

.EFFECTS OF PROBLEM-BASED ENGLISH WRITING INSTRUCTION ON  
CRITICAL THINKING ABILITIES AND ARGUMENTATIVE WRITING SKILLS OF  
THAI UPPER SECONDARY SCHOOL STUDENTS

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master  
of Education Program in Teaching English as a Foreign Language  
Department of Curriculum and Instruction  
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ผลของการสอนการเขียนภาษาอังกฤษแบบเน้นปัญหาที่มีต่อความสามารถในการคิดเชิงวิพากษ์และ  
ทักษะการเขียนเชิงสาธกของนักเรียนไทยระดับมัธยมศึกษาตอนปลาย

นายลี ยีโบ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาครุศาสตรมหาบัณฑิตสาขาวิชาการ

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UPPER SECONDARY SCHOOL STUDENTS

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นายลี ยิบ: ผลของการสอนการเขียนภาษาอังกฤษแบบเน้นปัญหาที่มีต่อความสามารถในการคิดเชิงวิพากษ์และทักษะการเขียนเชิงสาธกของนักเรียนไทยระดับมัธยมศึกษาตอนปลาย.(EFFECTS OF PROBLEM-BASED ENGLISH WRITING INSTRUCTION ON CRITICAL THINKING ABILITIES AND ARGUMENTATIVE WRITING SKILLS OF THAI UPPER SECONDARY SCHOOL STUDENTS).

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งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลของการเรียนการสอนโดยใช้ปัญหาเป็นหลักที่มีต่อความสามารถในการคิดเชิงวิเคราะห์ และทักษะการเขียนภาษาอังกฤษเชิงสาธกของนักเรียนไทยระดับชั้นมัธยมศึกษาตอนปลายผู้วิจัยได้พัฒนาโปรแกรมการเรียนการสอนที่ใช้สอนระยะเวลา 10 สัปดาห์เพื่อสอนนักเรียนในโรงเรียนหญิงแห่งหนึ่งในกรุงเทพมหานคร กลุ่มตัวอย่างเป็นนักเรียนชั้นมัธยมศึกษาปีที่ 6 จำนวน46คน เครื่องมือที่ใช้ในการทดสอบคือหัวข้อการเขียนความเรียงเชิงสาธก ข้อสอบการคิดเชิงวิเคราะห์และมาตรวัดการให้คะแนนการเขียนความเรียงเชิงสาธกการวิเคราะห์ข้อมูล ใช้การเปรียบเทียบรายคู่โดยการทดสอบค่าที่ผ่านโปรแกรมการคำนวณสถิติสำเร็จรูปและการวิเคราะห์เชิงคุณภาพกรณีศึกษาที่มีการพัฒนางานเขียนดีมากในส่วนของเกณฑ์การให้คะแนนการเขียนความเรียงเชิงสาธกและตัวชี้วัดในส่วนของความคิดเชิงวิเคราะห์ผลการวิจัยพบว่า 1)กลุ่มตัวอย่างมีคะแนนเฉลี่ยข้อสอบการคิดเชิงวิเคราะห์หลังการเรียนสูงกว่าการก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05โดยมีผลต่างค่าเฉลี่ยของข้อมูลเท่ากับ.674 ค่าที่เท่ากับ 2.821 และขนาดของความแตกต่างในระดับปานกลางเท่ากับ 0.26 และ 2)กลุ่มตัวอย่างมีคะแนนเฉลี่ยคะแนนการเขียนความเรียงเชิงสาธกในชิ้นงานที่ 4 สูงกว่าคะแนนของชิ้นงานที่ 1อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 โดยมีผลต่างค่าเฉลี่ยของคะแนนเท่ากับ 1.261ค่าที่เท่ากับ 13.967และขนาดของความแตกต่างในระดับใหญ่เท่ากับ 0.7 การวิเคราะห์กรณีศึกษาพบหลักฐานที่สนับสนุนประสิทธิภาพของการสอนด้วยการสอนการเขียนภาษาอังกฤษแบบเน้นปัญหาในการพัฒนาความสามารถของนักเรียนด้านการคิดเชิงวิเคราะห์และทักษะการเขียนความเรียงภาษาอังกฤษเชิงสาธก

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LIYIBO: EFFECTS OF PROBLEM-BASED ENGLISH WRITING INSTRUCTION ON THAI UPPER SECONDARY SCHOOL STUDENTS' CRITICAL THINKING ABILITIES AND ARGUMENTATIVE WRITING SKILLS. ADVISOR: ASSOC.PROF.SUMALEE CHINOKUL, PhD., 192PP.

