 Conclusions

Two main aspects are presented. One is the pedagogical implications, and the other is recommendations for future research.

5.4.1 Pedagogical Implications

1) Learning through problem-based learning, students need to have basic knowledge of self-directed learning. Learning strategies on that particular aspect have to be also provided so that the students can learn and have confidence in learning through the approach.

2) Students have to be ensured that they have enough knowledge on the principle of problem-based learning before they start their learning.

3) As individual students have different levels of language abilities, their pace of learning varies. Therefore, in grouping, the teacher has to make sure that the above-average students are mixed with the below-average ones for the sake of students' learning.

4) Teachers' illustrations of column content and writing organization should be ready in hand in case of placing students on the right track.

5) Teachers should be provided the workshop or training on the problem-based learning approach before doing the teaching so that they can learn and practice how to put it into practice effectively and successfully. The teachers should also be aware of their role as participants to facilitate students' learning. Schools should support not only teacher training, but also facilitate enough resources for them.

5.4.2 Recommendations for Future Research

1) The research on teaching writing organization through problem-based learning should be further studied to evaluate the plan quality in terms of self-directed learning after learning strategies have been already provided.

2) The plan of this study should be further adapted for the research purposes in the aspect of course design to teach writing.

3) A comparative study of the achievement of students' learning on other English contents through problem-based learning approach should be conducted.

4) There should be further research by implementing the plan with other language skills. The future implementation can bring about some interesting information for plan revision.

In conclusion, since students had problems about writing, the problem-based learning unit was developed to solve the problems. The unit was systematically

assessed throughout the study. There were a number of positive aspects the problem-based learning promoted through students' learning. The unit could not only be implemented in language teaching, but also develop language proficiency among students. The students also had positive attitudes towards the approach. The outcomes of the study are, therefore, beneficial for related schools to adapt or adopt it in language teaching. The plan is still available for further development of course or curriculum design.

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APPENDIX A

Problem Log for Column Writing

Warm-up activity:

Q1: What is problem-based learning (PBL)?
A: *It is the way to use complex and real world problems to motivate students to participate in their own learning and research the concepts they need to know and to learn. Students actively construct their own knowledge through exploration by determining their own knowledge and deciding what is important to them. Learning through PBL makes content much more the means to knowledge than the end.*
Q2: What is the process of PBL?
A: *There are five main stages of the PBL process which is [1] introducing PBL, [2] presenting the problem and setting learning goals, [3] discovering and studying, [4] presenting solutions and [5] reflecting and evaluating progress.*

Activity 1: Identifying problems

Before starting to write an e-zine or a magazine, you have to get to know the differences of various column contents and what writing organization is. You may have lots of known and unknown areas of knowledge with regard to these two aspects.

Instructions:

Think about all of the known and unknown things to do with the column content and writing organization. You can have as many issues as you want, but they must cover all the known and unknown problems of the members.

Activity 1.1 Identifying known and unknown problems of column content

Instructions:

1. Write the name of the column you have selected in the space provided.

2. List the known and unknown areas of that particular column. The following questions could be used as guidelines:

➔ What kinds of columns can I have for my magazine? What is the scope of each column (history/anecdote/opinions, etc.)? What is the writing style of each column? How is the content appropriate with its column? How is the content of each column completely different? How can I generate the ideas for each column? How could I have enough information or sources for each column? Have I realized who the reader of the magazine is? Is the outline of the column necessary? Do I have to follow the outline? …

Columns	**Problems about column content**	
	Known	**Unknown**
1.	-	-
	-	-
	-	-
	-	-
	-	-
2.	-	-
	-	-
	-	-
	-	-
	-	-
3.	-	-
	-	-
	-	-
	-	-
	-	-
4.	-	-
	-	-
	-	-

Columns	Problems about column content	
	Known	**Unknown**
	-	-
	-	-
5.	-	-
	-	-
	-	-
	-	-
	-	-
6.	-	-
	-	-
	-	-
	-	-
	-	-

Activity 1.2 Identifying known and unknown problems of writing organization

Instructions:

List the known and unknown areas of writing organization in the space provided. The following questions could be used as the guidelines:

- What are the problems in writing English? What are the components of an essay? What are the general and thesis statements? Why are the general and thesis statements important and necessary in writing an essay? Where should they be found in the essay? Why is paraphrasing important and how to paraphrase the texts? How can I develop the ideas in writing? How could I link all the ideas together? What is the topic sentence and how does it work? What is a citation and why do I have to use it in writing? How can I write the references? How can I write the conclusion? How can I correct grammatical mistakes? …

Problems about writing an essay in English	
Known	**Unknown**
-	-

Problems about writing an essay in English	
Known	**Unknown**
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Activity 2: Setting learning objectives

To solve the problems that you have mentioned for the column content and writing an English essay, you have to set the learning purposes of how to find the answers to the problems. You may have lots of learning objectives for these two aspects.

Instructions:

Think about all of the learning objectives for the column content and writing organization that you have to study in order to answer your own problems. You can have as many issues as you want, but they must cover all the objectives of the members.

Activity 2.1 Setting learning objectives for column content

Instructions:

List the learning objectives you have to study in order to solve the problems of the column content. Using these objectives, you have to search for further information

in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for column content
-
-
-
-
-
-
-
-
-

Activity 2.2 Setting learning objectives for writing organization

Instructions:

List the learning objectives you have to study in order to solve the problems of writing an English essay. Using these objectives, you have to search for further information in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for writing an essay in English
-
-
-
-
-
-
-
-

Activity 3: Searching for information

Instructions:

1. Go to search for information for your learning objectives.
2. Clearly state the sources of information you have searched for in the space provided.
3. Make copies of all of them or print them out, and bring them to the class for the next time. Use them as the illustrations for your presentation.

3.1 Internet

- Site: _____ Date of search: _____

Owner or controller of the site:

_____

Important information:

_____

_____

- Site: _____ Date of search: _____

Owner or controller of the site:

_____

Important information:

_____

_____

- Site: _____ Date of search: _____

Owner or controller of the site:

_____

Important information:

_____

_____

- Site: _____ Date of search: _____

Owner or controller of the site:

_____

Important information:

_____

_____

3.2 Books

- Reference:

_____

Important information:

_____

_____

- Reference:

_____

Important information:

_____

_____

- Reference:

_____

Important information:

_____

_____

- Reference:

_____

Important information:

_____

_____

3.3 Others

- Other: _____

Reference:

_____

Important information:

_____

_____

- Other: _____

Reference:

_____

Important information:

_____

_____

Activity 4: Summarizing solutions (or what you have learned)

Instructions:

After following the processes of collecting information, sharing ideas with your classmates, and producing a piece of essay writing, please do the following:

1. explain what you have learnt with regard to column content and writing an English essay.
2. list the strongest and weakest points of your writing.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Adapted from Stepien, W.J., Senn, P.R. and Stepien, W.C. (2000). **The Internet and Problem-based Learning: Developing Solutions through the Web**. Tucson, AZ: Zephyr Press.

APPENDIX B

Lesson Plan of Problem Log for Column Writing

This part provides descriptions of how the PBL unit has been conducted. It consists of two main parts: the problem-based learning unit and its lesson plan.

Part I: The problem-based learning unit

Regarding the problem-based learning unit of the study which was designed as a learning unit integrated into a fundamental English course: LNG 104, to teach writing organization, the following were the learning steps of the PBL unit.

Steps	PBL activities	Time spent
Step 1	- Identifying known and unknown problems of column content and writing organization	2 in-class hours
Step 2	- Setting learning objectives for column content and writing organization	2 in-class hours
Step 3	- Searching for information	Outside class (~ a week)
Step 4	- Sharing ideas about column content and writing organization	4 in-class hours (~ a week)
Step 5	- Preparing the outline for column writing	4 in-class hours (~ a week)
Step 6	- Writing columns	Consultation (~ 2 weeks)
Step 7	- Summarizing solutions	2 in-class hours
Step 8	- Wrapping up	2 in-class hours

To clarify how each learning step is conducted, the lesson plan of the PBL unit is given as follows:

Part II: The lesson plan of the problem log for column writing

Skill:	Writing
Topic:	Writing organization
Time:	~7 weeks or 14 lessons (a lesson takes two hours.)
Objectives:	Students will be able to - identify the known and unknown problems about column content and writing organization - set learning objectives in order to clarify unknown problems - search for information from various authentic sources - provide discussions of knowledge from the search - summarize solutions of the problems
Language Focus:	- having general and thesis statements in the introduction - generating ideas with appropriate transition signals - having a topic sentence for each paragraph - summarizing the content and giving comments in the conclusion

Step 1: Identifying known and unknown problems of column content and writing organization

Week 5 Lesson 1 Time spent: 2 in-class hours

A.

Warm-up Activity Time spent: 0.20 hour

Warm-up activity:

Q1: What is problem-based learning (PBL)?

A: *It is the way to use complex and real world problems to motivate students to participate in their own learning and research the concepts they need to know and to learn. Students actively construct their own knowledge through exploration by determining their own knowledge and deciding what is important to them. Learning through PBL makes content much more the means to knowledge than the end of it.*

Q2: What is the process of PBL?

A: *There are five main stages of PBL process which is [1] introducing PBL, [2] presenting the problem and setting learning goals, [3] discovering and studying, [4] presenting solutions and [5] reflecting and evaluating progress.*

Objectives:

1. To provide students with an understanding of the problem-based learning concept that they are going to go through.
2. To prepare the students in terms of psychological readiness.

Teaching steps:

1. Introduce the concept of problem-based learning by asking the students what problem-based learning is.
2. Move to question no. 1 and explain the concept of PBL approach.
3. Check students' understanding by asking them about the whole concept of PBL and ask them to compare it with the previous approach they were used to.
4. Move to question no.2 and explain the process of PBL.
5. Ask the students to compare the process of PBL with a task-based learning approach. The teacher has to be sure that the students know how to learn through PBL and check whether they are ready to go through it.

B.

The process of identifying problems Time spent: 1.40 hours

Objectives:

1. To introduce the students to a process of identifying problems.
2. To enable students to attain known and unknown areas of knowledge with regard to column content and writing organization
3. To raise students' awareness on the knowledge of those two particular areas
4. To create an appropriate atmosphere for sharing ideas and working in groups
5. To provide students with initial directions for learning

B1.