The objective of the study was to examine the effects of problem-based instruction on the critical thinking abilities and argumentative writing skills of Thai upper secondary school students. The researcher constructed a 10 weeks' training program in a Thai secondary girls' school in Bangkok. The sample group was 46 M6 students. The instructional instruments include lesson plans, various instructional materials, and topics. The research instruments include writing assignment critical thinking test and a writing scoring rubric. The data were analyzed using paired t-test with SPSS. Cases of students' writing were analyzed qualitatively according to argumentative writing score rubric and critical thinking test indicators. The results of the analyses revealed that 1) sample group students gained significantly higher average scores on the critical thinking post test than the critical thinking pre-test at the significance level of 0.05 with a mean difference of .674. The t-value is 2.821, and the effect size is 0.26 which was a medium effect; 2) sample group students gained significantly higher average scores on their fourth argumentative writing assignment than the average score of their first argumentative writing assignment at the significance level of 0.05, with a mean difference of 1.261. The t-value is 13.967 and the effect size is 0.7 which is a large effect. The case' analysis supported Problem-based English writing instruction to be an effective way to improve students' critical thinking abilities and argumentative writing skills.

Department: Curriculum and Instruction

Student's Signature.....

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## **CHAPTER I**

### **INTRODUCTION**

One of the most important differences between human being and other creatures in the world is the ability to ask “why” about almost everything. When we ask the question ‘why?’ we are trying to find out the reason for what we do or what we believe (Bowell & Kemp, 2005). The process of the reasoning is the process of critical thinking. That is the reason why some experts called critical thinking as reasoning (Glasman, Koff and Spiers, 1984; Grant, 1988; Shulman and Carey, 1984). A clearer definition was given by Ennis (1989). He claimed that “Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do”. Most researchers in this field believe critical thinking involved some higher cognitive functions like analytical, synthesizing, deductive and conductive skills. Nowadays, people have more choices than ever before and everyday they are facing a flood of information as a result of globalization and modern tele-communication development. People will become victims of information age if they have no idea how to choose and what to believe. And that is the reason why critical thinking is so important.

In fact, the importance of critical thinking was well accepted in educational field in 21<sup>st</sup> century. Minter (2010:6) supports the importance of critical thinking to be taught in school by stating that “In order to be a fair and balanced 21st century citizen, it is imperative to possess critical thinking abilities. Teachers, more specifically language arts teachers, have the responsibility to equip students with these skills in the classroom”.

In Thailand, Education must take a role to help Thai people function well in a

complicated and interrelated world. That is the reason why it is urgent that people be equipped with knowledge and skills for critical thinking. Teaching and learning is still a routine and repetitious method of transferring knowledge, and learners have no opportunities for training in analytical thinking, self-expression and acquiring knowledge themselves. Therefore, we need to improve the learning culture of everyone with a goal to improving Thai society and people's life quality as a whole.

If we take a view of Thai Educational history, we may find that Critical thinking is not a new feature recently, however, it becomes more and more important year by year. Now, education policy requires that Thai students be able to reason, criticize, know how to solve problems, and apply these skills in their real life situations (The Office of the National Education Center, 1996). The importance of critical thinking is also stressed in the *National Education Act 1999*, as stipulated in section 24 that:

“In organizing the learning process, educational institutions and agencies concerned shall (2) provide training in thinking process management, how to face various situations and the application of knowledge for obviating and solving problems; (3) organize activities for learners to draw from authentic experience; drill in practical work for complete mastery; enable learners to think critically and acquire the reading habit and continuous thirst for knowledge” (Office of the National Education Commission, 2003:11).