Activity 1: Identifying problems Time spent: 0.10 hour

Activity 1: Identifying problems

Before starting to write an e-zine or a magazine, you have to get to know the differences of various column contents and what writing organization is. You may have lots of known and unknown areas of knowledge with regard to these two aspects.

Instructions:

Think about all the known and unknown things to do with the column content and writing organization. You can have as many issues as you want, but they must cover all the known and unknown problems of the members.

Objective:

To introduce the process of identifying problems which is the first stage of the problem-based learning approach

Teaching steps:

1. Introduce the identification of known and unknown problems.
2. Explain what known and unknown problems are and how they are important to students' learning.
3. Explain how the students can learn through this process.

B2.

Activity 1.1 Identifying known and unknown problems of column content

Time spent: 0.45 hour

Activity 1.1 Identifying known and unknown problems of column content

Instructions:

1. Write the name of the column you have selected in the space provided.
2. List the known and unknown areas of that particular column. The following questions could be used as the guidelines:

   What kinds of columns can I have for my magazine? What is the scope of each column (history/anecdote/opinions, etc.)? What is the writing style of each column? How is the content appropriate with its column? How is the content of each column completely different? How can I generate the ideas for each column? How could I have enough information or sources for each column? Have I realized who the reader of the magazine is? Is the outline of the column necessary? Do I have to follow the outline? …

Columns	Problems about column content	
	Known	Unknown
1.	-	-
	-	-
	-	-
	-	-
	-	-

Objective:

To enable students to find out the known and unknown areas of knowledge with regard to column content

Teaching steps:

1. Ask the students to select the column that they want to write for their e-zine or magazine. Each student has to have a different column. The teacher has to tell the students that, for the 'editor's note' column, it is group work. It must be added.
2. Ask the students to write the selected columns in the space provided, including one extra column for the 'editor's note.'
3. Ask the students to discuss with their friends in groups what they know and do not know about the column content. Tell them to write all the problems

in the space provided or in another place if they want to. The students can make use of or copy the guided questions provided in the handout, or they can think about other problems. Make sure that the known and unknown problems of all the members are included. During this activity, the teacher should move around to provide help if necessary.

4. Ask the students to share their known and unknown problems with the classmates so that they can learn, to a certain extent, similar or different aspects. Pertaining to the information presented, the students could add more if they want.

B3.

Activity 1.2 Identifying known and unknown problems of writing organization

Time spent: 0.45 hour

Activity 1.2 Identifying known and unknown problems of writing organization

Instructions:

List the known and unknown areas of writing organization in the space provided. The following questions could be used as the guidelines:

- What are the problems in writing English? What are the components of the essay? What are the general and thesis statements? Why are the general and thesis statements important and necessary in writing the essay? Where should they be found in the essay? Why is paraphrasing important and how to paraphrase the texts? How can I develop the ideas in writing? How could I link all ideas together? What is the topic sentence and how does it work? What is the citation and why do I have it in writing? How can I write the references? How could I write the conclusion? How could I correct grammatical mistakes? …

Problems about writing an essay in English		
Known		**Unknown**
-		-
-		-
-		-
-		-
-		-

Objective:

To enable students to find out the known and unknown areas of knowledge about writing organization

Teaching steps:

1. Ask the students to discuss with their friends what they know and do not know about writing an English essay. Tell them to write all the problems in the space provided or another place if they want. The students can make use of or copy the guided questions provided in the handout, or they can think about other problems. Make sure that all the known and unknown problems of the members are included. During this activity, the teacher should move around to provide some help if necessary.
2. Ask the students to share their known and unknown problems with the classmates. Regarding the information presented, the students should add more if they want.

Note: Do not take it too seriously if the students are not sure about the unknown areas of column content and writing organization or if they are correct or insufficient. They will learn more in the processes of setting learning objectives and sharing ideas in class, and they will eventually know what they need when they have to produce the essay.

Step 2: Setting learning objectives

Week 5 Lesson 2 Time spent: 2 hours

Objectives:

1. To introduce the students to the purpose of the process of setting learning objectives

2. To enable students to attain the learning objectives about column content and writing organization
3. To provide researchable and realistic objectives of learning
4. To create an appropriate atmosphere for self-directed learning
5. To provide students with directions of learning

A1.

Activity 2: Setting learning objectives Time spent: 0.10 hour

---

Activity 2: Setting learning objectives

To solve the problems that you have mentioned for the column content and writing an English essay, first you have to set the learning purposes of how to find the answers of the problems. You may have lots of learning objectives for these two aspects.

Instructions:

Think about all of the learning objectives about the column content and writing organization that you have to study in order to answer your own problems. You can have as many issues as you want, but they must cover all the objectives of the members.

Objective:

To introduce the purpose of setting learning objectives which is the second stage of the problem-based learning approach

Teaching steps:

1. Introduce the purpose of setting learning objectives.
2. Explain what learning objectives are and how they are important to students' learning.
3. Explain how the students can learn through this process.

A2.

Activity 2.1 Setting learning objectives for column content

Time spent: ~ 0.50 hour

Activity 2.1 Setting learning objectives for column content

Instructions:

List the learning objectives you have to study in order to solve the problems of the column content. Using these objectives, you have to search for further information in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for column content
-
-
-
-
-
-

Objective:

To enable students to attain the learning objectives of column content

Teaching steps:

1. Ask the students to refer to the unknown problems of column content.
2. Tell them to note down what they want to know or study in order to solve these particular problems in the space provided. The students have to be informed that the methods they write have to be researchable and realistic. It should be new knowledge that they really want to know, or it should be uncertainties that need to be clarified.
3. Check whether students' learning objectives cover all the unknown problems of all the members.
4. Ask the students to share their learning objectives with their classmates. Due to the information of the presentation, they can add more if they want.

A3.

Activity 2.2 Setting learning objectives for writing organization

Time spent: ~ 0.50 hour

Activity 2.2 Setting learning objectives for writing organization

Instructions:

List the learning objectives you have to study in order to solve the problems of writing an English essay. Using these objectives, you have to search for further information in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for writing an essay in English
-
-
-
-
-
-

Objective:

To enable students to attain the learning objectives for writing organization

Teaching steps:

1. Ask the students to refer to the unknown problems of writing organization.
2. Tell them to note down what they want to know or study in order to solve these particular problems in the space provided. The students have to be informed that the methods they write have to be researchable and realistic. It should be new knowledge that they really want to know, or it should be uncertainties that need to be clarified.

3. Check whether the students' learning objectives cover all the unknown problems of all the members.
4. Ask the students to share their learning objectives with their classmates. Due to the information of the presentation, they can add more if they want.

Note: The teacher has to be sure that all the groups of students include the main aspects of the language focus of the study. If they miss some important points, provide them with clues to trace back to the guided questions in the handout for the problem identification process. The teacher has to also be sure that, by using these learning objectives, the students will have enough knowledge to write an essay.

Step 3: Searching for information

Week 6 Lesson 1 and 2

Time spent: 4 outside-class hours or one-week outside class

Activity 3: Searching for information

Time spent: 4 outside-class hours or one-week outside class

Activity 3: Searching for information

Instructions:

1. Go to search for information for your learning objectives.
2. Clearly state the sources of information you have searched for in the space provided.
3. Make copies of all of them or print them out, and bring them to the class for the next time. Use them as the illustrations for your presentation.

3.1 Internet

- Site: _____ Date of search: _____

Owner or controller of the site: _____

Important information: _____

_____

3.2 Books

- Reference: _____

Important information: _____

_____

3.3 Others

- Other: _____

Reference: _____

Important information: _____

_____

Objectives:

1. To introduce the purpose of the information search process which is the third stage of the problem-based learning approach
2. To provide students opportunities to search for authentic sources of information
3. To prepare the students to be self-directed learners
4. To practice writing citations and references
5. To raise students' awareness of the reliability of the sources

Teaching steps:

1. Explain the purpose of the information search.

2. Ask the students to distribute the roles of searching for information. Individually, each student has to search for the information for their own column. As a group, they have to be responsible for the information for the writing organization.
3. Remind the students to be careful about the authenticity of the sources.
4. Ask them to note down the references or citations they have in the space provided. The teacher has to raise students' awareness on the reliability of the sources they use.
5. Remind the students that they only have 4 outside-class hours or only a week for this search.
6. Ask them to bring all copies of the authentic sources they have searched to the class next time. They have to present the information together with the illustrations they have gained and share ideas with their classmates.

Step 4: Sharing ideas to learn about column content and writing organization

Week 7 Lesson 1 and 2 Time spent: 4 in-class hours

Objectives:

1. To introduce the purpose of the process of sharing ideas which is the fourth stage of the problem-based learning approach
2. To provide students with opportunities to share ideas about the knowledge they have searched for pertaining to the styles of different columns and writing organization
3. To ensure that the knowledge of column content and language focus which the students have to use when writing is successfully presented

4. To create an appropriate atmosphere for peer teaching

Teaching steps:

Week 7 Lesson 1: Sharing ideas about column content Time spent: one hour

1. Explain the purpose of sharing ideas.
2. Ask the students to present the information and examples of the authentic materials they have found about column content. At this stage, the teacher has to guide the students to make sure they fully understand the learning issues. In other words, the teacher can indirectly ask questions to guide them on the main concepts they need to know or to learn. She also has to ensure that the students really have a clear understanding of the differences between each column so that they know how to write the column.
3. Encourage discussion or criticism amongst themselves.
4. Provide some help and feedback if necessary.

Week 7 Lesson 2: Sharing ideas about writing organization Time spent: one hour

1. Ask the students to present the information and examples of the authentic materials they have found about writing organization. At this stage, the teacher has to guide the students towards a good understanding of their learning issues. In other words, the teacher can indirectly ask questions to guide them towards the main concepts they need to know or to learn. She also has to ensure that the students really have an obvious understanding of what the main elements of an essay are and how to have those in the writing. Are there any other important elements for writing? The students' individual problems in writing an English essay have to be clarified.
3. Encourage discussion or criticisms among themselves.

4. Provide some help and feedback if necessary.

Note: At this stage of the students' learning, make sure that the knowledge of the column content and the language focus of the course are successfully delivered. The teacher does not have to worry if the students are not sure if the knowledge they have gained is enough. When the students are asked to write an essay of their column in the following step, they will trace back to this particular information, and they will try to apply it to their writing. At that time, they will realize that their knowledge is or is not adequate. They will be able to search for more knowledge if necessary.

Step 5: Preparing the outline for column writing

Week 8 Lesson 1 and 2 Time spent: 4 in-class hours

Objectives:

1. To introduce the purpose of outline preparation
2. To prepare the information for column writing

Teaching steps:

Week 8 Lesson 1: preparing the first draft of the outline for column writing

Time spent: one hour

1. Explain the purpose of the outline preparation.
2. Ask the students to be selective for the information of their own column. Remind them not to repeat similar kinds of information in columns of the same group. In other words, the main ideas of each column have to be completely different.
3. Tell them that they have to include a variety of information sources for the column writing.

4. When the students finish preparing their outlines, ask them to present their outlines to their classmates.
5. Ask the students to say whether they think the information included in the outline is appropriate or repetitive among the members of a group.
6. Provide feedback if necessary.
7. Ask the students to revise their outline, and prepare to present the revised ideas again for the next lesson.

Note: This step is really time-consuming for having an outline approved since not only the amount of information has to meet the requirements, but also it has to be suitable for the column and the topic. Redundant information is not acceptable. To avoid wasting a great deal of time, the outline should be prepared before the class. The students should be reminded that the language focus of the course should be, to a certain extent, included in the outline. The following outline which is adapted from the handout of LNG103: a fundamental English course, at KMUTT, is provided as an example.

Paragraphs		**Example of an Outline**	
		Topic:	OTOP in Thailand
		Column:	Opinion
A	or B	**I. Introduction**	
1	1	Thesis statement:	…should support OTOP project in Thailand for three reasons
		II. Body	
	2	**Main idea 1:**	to increase family income
2	3		1.1 to do more than one job
3	4		1.2 members of a family can work together
4	5		1.3 examples of real families
	6	**Main idea 2:**	to develop larger business
5	7		2.1 people in a community work together
6	8		2.2 form a company
7	9		2.3 government support training courses
	10	**Main idea 3:**	to increase national income
8	11		3.1 export more products
9	12		3.2 examples
		III. Conclusion	
10	13	Summary:	advantages of OTOP
		Comments:	... the OTOP project is not only a good example in the concept of sufficiency economy, but also helps cultivate Thais' consciousness in the use Thai products for their own benefits and that of the country.

Week 8 Lesson 2: preparing the second draft of the outline for column writing

Time spent: one hour

1. Make sure that the outline has been already revised.
2. Ask the students to present the outline of their own column. Be sure that the main ideas of each column are completely different.
3. Check whether there is a variety of sources of information for the column writing.
4. Ask students to say whether the information included in the outline is appropriate or repetitive.

5. Provide feedback if necessary.
6. Ask the students to revise the second draft of the outline.

Step 6: Writing columns

Week 9 and Week 10

Time spent: 8 outside-class hours or 4 lessons for the consultations

Objectives:

1. To provide students with sufficient time to put their knowledge of writing organization into practice
2. To provide feedback on column writing if necessary

Teaching steps:

1. Give the students time to write their own column.
2. Ask them to follow the main ideas as the statements of the outline.
3. Remind them to include the language focus they have studied in writing i.e. having the general and thesis statement in the introduction, using cohesive devices in generating ideas, including a topic sentence for each paragraph, and summarizing the content and giving comments in the their conclusion.
4. Make appointments with the students in groups. Ask them to report on their progress and also their problems in writing in the consultation sections.
5. Remind the students that they have to submit the first draft of column writing with the attachment of the outline by the end of Week 10.

Step 7: Summarizing solutions

Week 11 Lesson 1 Time spent: 2 in-class hours

Objectives:

1. To introduce the purpose of summarizing the solutions to the problems which is the fifth and the last stage of the problem-based learning approach
2. To raise the students' awareness on their writing performance
3. To evaluate their learning performance

Activity 4: Summarizing solutions (or what you have learned)

Time spent: 2 in-class hours

Activity 4: Summarizing solutions (or what you have learned)

Instructions:

After following the processes of collecting information, sharing ideas with your classmates, and producing a piece of essay writing, please do the following:

1. explain what you have learnt with regard to column content and writing an English essay.

2. list the strongest and weakest points of your writing.

_____

_____

_____

Objectives:

1. To introduce the purpose of summarizing the solution process
2. To raise students' awareness of the knowledge they have gained in the aspects of column content and writing organization
3. To make students aware of their learning performance

Teaching steps:

1. Explain the purpose of summarizing the solutions to the problems.

2. Ask the students to write about what they have learned or gained regarding column content and writing organization. Also ask them to clarify their strengths and weaknesses in writing.

Step 8: Wrapping up

Week 11 Lesson 2 Time spent: 2 in-class hours

Objectives:

1. To provide an extra lesson for wrapping up, following up or making up
2. To provide any feedback, suggestions, or comments about teaching and learning through the problem-based learning approach

Teaching steps:

APPENDIX C

Rubric for Assessing Writing Performance

Instructions: Please evaluate your writing performance by using the rubric below

Marks	Description
17-20	**Full realization of writing task shown by:** - clearly written with very few errors; errors do not interfere with comprehension e.g. accurate vocabulary, word forms, verb tenses, etc. + a variety of accurate sentence types - general and thesis statements clearly and meaningfully illustrated in the introduction - texts paraphrased and sources cited correctly - perfectly or completely relevant ideas + topic sentences obviously found in paragraphs - paragraphs fully and completely developed with appropriate transitions or cohesive devices - summary and comments obviously and meaningfully found in the conclusion **Overall: a very positive effect on the target reader**
13-16	**Good realization of writing task shown by:** - clearly written with few errors; errors do not interfere with comprehension e.g. a few inaccurate uses of vocabulary, word forms, verb tenses, etc. + a variety of sentence types - sufficiency and relevance of general and thesis statements in the introduction - texts paraphrased and sources cited appropriately - strong and relevant ideas + topic sentences logically found in most paragraphs - paragraphs well-developed and well-connected with appropriate transitions or cohesive devices - summary and comments reasonably found in the conclusion **Overall: a positive effect on the target reader**
9-12	**Writing task is reasonably achieved by:** - a few errors; only a few errors interfere with comprehension e.g. occasional problems with word choices, word forms, verb tenses, etc. + a variety of sentence types with occasional errors - reasonable relevance of general and thesis statements in the introduction - most texts correctly paraphrased and most sources correctly cited - ideas clearly stated + topic sentences mostly and reasonably found in some paragraphs - paragraphs related to the thesis statements - paragraphs well-organized with appropriate transitions or cohesive devices - summary and comments partly found in the conclusion **Overall: a satisfactory effect on the target reader**
5-8	**Writing task attempted but not adequately achieved because of:** - many errors; some errors may interfere with comprehension e.g. inaccurate word forms, verb tenses, etc. + some problems with limited vocabulary and sentence types - insufficiency of general and thesis statements in the introduction - texts paraphrased and sources cited inappropriately - insufficiency and/or irrelevance of ideas + topic sentences sometimes found in a few

	paragraphs - paragraphs not related to the thesis statements - paragraphs not well-connected; some cohesive devices missing or used inappropriately - summary and comments hardly found in the conclusion **Overall: message not clearly communicated to the target reader**
1-4	**Writing task not achieved because of:** - numerous errors often interfere with comprehension e.g. inappropriate word forms, verb tenses, etc. + simple and repetitive vocabulary and sentence types may not be appropriate for writing - irrelevance of general and thesis statements in the introduction - texts copied without paraphrasing and sources never cited - irrelevance of ideas + no topic sentences found in any paragraph - paragraphs not clearly related to the thesis statements - paragraphs not well-organized or not connected to each other + transitions or cohesive devices hardly found - summary and comments never found in the conclusion **Overall: a very negative effect on the target reader**

Adapted from Weigle, S.C. (2002). **Assessing Writing**. Cambridge: Cambridge University Press

APPENDIX D

Assessment Form for the Problem-based Learning Unit

Instructions: Please give comments and suggestions on the following processes of learning to make problem-based learning (PBL) more effective for language learning.

1. The process of identifying known and unknown problems

_____

_____

_____

2. The process of identifying learning objectives

_____

_____

_____

3. The process of sharing ideas with classmates

_____

_____

_____

4. The process of summarizing solutions

_____

_____

_____

5. The process of self and peer assessment

_____

_____

_____

6. The process of working in groups

_____

_____

_____

7. Any other comments and suggestions to improve language learning through PBL

_____

_____

APPENDIX E

Self and Peer Assessment Form for Problem-based Learning

Group/Topic: _____ Name: _____ _ Student ID: _____

Instructions: Please evaluate your performance in learning regarding the following aspects by using the criteria provided.

5 = excellent 4 = very good 3 = good 2 = fair 1 = needs improvement

Marks given to the whole group

Criteria		Criteria		Criteria		Criteria	
1. Identifying problems		**2. Identifying learning objectives**		**3. Summarizing solutions**		**4. Working in groups**	
- realistic problems		- clearly set learning objectives		- clearly answer the questions		- support opinions of members	
- researchable problems		- cover all of what is to be learnt		- include new ideas for discussion		- distribute equal roles	
- clearly state the problems		- seek new knowledge		- state problem-solving process		- help each other with learning	
- include key elements		- address the problem issues		- state strongest and weakest points		- control the time limit	
- cover all aspects of problems		- include enough sources		- state further applications		- can work independently	
Total (25)		**Total (25)**		**Total (25)**		**Total (25)**	

[1] Total marks 5% (100÷20) =

Marks given to the individual student

	1.	2.	3.	4.	5.	6.
1. Identifying problems						
2. Identifying learning objectives						
3. Summarizing solutions						
4. Cooperating with others						
Total (20)						
[2] Total 5% (20÷4) =						

Total [1] + [2] 5% (10÷2) =						

APPENDIX F

Questionnaire

Improving English Writing by Problem-based Learning

This questionnaire aims at investigating students' attitudes towards the use of problem-based learning in writing an English essay e.g. writing organization, getting main ideas, editing, etc. This also includes any difficulties or suggestions for PBL. Please answer the following questions.