Additionally, it is indicated in the objectives and policy guidelines for implementation in the *National Scheme of Education* that “All Thais will have

knowledge, critical thinking abilities and a thirst for knowledge in science and technology as well as social and human sciences... All Thais will acquire the skills and master the processes of thinking, analysis and problem-solving. They will have a thirst for knowledge which will be appropriately applied” (Commission, 2003:15-16).

An Investigation Report in China Xiamen University by Wang Jing (2000) on Student Critical thinking abilities at Two Higher Education Institutions in the North of Thailand reflects the low critical thinking abilities of the local students compared to the average critical thinking abilities of Chinese students, which may indicate the failure of critical thinking education in Thailand. In fact, the failure to promote critical thinking abilities among Thai students is indicated in a number of studies, and the unsatisfactory low level of critical thinking abilities in Thai people graduating from a Thai university is special concern for Thai scholars and educators (Maliwan, 2006).

Research on critical thinking in Thailand has mostly been carried out from different perspective for example, to study the effects of particular method on students critical thinking which includes inductive teaching, group decision and reading practice, De Bono's six thinking hats approach, Webquest instruction approach, English Reading Instruction based on the Reader Response Approach (Likitwanakarn, 1992; Younghan, 1995; Rawdsomjit, 1999; Khanthap, 2000 ,Arnuphab, 2007); to study local students critical thinking skills (Navapornpaisarn, 1992; Chaiprasit, 1999; Thongpae, 1994); ; to develop a critical thinking test for primary school students ( Aeimsri, 1993); to study the effect of a particular instruction model on students critical thinking abilities

(Chanruang, 1993; Chayvimol, 1993; Nekamanurak, 1994; Absuwan, 1995; Somsak, 1997; Rattanathongkom, 2002); to develop a learning package to enhance teaching critical thinking skills (Yaisungnoen, 1993); to study the effects between learning styles and teaching styles on critical thinking development (Lueboonthavatchai, 1995) ; to study the effect of learning critical thinking on other competency's development (Dangdomyouth, 1996); to study the effect of instructional condition on critical thinking development (Kampuk, 1996).

There are various ways to improve students' critical thinking skills; however, few researchers in the Thailand consider writing as an effective way to enhance critical thinking. As what Suan (1986) referring, writing as a process which involves the usage of some higher cognitive functions like analytical thinking or synthesizing thinking to establish these systematic relations. According to Suan (1986), one of the biggest obstacles to writing a good article is that students often have little to say about an issue or position taken in a text. How to explore an issue from different aspects becomes a key step for a successful writing class. Thus, a sharing of experience or resource could be beneficial to provide the opportunity to understand an issue fully. As Simpson (2011) concluded one of the main features of problem-based learning is resource, ideas and expertise were shared during the whole process in the classroom. Therefore, to implement problem-based learning into writing class may bring the positive effect on students' writing.

In fact, Problem-based learning is an approach which claimed by many researchers as an effective approach to improve students' critical thinking abilities. As Beer (2005)



claimed that Problem-based learning attempts to broaden the students' abilities in critical thinking and analytical problem solving. Problem solving activity may bring us some solutions in implementing critical thinking into students' learning process in the writing class. The approach which involves mostly problem solving activity is named problem based learning (PBL).

According to Burkhalter and Nancy (1993), critical thinking can be enhanced by writing and especially argumentative writing. The researcher considered argumentative writing involves identifying a position which is logically related to presenting a situation in PBL, because without fully understanding the problem, one cannot logically choose his position. The development of the reasons is quite related to the second activity in PBL: group work and discussion because different people's opinions and reasoning are discussed and debated in this stage and finally drawing a reasonable conclusion will be almost equal to the third part of PBL: Student-directed solution of the problem. The reason is students will finally come to a logical solution of the certain problem which in process writing is drawing a conclusion. That is the reason, the researcher logically believe applying PBL into the writing class should be able to enhance students' critical thinking abilities. Table 1.1 is a comparison of writing steps and PBL basic steps (Bosuwon and Woodrow, 2009; Tompkins, 2008).

Table 1.1

*A Comparison between Argumentative Writing Steps and PBL basic Steps*

Argumentative Writing steps	PBL basic steps
A statement of position	Presenting a problem
Development of reasons Opinions sharing	Group work and discussion
Drawing conclusions	Student-directed solution of the problem

The researcher tried to find an approach to improve student's critical thinking abilities. Through literature review, the researcher find out that problem based learning can enhance students' critical thinking abilities, and writing also significantly related to critical thinking development. Some articles claimed that using problem solving activity in writing class can largely improve students' critical thinking and writing skills(Storla, 1993), but few research projects have proven that conclusion, even fewer research projects about applying this approach in Thailand. Thereafter, the researcher is proposing PBL in writing class and will examine the effects of it on students' critical thinking abilities as well as students' writing skills.

## **Research Questions**

In this study, the researcher attempts to find answers to the following question:

1. To what extent do critical thinking abilities of Thai upper secondary school students improve after problem-based English writing instruction?
2. To what extent do argumentative writing skills of Thai upper secondary school students improve after problem-based English writing instruction?

## **Research Objectives**

1. To examine effects of Problem based English Writing Instruction on critical thinking abilities of Thai upper secondary school students
2. To examine effects of Problem based English Writing Instruction on argumentative writing skills of Thai upper secondary school students

## **Statement of Hypothesis**

As Beer (2005) claimed that Problem-based learning attempts to broaden the students' abilities in critical thinking and analytical problem solving. And according to Burkhalter and Nancy (1993), critical thinking will be enhanced by writing and especially persuasive writing. Therefore, the researcher stated the hypothesis as follows:

1. The scores from the critical thinking test conducted after the participants received the instruction based on problem solving activity in writing class will be higher than the scores from the critical thinking test conducted before the participants received the instruction based on problem solving activity in writing class at the significant level of 0.05.

And according to Stefaniak (2009) "The PBL centered composition classroom has

the potential to develop articulate, incisive composers of varied discourse and multimodal models of communication as well as proficient problem solvers.” (2009:1) Therefore, another hypothesis was set up as follows:

The score of students’ first writing assignment should also be higher than the score of students’ last writing assignment at significant level 0.05 based upon a scoring rubric to assess student’s critical thinking abilities and argumentation writing skills.

### **Scope of the Study**

The population for this study was upper secondary school students from public schools in Bangkok. The participants in this study were 46 M6 students who enrolled in an elective writing class.

The variables in this study consisted of one independent variable and one dependent variable. The independent variable was a 9-week Problem based English writing instruction. The dependent variable was students’ critical thinking abilities and argumentative writing skills.

### **Definitions of Terms**

**1 Problem-Based English Writing Instruction:** is an innovated English writing Instruction based upon PBL approach. In this study, problem solving means through discussion, students can take certain position for a controversial issue with sound reason. In this study, three basic argumentative writing training classes were given at the beginning, then followed nine stages’ problem-based English writing instruction: 1. Warm up 2. Presentation of a problem 3. Brain-storm 4. Group discussion 5. Self-directed solution 6. Inter-Group sharing 7. Writing assignment 8. Teacher’s comment 9. Class

summary discussion

**2 Critical thinking abilities:** Critical thinking is reasonable reflective thinking that is focused on deciding what to believe or do. Critical thinking abilities are in terms of

- 1) Identification of problem and relationship between its elements
- 2) Identification of popularity, reliability, and background of assumptions
- 3) Reflection of thinking and problem summary skills
- 4) Conclusion and decision making
- 5) Reasonable critiques of the objective thinking, the logic of thinking or the deducted thinking

**3 Argumentative writing:** is a kind of writing to present an argument with the PROS (supporting ideas) and CONS (opposing ideas) of an argumentative issue. The writer of argumentative writing should clearly take certain position and write to persuade the other side and provide a conclusion or solution for a problem or controversial issue.