Instructions: Put a tick (✓) in the box which best matches your attitudes.

5 = strongly agree 4 = agree 3 = slightly agree 2 = disagree 1 = strongly disagree

Part I: Attitudes towards studying writing an English essay with PBL

1.1 Knowledge gained and writing improvement

Aspects to be investigated	5	4	3	2	1
1. I have learned many styles of writing.					
2. I have developed my piece of writing as stated in the outline.					
3. I have general and thesis statements in the introduction.					
4. I have topic sentences for all paragraphs to control the content.					
5. I have a conclusion of content summary and also comments.					
6. I have acquired new knowledge from class discussions.					
7. I have gained various kinds of knowledge out of the lessons.					

8. My thinking skills have been developed.					
Aspects to be investigated	5	4	3	2	1
9. I could retain various kinds of knowledge such as writing organization, vocabulary, grammar, etc. for much longer.					
10. Problem-based learning is appropriate for studying English.					
1.2 Effectiveness of the PBL unit **1.2.1 The unit** 11. The number of problems is appropriate.					
12. The amount of content of each problem is reasonable.					
13. Teaching and learning steps are arranged systematically.					
14. The evaluation is appropriate.					
1.2.2 Self-study 15. I could search for information myself.					
16. I could solve any difficulties by myself.					
17. I did not need the teacher's help.					
1.2.3 Working in groups 18. I could work well with others.					
19. I have been open to others' opinions.					
20. Learning through PBL develops my discipline e.g. punctuality, responsibility, etc.					

Part II: Please identify any difficulties and suggestions in the use of problem-based learning in studying English.

_____

_____

_____

_____

Thank you for your cooperation

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แบบสอบถาม

เรื่อง การเรียนโดยใช้ปัญหาเป็นฐานเพื่อช่วยปรับปรุงการเขียนภาษาอังกฤษ

แบบสอบถามนี้มีวัตถุประสงค์เพื่อสำรวจทัศนคติของนักศึกษาที่มีต่อการใช้ปัญหาเป็นฐานเพื่อศึกษาวิธีการเขียนความเรียงภาษาอังกฤษ เช่น รูปแบบการเขียนความเรียง การจับใจความสำคัญ การใช้ไวยากรณ์ที่ถูกต้อง ตลอดจนปัญหาต่าง ๆ ที่นักศึกษาประสบเมื่อครูผู้สอนใช้ปัญหาเป็นฐานเพื่อเป็นสื่อในการเรียนการสอนและข้อเสนอแนะอื่น ๆ เพื่อนักศึกษาสามารถเรียนภาษาอังกฤษโดยใช้ปัญหาเป็นฐานได้อย่างราบรื่น ขอให้นักศึกษาใช้เวลาอ่านและตอบคำถามให้ครบถ้วนและตรงกับความเป็นจริง

<u>คำสั่ง</u>: **กรุณาทำเครื่องหมายถูก ✓ หน้าข้อที่ตรงกับความเป็นจริงหรือความรู้สึกของนักศึกษามากที่สุด**

5 = เห็นด้วยมากที่สุด 4 = เห็นด้วย 3 = ค่อนข้างเห็นด้วย 2 = ไม่เห็นด้วย 1 = ไม่เห็นด้วยมากที่สุด

ตอนที่ 1 ทัศนคติของนักศึกษาที่มีต่อการเขียนภาษาอังกฤษโดยการใช้ปัญหาเป็นฐาน

1.1 ด้านความรู้ที่ได้รับและพัฒนาการทางด้านการเขียน

การเรียนโดยใช้ปัญหาเป็นฐานทำให้	5	4	3	2	1
1. ฉันได้เรียนรู้รูปแบบการเขียนที่หลากหลาย					
2. ฉันพัฒนาเนื้อหาตามโครงร่าง (outline)					
3. ฉันเขียนคำนำโดยมี general and thesis statements					
4. ฉันเขียนโดยมีประโยคใจความสำคัญในทุกย่อหน้า เพื่อควบคุมเนื้อหา					
5. ฉันเขียนบทสรุปได้อย่างถูกต้อง โดยสรุปเนื้อหาและแสดงความคิดเห็น					
6. ฉันได้เรียนรู้สิ่งใหม่ ๆ จากการอภิปรายในห้องเรียน					
7. ฉันได้ความรู้ที่หลากหลายนอกเหนือจากในบทเรียน					
8. ฉันมีพัฒนาการด้านความคิด เช่น คิดอย่างมีเหตุผล, คิดอย่างมีระบบ,..					
9. ฉันจดจำความรู้ต่าง ๆ ได้ดีขึ้น เช่น การเขียนความเรียง, คำศัพท์, ไวยากรณ์, ...					
10. วิธีการเรียนนี้เหมาะสมกับการเรียนการสอนวิชาภาษาอังกฤษ					

1.2 ด้านการใช้โจทย์ปัญหา

ทัศนคติในด้านต่างๆ	5	4	3	2	1
1.2.1 **ประสิทธิภาพของการใช้โจทย์ปัญหา**					
11. จำนวนโจทย์ปัญหานั้นเพียงพอ					
12. เนื้อหาในแต่ละโจทย์ปัญหาเพียงพอ					

1.2 ด้านการใช้โจทย์ปัญหา

ทัศนคติ ในด้านต่างๆ	5	4	3	2	1
1.2.1 **ประสิทธิภาพของการใช้โจทย์ปัญหา**					
13. วิธีการเรียนการสอนโดยใช้โจทย์ปัญหาไปเป็นอย่างมีระบบ					
14. วิธีการวัดผลการเรียนโดยใช้โจทย์ปัญหามีความเหมาะสม					
1.2.2 **การเรียนรู้ด้วยตนเอง** 15. ฉันสามารถเรียนและสืบค้นข้อมูลด้วยตนเองได้					
16. ฉันสามารถแก้ไขปัญหาต่าง ๆ ในการทำงานด้วยตนเองได้					
17. ฉันไม่ต้องการความช่วยเหลือจากครู					
1.2.3 **การทำงานเป็นกลุ่ม** 18. ฉันสามารถปรับตัวเข้ากับเพื่อน ๆ ได้					
19. ฉันแลกเปลี่ยนและยอมรับฟังความคิดเห็นของคนอื่น					
20. วิธีการเรียนนี้ทำให้ฉันมีวินัยในการทำงาน เช่น ตรงต่อเวลา, รับผิดชอบ					

ตอนที่ 2 กรุณาระบุปัญหาที่ท่านพบ และให้ข้อเสนอแนะ ในการใช้ปัญหาเป็นฐานเพื่อเป็นสื่อในการเรียนการสอนวิชาภาษาอังกฤษ

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_____

ขอบคุณที่ให้ความร่วมมือ

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APPENDIX G

Questions of the Semi-structured Interview

1. What do you think about learning through a problem-based learning approach?
2. Did you realize the language focus of what you needed to learn? If yes, when? If not, why not?
3. Which process did you like the most? Why?
4. With which process of learning did you have difficulties? How could you solve them?
5. In which aspect(s) does the approach need to be improved?
6. In which aspect(s) do you think this experience will be beneficial to your future?

APPENDIX H

The Results of the Effectiveness of the PBL Unit based on the 80/80 Standard Level of the Pilot Study

Subject no.	Marks		
	Writing task (20%)	Quiz (10%)	Final exam (30%)
1	16.25	7.25	23.625
2	16.5	5.5	23.25
3	18	8	26.25
4	16.25	6.5	26.25
5	17.25	8	25.125
6	14.25	8.75	24
7	17	10	28.5
8	15.25	8.5	27.75
9	19	8.25	28.5
10	15.75	8	21.375
11	19	4.75	15.75
12	17	8.25	24.5625
13	19.5	8.25	24.9375
14	16.75	9.5	24
15	15.5	8.5	30
16	14.5	5.25	19.875
17	14.75	8.5	19.875
18	16.25	5.75	24.375
19	15	8	29.25
20	14.25	8.25	21.375
21	15.25	8.25	24.75
22	14.75	8.5	25.5
23	15.25	4.5	21.1875
	16.23	**7.61**	**24.3506**

Regarding the formula of the 80/80 standard level,

$$E1 = \frac{\bar{X}}{A} \times 100 \rightarrow \frac{16.23}{20} \times 100 = 81.15$$

$$E2 = \frac{\bar{X}}{B} \times 100 \rightarrow \frac{31.9606}{40} \times 100 = 79.9015$$

The effectiveness of the PBL unit based on the criteria standard level was 81.15/79.90.

APPENDIX I

Table for Determining Sample Size from a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

N = population size

S = sample size

Adapted from Krejcie, R.V. and Morgan, D.W. (1970). Determining Sample Size for Research Activities. **Education and psychological measurement**. 30 (3): 607-608.

APPENDIX J

Questionnaire of Needs Analysis

No. of questionnaire _____

Objectives: This questionnaire is to investigate your needs towards an English course you want to study in order to improve your language proficiency. The data obtained will be beneficial to the development of an English course which will serve your needs best.

Instructions: Please put a tick (✓) in front of the answer which best matches your opinions.

Part I: Personal information

1. Sex: ☐ male ☐ female

2. Year of Study: ☐ first ☐ second ☐ third ☐ fourth ☐ other _____

Part II: If an English course could be provided for you to have a further study for your language improvement, what kind of language aspects would you prefer to study? You can choose more than one answer and please specify examples or give reasons.

☐ 1. Grammar or _____

because _____

☐ 2. Listening and Speaking or Conversation or _____

because _____

☐ 3. Writing or _____

because _____

☐ 4. Reading or _____

because _____

☐ 5. English for specific purposes e.g. English for employment, English for tourism, etc. or _____

because _____

☐ 6. Others e.g. TOEFL, IEFL, TOEIC, etc. or _____

because _____

Part III: Suppose an English course that you want to have for further study could be provided, what kind of the course should it be?