**4 Upper Secondary School Students:** refers to tenth to twelfth grade students in public school in Bangkok, Thailand.

### **Organization of the thesis**

The whole thesis of the research “Effect of Problem-based English Writing Instruction on Critical Thinking Skills of Thai Upper Secondary School Students” comprises of five main chapters.

The first chapter briefly presents the background of the study, statement of the problem, research questions, research objectives, statement of hypotheses, scope of the study, the definition of terms, and significance of the study.

The second chapter can be divided into three parts. Part one provides a broad and general introduction of English writing instruction, basic writing types, writing assessment, and trends in argumentation writing. Part two talked about the concept of Problem-based learning, reviewed the relationship between EFL and PBL as well as the strength and weakness of applying PBL in detail. The third part of literature review lists the definitions of critical thinking and also the reliable assessment in this field. It focused on the review of critical thinking education and connects critical thinking education with PBL and writing.

The third chapter presents research methodology which also include the research design, research instruments, data collection and data analysis.

The fourth chapter presents the findings of the study. The findings include the quantitative result from Critical thinking pre-test and post-test, argumentative writing score. The finding also includes the qualitative result from the case study from students' writing assignments.

The fifth chapter summarizes the study and result, makes a discussion about findings, presents the limitation of the study, also provide the pedagogical implications and recommendation for further study.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

This literature review lists the definitions of critical thinking, the reliable assessment in this field, significance of critical thinking and the focus is on approaches in teaching critical thinking. It also provides a broad and general introduction of English writing instruction, basic writing types, argumentative writing and related current issues, English writing instruction approaches, teaching writing as a process, writing assessment, scoring approaches as well as writing and critical thinking. It also discussed about the definition of Problem-based learning approach, reviewed the relationship between EFL and PBL as well as the strength and weakness of applying PBL in detail. The last part of literature review connects critical thinking education with PBL and writing.

#### **Critical Thinking**

This section firstly talked about the definition of critical thinking. Several critical thinking assessment tests were introduced. And then the researcher reviewed the literature about the significance of critical thinking and the approach of teaching critical thinking.

#### **Definition of critical thinking**

The root of the word critical is *skeri*, which means to cut, separate, or sift; so the word critical conveys a meaning to take something apart and analyze it (Mayfield, 1994). The Greek origination of the word *critical* is *kritikos*, with the meaning “able to perceive, detect, judge, or analyze”, or simply saying judge with standard. Through the logical process of information analysis, we evaluate ours and other persons’ thought (Chaffee, 1999). Putting together these two original ideas, we see that the word critical means

analyzing on the basis of a standard (Mayfield, 1994). That is why John Dewey, the “father” of modern critical thinking, defines critical thinking as:

Active, persistent, and careful consideration of belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends” (Dewey, 1909: 9).

Another definition which belongs to Glaser (1941), co-author of one of the most famous critical thinking tests, the *Watson-Glaser Critical Thinking Appraisal* is:

(1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one’s experience; (2) knowledge of the methods of logical enquiry and reasoning; and (3) some skill in applying those methods. Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends (Glaser, 1941:5).

As what we can see, both of the definitions concern about basing some ground, standard, to reasonably think or logically think; however, we can see that Glaser’s definition was developed from John Dewey, but differently in mentioning some skills and method which may involved, also he considered about it is an attitude of being disposed to think in certain way. Interestingly, some experts (Paul, Fisher and Nosich, 1993: 4) also considered critical thinking involved some intellectual standard but prefer to wholly describe it as a kind of mode: “Critical thinking is that mode of thinking-about any subject, content or problem- in which the thinker improves the quality of his or their



thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.” Fisher and Scriven (1977:21) defined it thus: “Critical thinking is skilled and active interpretation and evaluation of observations and communications, information and argumentation”. Bassham et al. (2008:1) concludes the definition of critical thinking as follows:

Critical thinking is the general term given to a wide range of cognitive skills and intellectual dispositions needed to effectively identify, analyze and evaluate arguments and truth claims; to discover and overcome personal prejudices and biases; to formulate and present convincing reasons in support of conclusions; and to make reasonable, intelligent decisions about what to believe and what to do. Critical thinking is disciplined thinking governed by clear intellectual standards.