☐ fundamental ☐ elective ☐ training ☐ other _____

Other comments: _____

เลขที่แบบสอบถาม _____

แบบสอบถาม

วัตถุประสงค์: แบบสอบถามฉบับนี้มีวัตถุประสงค์เพื่อต้องการสำรวจความต้องการของท่าน เกี่ยวกับคอร์สวิชาภาษาอังกฤษที่ท่านต้องการเรียนเพิ่มเติม เพื่อพัฒนาความสามารถทางด้านภาษาอังกฤษ ข้อมูลที่ได้รับจะเป็นประโยชน์อย่างยิ่งต่อการเปิดคอร์สภาษาอังกฤษที่ตรงกับความต้องการของท่านมากที่สุด

คำสั่ง: กรุณาใส่เครื่องหมาย (✓) หน้าคำตอบที่ตรงกับความรู้สึกของท่านมากที่สุด

ตอนที่ 1: ข้อมูลส่วนบุคคล

1. เพศ ☐ ชาย ☐ หญิง

2. เรียนชั้นปีที่

☐ หนึ่ง ☐ สอง ☐ สาม ☐ สี่ ☐ อื่น ๆ _____

ตอนที่ 2: หากมีการจัดคอร์สภาษาอังกฤษ เพื่อพัฒนาความสามารถทางด้านภาษาอังกฤษของท่าน ทักษะภาษาด้านใดที่ท่านต้องการเรียน ท่านสามารถเลือกตอบได้มากกว่า 1 ข้อ โปรดระบุตัวอย่าง หรือให้เหตุผลเพิ่มเติม

☐ 1. ไวยากรณ์ หรือ _____

เพราะ _____

☐ 2. การฟังและการพูด หรือ สนทนา หรือ _____

เพราะ _____

☐ 3. การเขียน หรือ _____

เพราะ _____

☐ 4. การอ่าน หรือ _____

เพราะ _____

☐ 5. ภาษาอังกฤษเฉพาะด้าน เช่น ภาษาอังกฤษเพื่อการสมัครงาน, ภาษาอังกฤษเพื่อการท่องเที่ยว, และอื่น ๆ หรือ _____

เพราะ _____

☐ 6. อื่น ๆ เช่น TOEFL, IEFL, TOEIC, หรือ _____

เพราะ _____

ตอนที่ 3: ถ้าสามารถเปิดคอร์สภาษาอังกฤษที่ท่านต้องการเรียนได้ ท่านอยากให้เป็นคอร์สประเภทใด

☐ ภาษาอังกฤษพื้นฐาน ☐ เลือกเสรี ☐ คอร์สฝึกอบรม ☐ อื่น ๆ _____

ความคิดเห็นอื่น ๆ: _____

ขอบคุณที่ให้ความร่วมมือ

APPENDIX K

Sampling Size and Results of Needs Analysis

The Sampling Size of the Needs Analysis

Year of students	Total number of students	Sampling size	The actual sampling used
1	2,026	332	381
2	2,478	331	371
3	1,503	306	310
4	1,168	291	298
Total	7,175	1,260	1,360

The Results of the Needs Analysis (n = 1,360)

Item		Frequency	Percent	Valid Percent	Cumulative Percent
Sex	male	1014	74.6	74.6	74.6
	female	346	25.4	25.4	100.0
Year of students	1	381	28.0	28.0	28.0
	2	371	27.3	27.3	55.3
	3	310	22.8	22.8	78.1
	4	298	21.9	21.9	100.0
Grammar	no	717	52.7	52.7	52.7
	yes	643	47.3	47.3	100.0
Listening and Speaking	no	800	58.8	58.8	58.8
	yes	560	41.2	41.2	100.0
Reading	no	1138	83.7	83.7	83.7
	yes	222	16.3	16.3	100.0
Writing	no	779	57.3	57.3	57.3
	yes	581	42.7	42.7	100.0
ESP	no	799	58.8	58.8	58.8
	yes	561	41.3	41.3	100.0
Others	no	960	70.6	70.6	70.6
	yes	400	29.4	29.4	100.0
Course	fund*	438	32.2	32.2	32.2
	elective	198	14.6	14.6	46.8
	training	724	53.2	53.2	100.0

* fundamental English course

APPENDIX L

The Results of Self and Peer Assessment of the Field Study

The Results of Self and Peer Assessment for Group Dynamics (n= 41)

Items	Minimum	Maximum	Mean	Std. Deviation
Identifying problems				
1.1 realistic problems	3.00	5.00	3.9268	.72077
1.2 researchable problems	2.00	5.00	4.0000	.80623
1.3 clearly state the problems	3.00	5.00	3.5610	.59367
1.4 include key elements	2.00	5.00	3.4878	.71141
1.5 cover all aspects of problems	2.00	5.00	3.3902	.70278
Identifying learning objectives				
2.1 clearly set learning objectives	2.00	5.00	3.7317	.59264
2.2 cover all of what is to be learnt	2.00	5.00	3.5854	.70624
2.3 seek new knowledge	3.00	5.00	4.1463	.69141
2.4 address the problem issues	2.00	5.00	3.8049	.67895
2.5 include enough sources	2.00	5.00	4.0000	.80623
Summarizing solutions				
3.1 clearly answer the questions	2.00	5.00	3.6341	.73335
3.2 include new ideas for discussion	2.00	5.00	3.7317	.67173
3.3 state problem-solving process	2.00	5.00	3.6098	.73750
3.4 state strongest and weakest points	2.00	5.00	3.2927	.71568
3.5 state further applications	2.00	5.00	3.6585	.72835
Working in groups				
4.1 support opinions of members	3.00	5.00	4.4634	.63630
4.2 distribute equal roles	2.00	5.00	4.2439	.73418
4.3 help each other with learning	3.00	5.00	4.1220	.64012
4.4 control the time limit	2.00	5.00	3.6829	.72246
4.5 can work independently	2.00	5.00	4.0732	.75466

The Results of Self and Peer Assessment for Individual Dynamics (n= 211)

Items	Minimum	Maximum	Mean	Std. Deviation
identifying problems	2.00	5.00	4.0047	.64363
identifying learning objectives	2.00	5.00	3.8863	.65926
summarizing solutions	2.00	5.00	3.9100	.65206
cooperating with others	2.00	5.00	4.1517	.66600

APPENDIX M

The Results of the Effectiveness of the PBL Unit based on the 80/80 Standard Level of the Field Study

The Results of the Effectiveness of the PBL Unit based on the 80/80 Standard Level of the Field Study

Subject no.	Marks		
	Writing task (20%)	Quiz (10%)	Final exam (30%)
1	19	10	28
2	18	10	26.375
3	19	9.25	27.375
4	18	9.5	24.875
5	18	9	28.5
6	18	10	27.75
7	19	9	24.5
8	19	9	29.125
9	19	8	26.5
10	18	8	26
11	15	9	22.75
12	17	9.25	27.5
13	19	9	27.75
14	19	9.25	27.75
15	18	9.75	28.125
16	17	6.25	23.375
17	15	7.75	27.875
18	15	6.5	25.25
19	16	10	26.875
20	16	6.75	25
21	19	7.75	26.375
22	16	5.25	21
23	15	5.75	21.5
24	15	5.5	25.5
25	18	6	23
26	19	9.25	26
27	18	5.5	22.375
28	17	8.5	24
29	19	6	24.875
30	15	7.75	20.75
31	15	5.75	20.5

32	18	7.75	26.75
33	15	8	25.25
34	17	6	20
35	17	4.75	17
36	16	6.25	20.125
37	18	4.75	19.25
38	16	8	21.5
39	17	6.5	23.875
40	18	5.25	25.25

The Results of the Effectiveness of the PBL Unit based on the 80/80 Standard Level of the Field Study (Continued)

Subject no.	**Marks**		
	Writing task (20%)	**Quiz (10%)**	**Final exam (30%)**
41	18	8.5	28
	17.27	**7.658**	**24.734**

Regarding the formula of the 80/80 standard level,

$$\rightarrow \quad \frac{17.27}{20}$$

$$E1 = \frac{\bar{X}}{A} \times 100 \qquad \times 100 = 86.35$$

$$E2 = \frac{\bar{X}}{B} \times 100 \rightarrow \frac{32.392}{40} \times 100 = 80.98$$

The effectiveness of the PBL unit based on the criteria standard level was 86.35/80.98.

APPENDIX N

The Revised Lesson Plan of Problem Log for Column Writing

Lesson Plan of Problem Log for Column Writing

This part provides descriptions of how the PBL unit has been conducted. It consists of two main parts: the problem-based learning unit and its lesson plan.

Part I: The problem-based learning unit

Regarding the problem-based learning unit of the study which was designed as a learning unit integrated into a fundamental English course: LNG 104, to teach writing organization, the following were the learning steps of the PBL unit.

Steps	PBL activities	Time spent
Step 1	- Training on learning strategies	2 in-class hours
Step 2	- Identifying known and unknown problems of column content and writing organization	2 in-class hours
Step 3	- Setting learning objectives for column content and writing organization	2 in-class hours
Step 4	- Searching for information	Outside class (~ a week)
Step 5	- Sharing ideas about column content and writing organization	4 in-class hours (~ a week)
Step 6	- Preparing the outline for column writing	4 in-class hours (~ a week)
Step 7	- Writing columns	Consultation (~ 2 weeks)
Step 8	- Summarizing solutions	2 in-class hours

To clarify how each learning step is conducted, the lesson plan of the PBL unit is given as follows:

Part II: The lesson plan of the problem log for column writing

Skill:	Writing
Topic:	Writing organization
Time:	~7 weeks or 14 lessons (a lesson takes two hours.)
Objectives:	Students will be able to
	- identify the known and unknown problems about column content and writing organization
	- set learning objectives in order to clarify unknown problems
	- search for information from various authentic sources
	- provide discussions of knowledge from the search
	- summarize solutions of the problems
Language	- having general and thesis statements in the introduction
Focus:	- generating ideas with appropriate transition signals
	- having a topic sentence for each paragraph
	- summarizing the content and giving comments in the conclusion

Step 1: Training on learning strategies

Week 5 Lesson 1 Time spent: 2 in-class hours

Topic: Ready made questionnaire (adopted from Scharle, A. and Szabo, A. (2000). *Learner Autonomy: A Guide to Developing Learner Responsibility*. Cambridge: Cambridge University Press. pp. 16-21.)