Most of the definitions of critical thinking claimed that it is a skillful ability which is based upon certain standards or ground. And the ground and standards are the key terms in defining or limiting what critical thinking abilities are. The Critical thinking as a disciplined thinking governed by clear intellectual standards which include clarity, precision, accuracy, relevance, consistency, logical correctness, completeness and fairness (Bassham et. al., 2008). Glaser (1941) listed the abilities in a more detailed way: (a) to realize problems, (b) to find effective solutions for those problems, (c) to gather and arrange related information, (d) to realize potential assumptions and values, (e) to understand and apply language in a accurate, clear and discriminated way , (f) to analyze data, (g) to judge evidence and evaluate points, (h) to realize the existence of rational relationships between statements, (i) to summarize with insight, (j) to test the

generalizations and conclusions, (k) to rebuild one's value on the basis of wider experience; and (l) to provide accurate assessment about daily life issue (Glaser, 1941).

Instead of considering critical thinking as abilities, some expert considered it as a kind of disposition. Disposition, according to Oxford dictionary is a person's natural quality of mind or character. Different from whether a person has ability or skillful in thinking critically, whether one disposes to think critically means whether one tend to think in a critical way. So what are the critical thinking dispositions? According to Ennis (2011), there are three main dispositions:

1. Care that their beliefs be true, and that their decisions be justified; that is, care to "get it right" to the extent possible.
2. Care to understand and present a position honestly and clearly, theirs as well as others.
3. Care about every person.

One can have critical thinking abilities without accompanying disposition, and the versus holds true as well (Ennis, 1996). That is why some critical thinking researcher would like to use both ability and disposition test to check one's general critical thinking. However, the theory backup and experimental result of testing critical thinking abilities and critical thinking disposition are so different. In fact, negative relationship was found in a study by Ricketts and Rudd (2004). That is the reason the researcher believe that critical thinking abilities and critical thinking disposition come from different philosophies and the study of which is still on the way. In this study, the researcher won't conduct research base upon the viewpoint of Critical thinking disposition because the

whole idea is still not mature and the researcher need a proved theory as well as a valid critical thinking test to apply which is not available in terms of critical thinking disposition.

One famous contributor in the field of critical thinking Ennis (1989:1), made a quite well known definition about critical thinking, claiming that “Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do”. The researcher reviewed Thai experts’ definition of critical thinking, and found out it is similar with Ennis’s definition in 1989. In this study, the critical thinking abilities to assess are:

- 1) Identification of problem and relationship between its elements
- 2) Identification of popularity, reliability, and background of assumptions
- 3) Reflection of thinking and problem Summary skill
- 4) Conclusion and decision making
- 5) Reasonable critiques of the objective thinking, the logic of thinking or the deducted thinking (Sirichai Kanjanawasee et al., 2009)

### **Significance of critical thinking.**

Life without critical thinking may ends full of bad decisions and discontentment. Socrates, the ancient Athenian philosopher famously argued that ‘the unexamined life is not worth living’. In fact in any situation in which we have to make decisions, be they about our lives or the lives of others, there is no substitute for the ability to think logically and to detect errors in the thinking of others (Bowell and Kemp, 2005). Critical thinking allows us to welcome life’s problems as challenges to be solved. And it gives us the confidence that we can make sense and harmony out of a confusing world (Mayfield,

1994).

Critical thinking can help the students critically evaluate what they are learning in class and can benefit students a lot when they are required to develop their own opinions. Critical thinking is valuable in many contexts outside the classroom and workplace. Firstly, critical thinking can help us avoid making foolish personal decisions. Second, critical thinking plays a vital role in promoting democratic process. Third, critical thinking is worth studying for its own sake, simply for the personal enrichment it can bring to our lives. Whatever other benefits it brings, a liberal education can have no greater reward (Bassham et. al., 2008).