Language focus: Reading comprehension

Preparation: Handouts

Objectives:

1. To collect information.

2. To raise students' awareness of the necessary learning strategies.

Teaching steps:

1. Ask the students to fill in the questionnaire in the lesson, or, to save classroom time, assign them for homework. It is not necessary to go over every part of the questionnaire. It depends on the situation.

2. If the teacher finds any of them too difficult for the students to do in a foreign language, a translation should be used.

3. Tell the students that the emphasis of the questionnaire is on the collection of information rather than on language practice. Make it clear that it will not affect their marks in any way so they can fill in the questionnaire as honestly as they can.

4. Ask the students to share their answers in their group. This activity might be converted to an interview in order to create learning atmosphere, or another form depending on the teacher.

5. In a plenary session, ask the students to share what they think are the good and bad characteristics of learning are and why.

6. The following are the descriptions of each part of questionnaire.

Part I: Questionnaire to survey past experience

1. Questionnaire to survey past experience	
Please read the questions carefully and answer as many as you can.	
Did your last language teacher always explain every point to you?	YES / NO / DON'T KNOW
Did you have to guess rules/meanings yourself?	YES / NO / DON'T KNOW
Did your last language teacher ever ask you to work in pairs or groups?	YES / NO / DON'T KNOW
Did your last language teacher usually stand at the front of the class when he/she was teaching?	YES / NO / DON'T KNOW
Did your last language teacher speak the foreign language most of the time in a lesson?	YES / NO / DON'T KNOW

Did you ever have to speak/write about yourself in the English lesson or as homework?	YES / NO / DON'T KNOW
Did you get an extra task or a bad mark if you did not do your homework?	YES / NO / DON'T KNOW
Did you ever have to correct/mark the work of another pupil?	YES / NO / DON'T KNOW
Did your teacher ever ask for your opinion about what to do in the lesson or how you would like to learn?	YES / NO / DON'T KNOW
Did you often use other materials in the lesson (or only the textbook)?	YES / NO / DON'T KNOW
What did you especially like or dislike about the way you were taught?	YES / NO / DON'T KNOW

Description:

Learning styles include perception preferences, which can be grouped into three categories: *auditory* (hearing), *visual* (seeing), and *kinaesthetic* (sensing bodily movement). The last one is sometimes divided into *haptic* (touching) and *emotive* (feeling, which is often connected to body reactions). The teacher may also consider other dimensions in learning styles, like one's attitudes to other people (extraversion or introversion) and preferred routines of logic (deductive or inductive). The following questionnaire is based on a mixture of these dimensions.

Part II: Questionnaire on learning styles

2. Questionnaire on learning styles

Please read the sentences carefully, and tick the ones that apply to you.

a)

In class, I like to learn by playing games.	☐
In class, I like to learn by watching pictures, films, or video.	☐
I like to learn the foreign language by talking in pairs.	☐
I like to go out with the class and practice the foreign language.	☐
At home, I like to learn by using cassettes.	☐
In class, I like to listen and use cassettes.	☐

b)

I like to study grammar.	☐

At home, I like to learn by studying foreign language books.	
I like to study the foreign language by myself (alone).	
I like the teacher to let me find my own mistakes.	
I like the teacher to give us problems to work on.	
At home, I like to learn by reading newspapers.	
c)	
I like to learn by watching, listening to foreign language speakers.	
I like to learn by talking to friends in the foreign language.	
At home, I like to learn by watching TV in the foreign language.	
I like to learn by using the foreign language in shops, on the phone, …	
I like to learn the foreign language words by hearing them.	
In class, I like to learn by practicing conversations.	
d)	
I like the teacher to explain everything to us.	
I want to write everything in my notebook.	
I like to have my own textbook.	
In the foreign language class, I like to learn by reading.	
I like to study grammar.	
I like to learn new words by seeing them.	

Key:

Each group of sentences corresponds to a learning style, as follows: a) Concrete, b) Analytical, c) Communicative and d) Authority oriented. Most students are characterized by a mixture of two or three styles, with a dominant one among them.

Part III: Questionnaire on responsible attitudes

3. Questionnaire on responsible attitudes.

Read the sentences carefully. If you completely agree, circle 6. If you do not agree at all, circle 1.

As for me …	
the reason why I am good (bad) at the foreign language, is because I have had good (bad) teachers.	1 2 3 4 5 6
I know what I should practice more in the foreign language.	1 2 3 4 5 6
I pay more attention to the lesson if we are practicing something I am not so good at.	1 2 3 4 5 6
I want only to survive the language lesson.	1 2 3 4 5 6
sometimes I learn/read things that the teacher did not give as a task.	1 2 3 4 5 6
I do as little as possible for my homework.	1 2 3 4 5 6
it is important for me to learn the foreign language (not only for my parents' sake or for the marks).	1 2 3 4 5 6
As for most of the others in the class …	
the reason why they are good (bad) at the foreign language, is because they have had good (bad) teachers.	1 2 3 4 5 6
they know what they should practice more in the foreign language.	1 2 3 4 5 6
they pay more attention to the lesson if we are practicing something they are not so good at.	1 2 3 4 5 6
they want only to survive the language lesson.	1 2 3 4 5 6
sometimes they learn/read things that the teacher did not give as a task.	1 2 3 4 5 6
they do as little as possible for their homework.	1 2 3 4 5 6
it is important for them to learn the foreign language (not only for their parents' sake or for the marks).	1 2 3 4 5 6

Description:

This section of the questionnaire is divided into two parts: the first one asks questions about the students and the second one about the group in general. The second part may also need further explanation: students should not worry about describing individual classmates, but only the general atmosphere in the class.

Part IV: Questionnaire on attitudes towards learning the foreign language

4. Questionnaire on attitudes towards learning the foreign language

Please read the sentences carefully and finish them with the adverb that best applies to you.

I enjoy learning the foreign language	very much / quite a lot / not much / not at all
In my language learning this year I expect to do	very well / quite well / not badly / poorly
We waste a lot of time in the foreign language class	very often / sometimes / never
In five years' time my command of the foreign language will be	much better / a little better / the same / worse
I like people in my language class	very much / quite a lot / not much / not at all
I would like to visit / have friends from a country where the foreign language is spoken	very much / quite a lot / not much / not at all
I would like to live in a country where the foreign language is spoken	very much / quite a lot / not much / not at all

Is there anything else you find important about your feelings towards the target language, or the people who speak the target language?

_____

Part V: Questionnaire on strengths and weaknesses

5. Questionnaire on strengths and weaknesses

Think about what you can do or cannot do in the foreign language. (For example: talking with another student, filling in grammar tests, speaking without making grammatical mistakes, writing without making grammatical mistakes or spelling mistakes, understanding tape recorded speech, speaking in front of the whole class, speaking with correct pronunciation.) Finish the sentences below giving more than one example if you can.

In the foreign language, I am quite good at _____
_____

In the foreign language, I am fairly good at _____
_____

In the foreign language, I am not so good at _____
_____

In the foreign language, I find it difficult to _____
_____

Is there anything that you are good at, but still keen to improve, or anything that you find difficult, but you don't mind that much? Would you like to add any other comments?

_____

Description:

This part of the questionnaire gives the teacher important information on her students' perception of their command of the foreign language, and it can also be a first step towards getting students to think about their learning.

Step 2: Identifying known and unknown problems of column content and writing organization

Week 5 Lesson 2 Time spent: 2 in-class hours

A.

Warm-up Activity Time spent: 0.20 hour

Warm-up activity:

Q1: What is problem-based learning (PBL)?

A: *It is the way to use complex and real world problems to motivate students to participate in their own learning and research the concepts they need to know and to learn. Students actively construct their own knowledge through exploration by determining their own knowledge and deciding what is important to them. Learning through PBL makes content much more the means to knowledge than the end of it.*

Q2: What is the process of PBL?

A: *There are five main stages of PBL process which is [1] introducing PBL, [2] presenting the problem and setting learning goals, [3] discovering and studying, [4] presenting solutions and [5] reflecting and evaluating progress.*

Objectives:

1. To provide students with an understanding of the problem-based learning concept that they are going to go through.
2. To prepare the students in terms of psychological readiness.

Teaching steps:

1. Introduce the concept of problem-based learning by asking the students what problem-based learning is.

2. Move to question no. 1 and explain the concept of PBL approach.

3. Check students' understanding by asking them about the whole concept of PBL and ask them to compare it with the previous approach they were used to.

4. Move to question no.2 and explain the process of PBL.

5. Ask the students to compare the process of PBL with a task-based learning approach. The teacher has to be sure that the students know how to learn through PBL and check whether they are ready to go through it.

B.

The process of identifying problems Time spent: 1.40 hours

Objectives:

1. To introduce the students to a process of identifying problems.

2. To enable students to attain known and unknown areas of knowledge with regard to column content and writing organization

3. To raise students' awareness on the knowledge of those two particular areas

4. To create an appropriate atmosphere for sharing ideas and working in groups

5. To provide students with initial directions for learning

B1.

Activity 1: Identifying problems Time spent: 0.10 hour

Activity 1: Identifying problems

Before starting to write an e-zine or a magazine, you have to get to know the differences of various column contents and what writing organization is. You may have lots of known and unknown areas of knowledge with regard to these two aspects.

Instructions:

Think about all the known and unknown things to do with the column content and writing organization. You can have as many issues as you want, but they must cover all the known and unknown problems of the members.

Objective:

To introduce the process of identifying problems which is the first stage of theproblem-based learning approach

Teaching steps:

1. Introduce the identification of known and unknown problems.
2. Explain what known and unknown problems are and how they are important to students' learning.
3. Explain how the students can learn through this process.

B2.

Activity 1.1 Identifying known and unknown problems of column content

Time spent: 0.45 hour

Activity 1.1 Identifying known and unknown problems of column content

Instructions:

1. Write the name of the column you have selected in the space provided.

2. List the known and unknown areas of that particular column. The following questions could be used as the guidelines:

   What kinds of columns can I have for my magazine? What is the scope of each column (history/anecdote/opinions, etc.)? What is the writing style of each column? How is the content appropriate with its column? How is the content of each column completely different? How can I generate the ideas for each column? How could I have enough information or sources for each column? Have I realized who the reader of the magazine is? Is the outline of the column necessary? Do I have to follow the outline? …

Columns	Problems about column content	
	Known	Unknown
1.	-	-
	-	-
	-	-
	-	-
	-	-

Objective:

To enable students to find out the known and unknown areas of knowledge with regard to column content

Teaching steps:

1. Ask the students to select the column that they want to write for their e-zine or magazine. Each student has to have a different column. The teacher has to tell the students that, for the ‘editor’s note’ column, it is group work. It must be added.

2. Ask the students to write the selected columns in the space provided, including one extra column for the ‘editor’s note.’

3. Ask the students to discuss with their friends in groups what they know and do not know about the column content. Tell them to write all the problems in the space provided or in another place if they want to. The students can make use of or copy the guided questions provided in the handout, or they

can think about other problems. Make sure that the known and unknown problems of all the members are included. During this activity, the teacher should move around to provide help if necessary.

4. Ask the students to share their known and unknown problems with the classmates so that they can learn, to a certain extent, similar or different aspects. Pertaining to the information presented, the students could add more if they want.

B3.

Activity 1.2 Identifying known and unknown problems of writing organization

Time spent: 0.45 hour

Activity 1.2 Identifying known and unknown problems of writing organization

Instructions:

List the known and unknown areas of writing organization in the space provided. The following questions could be used as the guidelines:

- What are the problems in writing English? What are the components of the essay? What are the general and thesis statements? Why are the general and thesis statements important and necessary in writing the essay? Where should they be found in the essay? Why is paraphrasing important and how to paraphrase the texts? How can I develop the ideas in writing? How could I link all ideas together? What is the topic sentence and how does it work? What is the citation and why do I have it in writing? How can I write the references? How could I write the conclusion? How could I correct grammatical mistakes? …

Problems about writing an essay in English		
Known		**Unknown**
-		-
-		-
-		-
-		-
-		-

Objective:

To enable students to find out the known and unknown areas of knowledge about writing organization

Teaching steps:

1. Ask the students to discuss with their friends what they know and do not know about writing an English essay. Tell them to write all the problems in the space provided or another place if they want. The students can make use of or copy the guided questions provided in the handout, or they can think about other problems. Make sure that all the known and unknown problems of the members are included. During this activity, the teacher should move around to provide some help if necessary.

2. Ask the students to share their known and unknown problems with the classmates. Regarding the information presented, the students should add more if they want.

Note: Do not take it too seriously if the students are not sure about the unknown areas of column content and writing organization or if they are correct or insufficient. They will learn more in the processes of setting learning objectives and sharing ideas in class, and they will eventually know what they need when they have to produce the essay.

Step 3: Setting learning objectives

Week 6 Lesson 1 Time spent: 2 hours

Objectives:

1. To introduce the students to the purpose of the process of setting learning objectives

2. To enable students to attain the learning objectives about column content and writing organization

3. To provide researchable and realistic objectives of learning

4. To create an appropriate atmosphere for self-directed learning

5. To provide students with directions of learning

A1.

Activity 2: Setting learning objectives Time spent: 0.10 hour

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Activity 2: Setting learning objectives

To solve the problems that you have mentioned for the column content and writing an English essay, first you have to set the learning purposes of how to find the answers of the problems. You may have lots of learning objectives for these two aspects.

Instructions:

Think about all of the learning objectives about the column content and writing organization that you have to study in order to answer your own problems. You can have as many issues as you want, but they must cover all the objectives of the members.

Objective:

To introduce the purpose of setting learning objectives which is the second stage of the problem-based learning approach

Teaching steps:

1. Introduce the purpose of setting learning objectives.
2. Explain what learning objectives are and how they are important to students' learning.
3. Explain how the students can learn through this process.

A2.

Activity 2.1 Setting learning objectives for column content

Time spent: ~ 0.50 hour

Activity 2.1 Setting learning objectives for column content

Instructions:

List the learning objectives you have to study in order to solve the problems of the column content. Using these objectives, you have to search for further information in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for column content
-
-
-
-
-
-

Objective:

To enable students to attain the learning objectives of column content

Teaching steps:

1. Ask the students to refer to the unknown problems of column content.
2. Tell them to note down what they want to know or study in order to solve these particular problems in the space provided. The students have to be informed that the methods they write have to be researchable and realistic. It should be new knowledge that they really want to know, or it should be uncertainties that need to be clarified.
3. Check whether students' learning objectives cover all the unknown problems of all the members.
4. Ask the students to share their learning objectives with their classmates. Due to the information of the presentation, they can add more if they want.

A3.

Activity 2.2 Setting learning objectives for writing organization

Time spent: ~ 0.50 hour

Activity 2.2 Setting learning objectives for writing organization

Instructions:

List the learning objectives you have to study in order to solve the problems of writing an English essay. Using these objectives, you have to search for further information in order to find answers to your problems. You can have as many objectives as you want, but they have to cover all the aspects you need to study.

Learning objectives I have to research for writing an essay in English
-
-
-
-
-
-

Objective:

To enable students to attain the learning objectives for writing organization

Teaching steps:

1. Ask the students to refer to the unknown problems of writing organization.
2. Tell them to note down what they want to know or study in order to solve these particular problems in the space provided. The students have to be informed that the methods they write have to be researchable and realistic. It should be new knowledge that they really want to know, or it should be uncertainties that need to be clarified.
3. Check whether the students' learning objectives cover all the unknown problems of all the members.

4. Ask the students to share their learning objectives with their classmates. Due to the information of the presentation, they can add more if they want.

Note: The teacher has to be sure that all the groups of students include the main aspects of the language focus of the study. If they miss some important points, provide them with clues to trace back to the guided questions in the handout for the problem identification process. The teacher has to also be sure that, by using these learning objectives, the students will have enough knowledge to write an essay.

Step 4: Searching for information

Week 6 Lesson 2 and Week 7 Lesson 1

Time spent: 4 outside-class hours or one-week outside class

Activity 3: Searching for information

Time spent: 4 outside-class hours or one-week outside class

Activity 3: Searching for information

Instructions:

1. Go to search for information for your learning objectives.
2. Clearly state the sources of information you have searched for in the space provided.
3. Make copies of all of them or print them out, and bring them to the class for the next time. Use them as the illustrations for your presentation.

3.1 Internet

- Site: _____ Date of search: _____

Owner or controller of the site: _____

Important information: _____

_____

3.2 Books

- Reference: _____

Important information: _____

_____

3.3 Others

- Other: _____

Reference: _____

Important information: _____

_____

Objectives:

1. To introduce the purpose of the information search process which is the third stage of the problem-based learning approach
2. To provide students opportunities to search for authentic sources of information
3. To prepare the students to be self-directed learners
4. To practice writing citations and references
5. To raise students' awareness of the reliability of the sources

Teaching steps:

1. Explain the purpose of the information search.
2. Ask the students to distribute the roles of searching for information. Individually, each student has to search for the information for their own column. As a group, they have to be responsible for the information for the writing organization.
3. Remind the students to be careful about the authenticity of the sources.
4. Ask them to note down the references or citations they have in the space provided. The teacher has to raise students' awareness on the reliability of the sources they use.
5. Remind the students that they only have 4 outside-class hours or only a week for this search.
6. Ask them to bring all copies of the authentic sources they have searched to the class next time. They have to present the information together with the illustrations they have gained and share ideas with their classmates.

Step 5: Sharing ideas to learn about column content and writing organization

Week 7 Lesson 2 and Week 8 Lesson 1 Time spent: 4 in-class hours

Objectives:

1. To introduce the purpose of the process of sharing ideas which is the fourth stage of the problem-based learning approach
2. To provide students with opportunities to share ideas about the knowledge they have searched for pertaining to the styles of different columns and writing organization
3. To ensure that the knowledge of column content and language focus which the students have to use when writing is successfully presented
4. To create an appropriate atmosphere for peer teaching

Teaching steps:

Week 7 Lesson 2: Sharing ideas about column content Time spent: one hour

1. Explain the purpose of sharing ideas.

2. Ask the students to present the information and examples of the authentic materials they have found about column content. At this stage, the teacher has to guide the students to make sure they fully understand the learning issues. In other words, the teacher can indirectly ask questions to guide them on the main concepts they need to know or to learn. She also has to ensure that the students really have a clear understanding of the differences between each column so that they know how to write the column.

3. Encourage discussion or criticism amongst themselves.

4. The teacher has to act as a participant in sharing ideas about writing organization. This is to fill in the students' lack of knowledge and to give them more confidence in their learning.

5. Provide some help and feedback if necessary.

Week 8 Lesson 1: Sharing ideas about writing organization Time spent: one hour

1. Ask the students to present the information and examples of the authentic materials they have found about writing organization. At this stage, the teacher has to guide the students towards a good understanding of their learning issues. In other words, the teacher can indirectly ask questions to guide them towards the main concepts they need to know or to learn. She also has to ensure that the students really have an obvious understanding of what the main elements of an essay are and how to have those in the writing. Are there any other important elements for writing? The students' individual problems in writing an English essay have to be clarified.

3. Encourage discussion or criticisms among themselves.

4. The teacher has to act as a participant in sharing ideas about writing organization. This is to fill in the students' gaps in their knowledge and to acquire confidence in their learning.

5. Provide some help and feedback if necessary.

Note: At this stage of the students' learning, make sure that the knowledge of the column content and the language focus of the course are successfully delivered. The teacher does not have to worry if the students are not sure if the knowledge they have gained is enough. When the students are asked to write an essay of their column in the following step, they will trace back to this particular information, and they will try to apply it to their writing. At that time, they will realize that their knowledge is or is not adequate. They will be able to search for more knowledge if necessary.

Step 6: Preparing the outline for column writing

Week 8 Lesson 2 and Week 9 Lesson 1 Time spent: 4 in-class hours

Objectives:

1. To introduce the purpose of outline preparation

2. To prepare the information for column writing

Teaching steps:

Week 8 Lesson 2: preparing the first draft of the outline for column writing

Time spent: one hour

1. Explain the purpose of the outline preparation.

2. Ask the students to be selective for the information of their own column. Remind them not to repeat similar kinds of information in columns of the same group. In other words, the main ideas of each column have to be completely different.