Developing students' critical thinking has been a significant educational issue in many countries. In the United States, the discussion of the role critical thinking plays in the school curriculum began in the 1980s (Marzano et.al., 1988). In Asia, critical thinking has been the focus of curriculum reforms in places, such as Singapore (National University of Singapore 2003) and Hong Kong (EC 2000) over the last ten years. Education psychologists have pointed out that critical thinking is fundamental to schooling in the 21st century, and the essential role in one's success ( Huitt, 1998).

Most educators agree that it is essential that students develop such skills while engaged in academic learning because they enable students to engage in purposeful, self-regulatory judgment. Using critical thinking helps students evaluate the arguments of others and their own, resolve conflicts, and come to well-reasoned resolutions to complex problems (Auegretti and Frederick, 1995). That is why cultivating students' critical thinking skills is a major goal of American higher education (Roth, 2010). An

increasingly complex society need individuals to carefully evaluate the evidence before making any decisions (Renaud and Murray, 2008). Teaching students' higher-order cognitive skills, including critical thinking, can help individuals improve their functioning in multiple circumstances (Tsui, 2002), so they will be able to adapt the modern society better.

### **Critical thinking assessment.**

Various critical assessment tests were designed to assess students' critical thinking abilities. California Critical Thinking Skills Test, Watson and Glaser's critical thinking test, Cornell critical thinking test, Ross critical thinking test are mostly well-known tests in the field. Though these existing tests have their own focus, they are all considered as reliable tests and can be applied into different age groups of people.

#### ***California critical thinking skills test (CCTST).***

The CCTST is based on the Delphi Expert Consensus Definition of Critical Thinking. Used throughout the United States and in many countries and languages around the world, the CCTST has been proven to predict strength in critical thinking in authentic problem situations and success on professional licensure examinations. The CCTST has been optimized in its different versions and forms for use with professionals, workers and students at all educational levels. The CCTST was developed in 1990, and it continued to be developed till 1992. There are two forms of test involved Form A and Form B. For each of them, there are 34 items of multiple-choice. The test consists of 5 main components, they are Analysis, Inference, Evaluation, Deductive reasoning, Inductive reasoning.

***Watson and Glaser's critical thinking test.***

Watson and Glaser's critical thinking test was founded in 1925 and the last version of this test is 2009. The test can be applied for students from third grade to adult level. There are 80 items inside the test and the test taker has to finish it in 50 minutes. The test includes sections on induction, assumption identification, deduction, judging whether a conclusion follows beyond a reasonable doubt, and argument evaluation. The following is a sample question adopted from the official website of the test.

Example: Two hundred students voluntarily attended a recent weekend student conference in a Midwestern city. At this conference, the topic of race relations and means of achieving last world peace were discussed, since these were the problems the students selected as being most vital in today's world.

As a group, the students who attended this conference showed a keener interest in broad social problems than most other students in their early teens.

- True
- Probably True
- Insufficient data
- Probably false
- False

(Think Watson, 2013,online)

***Cornell critical thinking test.***

Cornell critical thinking test was developed in 1971. There are two levels of tests: level x and level z, which was developed by Ennis R.H., Millman J., and Tomko T.N. in

1985. Cornell critical thinking test level x is designed for grade 4 until high school level, which covers four components: Credibility of sources and observations, deduction, induction, assumption identification. Cornell critical thinking test, level z was designed for high school students, undergraduate and graduate students. The test covers six components of critical thinking: deduction, semantics, credibility, induction-judging conclusion, induction, definition and assumption identification. The following is the official sample question from Cornell critical thinking test level x.

Example: Suppose you know Bill is next to Sam, then would this be true  
: Sam next to Bill?

A. Yes

B. No

C. Maybe

(Ennis,Gardiner,Morrow,Paulus and Ringel, 1964)

***Ross critical thinking test.***

Ross Test of Higher Cognitive Processes was developed in 1976 by John D. Ross and Catherine M. Ross. Academic Therapy Publications, 20 Commercial Blvd., Novato, CA 94947. The test aimed at grades 4-6. Multiple-choice is the only test type. There are sections on verbal analogies, deduction, assumption identification, word relationships, sentence sequencing, interpreting answers to questions, information sufficiency and relevance in mathematics problems, and analysis of attributes of complex stick figures (Robert, 1999).