3. Tell them that they have to include a variety of information sources for the column writing.

4. When the students finish preparing their outlines, ask them to present their outlines to their classmates.

5. Ask the students to say whether they think the information included in the outline is appropriate or repetitive among the members of a group.

6. Provide feedback if necessary.

7. Ask the students to revise their outline, and prepare to present the revised ideas again for the next lesson.

Note: This step is really time-consuming for having an outline approved since not only the amount of information has to meet the requirements, but also it has to be suitable for the column and the topic. Redundant information is not acceptable. To avoid wasting a great deal of time, the outline should be prepared before the class. The students should be reminded that the language focus of the course should be, to a certain extent, included in the outline. The following outline which is adapted from the handout of LNG103: a fundamental English course, at KMUTT, is provided as an example.

Paragraphs		**Example of an Outline**	
		Topic:	OTOP in Thailand
		Column:	Opinion
A	or B	**I. Introduction**	
1	1	Thesis statement:	…should support OTOP project in Thailand for three reasons
		II. Body	
	2	**Main idea 1:**	to increase family income
2	3		1.1 to do more than one job
3	4		1.2 members of a family can work together
4	5		1.3 examples of real families
	6	**Main idea 2:**	to develop larger business
5	7		2.1 people in a community work together
6	8		2.2 form a company
7	9		2.3 government support training courses
	10	**Main idea 3:**	to increase national income
8	11		3.1 export more products
9	12		3.2 examples
		III. Conclusion	
10	13	Summary:	advantages of OTOP
		Comments:	... the OTOP project is not only a good example in the concept of sufficiency economy, but also helps cultivate Thais' consciousness in the use Thai products for their own benefits and that of the country.

Week 9 Lesson 1: preparing the second draft of the outline for column writing

Time spent: one hour

1. Make sure that the outline has been already revised.
2. Ask the students to present the outline of their own column. Be sure that the main ideas of each column are completely different.
3. Check whether there is a variety of sources of information for the column writing.
4. Ask students to say whether the information included in the outline is appropriate or repetitive.
5. Provide feedback if necessary.

7. Ask the students to revise the second draft of the outline.

Step 7: Writing columns

Week 9 Lesson 2 – Week 11 Lesson 1

Time spent: 8 outside-class hours or 4 lessons for the consultations

Objectives:

1. To provide students with sufficient time to put their knowledge of writing organization into practice

2. To provide feedback on column writing if necessary

Teaching steps:

1. Give the students time to write their own column.

2. Ask them to follow the main ideas as the statements of the outline.

3. Remind them to include the language focus they have studied in writing i.e. having the general and thesis statement in the introduction, using cohesive devices in generating ideas, including a topic sentence for each paragraph, and summarizing the content and giving comments in the their conclusion.

4. Make appointments with the students in groups. Ask them to report on their progress and also their problems in writing in the consultation sections.

5. Remind the students that they have to submit the first draft of column writing with the attachment of the outline by the end of Week 10.

Step 8: Summarizing solutions

Week 11 Lesson 2 Time spent: 2 in-class hours

Objectives:

1. To introduce the purpose of summarizing the solutions to the problems which is the fifth and the last stage of the problem-based learning approach

2. To raise the students' awareness on their writing performance

3. To evaluate their learning performance

Activity 4: Summarizing solutions (or what you have learned)

Time spent: 2 in-class hours

Activity 4: Summarizing solutions (or what you have learned)

Instructions:

After following the processes of collecting information, sharing ideas with your classmates, and producing a piece of essay writing, please do the following:

1. explain what you have learnt with regard to column content and writing an English essay.

2. list the strongest and weakest points of your writing.

_____

_____

_____

Objectives:

1. To introduce the purpose of summarizing the solution process

2. To raise students' awareness of the knowledge they have gained in the aspects of column content and writing organization

3. To make students aware of their learning performance

Teaching steps:

1. Explain the purpose of summarizing the solutions to the problems.

2. Ask the students to write about what they have learned or gained regarding column content and writing organization. Also ask them to clarify their strengths and weaknesses in writing.

Ready made questionnaire

Objectives: This questionnaire aims to find out about your outlines, various techniques for collecting information and about your existing attitudes and knowledge. Based on the information you collect, you can decide which are the areas where awareness raising is most needed, and which are the ones where you can move straight on to the practice stage.

Instructions: answer questions on learning styles and activities

1. Questionnaire to survey past experience

Please read the questions carefully and answer as many as you can.

Did your last language teacher always explain every point to you?	YES / NO / DON'T KNOW
Did you have to guess rules/meanings yourself?	YES / NO / DON'T KNOW
Did your last language teacher ever ask you to work in pairs or groups?	YES / NO / DON'T KNOW
Did your last language teacher usually stand at the front of the class when he/she was teaching?	YES / NO / DON'T KNOW
Did your last language teacher speak the foreign language most of the time in a lesson?	YES / NO / DON'T KNOW
Did you ever have to speak/write about yourself in the English lesson or as homework?	YES / NO / DON'T KNOW
Did you get an extra task or a bad mark if you did not do your homework?	YES / NO / DON'T KNOW
Did you ever have to correct/mark the work of another pupil?	YES / NO / DON'T KNOW
Did your teacher ever ask for your opinion about what to do in the lesson or how you would like to learn?	YES / NO / DON'T KNOW
Did you often use other materials in the lesson (or only the textbook)?	YES / NO / DON'T KNOW
What did you especially like or dislike about the way you were taught?	YES / NO / DON'T KNOW

2. Questionnaire on learning styles

Please read the sentences carefully, and tick the ones that apply to you.

a)

In class, I like to learn by games.	☐
In class, I like to learn by pictures, films, video.	☐
I like to learn the foreign language by talking in pairs.	☐
I like to go out with the class and practice the foreign language.	☐
At home, I like to learn by using cassettes.	☐
In class, I like to listen and use cassettes.	☐

b)

I like to study grammar.	☐
At home, I like to learn by studying foreign language books.	☐
I like to study the foreign language by myself (alone).	☐
I like the teacher to let me find my mistakes.	☐
I like the teacher to give us problems to work on.	☐
At home, I like to learn by reading newspapers.	☐

c)

I like to learn by watching, listening to foreign language speakers.	☐
I like to learn by talking to friends in the foreign language.	☐
At home, I like to learn by watching TV in the foreign language.	☐
I like to learn by using the foreign language in shops, on the phone, …	☐
I like to learn by hearing the words of the foreign language.	☐
In class, I like to learn by conversation.	☐

d)

I like the teacher to explain everything to us.	☐
I want to write everything in my notebook.	☐
I like to have my own textbook.	☐

In the foreign language class, I like to learn by reading.	
I like to study grammar.	
I like to learn new words by seeing them.	

3. Questionnaire on responsible attitudes.

Read the sentences carefully. If you completely agree, circle 6.
If you do not agree at all, circle 1.

As for me …	
the reason why I am good (bad) at the foreign language, is because I have had good (bad) teachers.	1 2 3 4 5 6
I know what I should practice more in the foreign language.	1 2 3 4 5 6
I pay more attention to the lesson if we are practicing something I am not so good at.	1 2 3 4 5 6
I want only to survive the language lesson.	1 2 3 4 5 6
sometimes I learn/read things that the teacher did not give as a task.	1 2 3 4 5 6
I do as little as possible for my homework.	1 2 3 4 5 6
it is important for me to learn the foreign language (not only for my parents' sake or for the marks).	1 2 3 4 5 6
As for most of the others in the class …	
the reason why they are good (bad) at the foreign language, is because they have had good (bad) teachers.	1 2 3 4 5 6
they know what they should practice more in the foreign language.	1 2 3 4 5 6
they pay more attention to the lesson if we are practicing something they are not so good at.	1 2 3 4 5 6
they want only to survive the language lesson.	1 2 3 4 5 6
sometimes they learn/read things that the teacher did not give as a task.	1 2 3 4 5 6

they do as little as possible for their homework.	1 2 3 4 5 6
it is important for them to learn the foreign language (not only for their parents' sake or for the marks).	1 2 3 4 5 6

4. Questionnaire on attitudes towards learning the foreign language

Please read the sentences carefully and finish them with the adverb that best applies to you.

I enjoy learning the foreign language	very much / quite a lot / not much / not at all
In my language learning this year I expect to do	very well / quite well / not badly / poorly
We waste a lot of time in the foreign language class	very often / sometimes / never
In five years' time my command of the foreign language will be	much better / a little better / the same / worse
I like people in my language class	very much / quite a lot / not much / not at all
I would like to visit / have friends from a country where the foreign language is spoken	very much / quite a lot / not much / not at all
I would like to live in a country where the foreign language is spoken	very much / quite a lot / not much / not at all

Is there anything else you find important about your feelings towards the target language, or the people who speak the target language?

_____

5. Questionnaire on strengths and weaknesses

Think about what you can do or cannot do in the foreign language. (For example: talking with another student, filling in grammar tests, speaking without grammar mistakes, writing without grammar mistakes or spelling mistakes, understanding tape recorded speech, speaking in front of the whole class, speaking with correct

pronunciation.) Finish the sentences below giving more than one example if you can.

In the foreign language, I am quite good at _____
_____
_____

In the foreign language, I am fairly good at _____
_____
_____

In the foreign language, I am not so good at _____
_____
_____

In the foreign language, I find it difficult to _____
_____
_____

Is there anything that you are good at, but still keen to improve, or anything that you find difficult, but you are not concerned about? Would you like to add any other comments?

_____

Adopted from Scharle, A. and Szabo, A. (2000). **Learner Autonomy: A Guide to Developing Learner Responsibility**. Cambridge: Cambridge University Press. pp. 16-21.

CURRICULUM VITAE

Ms. Phanitphim Sojisirikul was born on November 6, 1971. She received a Bachelor of Arts in English from Kasetsart University in 1994 and a Master of Arts in Applied Linguistics (English for Science and Technology) from King Mongkut's University of Technology Thonburi (KMUTT) in 1998. She has been teaching English at KMUTT since 1998. In 2006, she studied in the program of the School of English, Institute of Social Technology, Suranaree University of Technology, Thailand, for the Degree of Doctor of Philosophy in English Language Studies. Her special interests include grammar, autonomous learning, and course and curriculum development. She also has experience about KMUTT task-based curriculum designing and revising.