### ***The thinking measurement of basic education students.***

The test was developed as a national project from Bureau of Educational Innovation Development to a group of experts from Chulalongkorn University in 2009. There are two basic types of thinking measured in the test: Thinking Group A- the thinking in social tools such as scientific thinking, problem solving thinking and creative thinking, and Group B- the thinking in human tools such as analytical thinking, critical thinking, and decision thinking. There are five items to evaluate students critical thinking in the test, and all the test validity and reliability has been proved. The test is valid according to the test structure developed by the expert in Educational Psychology and Educational Measurement and Evaluation. The reliability was measured by test developer through KR 20, and the total reliability value for Group B test is 0.71 and reliability value for critical thinking test is 0.52 proved by Educational testing center, Chulalongkorn University. Localization is the main feature for this test. Because this test was developed by a group of Thai experts in Educational Psychology and Educational Measurement and Evaluation and tried out with pilot study school students, the content was considered more appropriate for local students to understand. The test also covered main indicators for critical thinking as explained earlier on page 18.

### **Approaches in teaching critical thinking.**

The biggest difference between traditional teaching and teaching aimed at improving students critical thinking lays at the shifting between “what to think” to “how to think”. Lipman (1988) recommends a model that teachers can follow about how to teach critical thinking: define and clarify information, ask appropriate questions, clarify



or challenge statements or beliefs, judge the credibility of sources, and solve problems by predicting probable outcomes logically or through deducing. There are two types of instructional interventions according to Linda and Niu (2011):

1. Programmatic approach: pertaining to the whole curriculum of a degree program,
2. Instructional approach: pertaining to specific instructional approaches.

Firstly programmatic approach: Usually this type of approach test students' critical thinking abilities at the beginning and the end of the treatment or take a pretest and posttest which should be longer than one year to see if there is any significant improvement. One of the limitations of this kind of study is because the long treatment, the maturity of the students may influence the validity. Many researches study about the critical thinking based curriculum reflect significant improvement, few addresses the threat of maturity. Most of the study in this approach using pre-experiment design. Without a control group, this kind of design is relatively weak in terms of establishing the causal relationship between curriculum and critical thinking development "Generally speaking, research reveals more years of education is associated with higher scores on tests for critical thinking" (Tsui, 1998: 8). That is to say even though there are some phenomenon of critical thinking development, the reason is not clear. There are many studies report the change in critical thinking; however these studies failed to find out the factors that determine the change or explain clearly about the causal relationship (Linda and Niu, 2011).

The second approach category in this study is Ennis' (1989) typology of instructional approaches. This typology is designed to claim that, "critical thinking can be taught

'separately' (the "general" approach), be infused in instruction in existing subject matter areas (the "infusion" approach), result from a student's immersion in the subject matter (the "immersion" approach), or ... be taught as a combination of the general approach with infusion or immersion (Ennis, 1989: 4).” The general approach directly deals with the skills and dispositions of critical thinking and it can be separate with any specific subject. The other two ways, however, try to teach critical thinking skills through the common subject teaching. The infusion approach differ from the immersion approach on the aspect that the former will clearly teach some critical thinking principles while the latter do not. “In other words, students taught with the immersion approach are not aware that they are being trained to think critically” (Lindaand Niu, 2011: 30).

The relationship between problem solving and critical thinking as Minter (2010) suggest “If one accepts a basic definition that critical thinking means making reasoned judgment, then the process of critical thinking would logically include the classic problem-solving format.” And when we look into the format of problem solving, we can find it involved most part of critical thinking process as a logic based steps for problem solving include:

- 1 The **recognition** of the **problem** and application of **inquiry** principles.
- 2 The **logical hypotheses** rose as choices to **solve the problem**.
- 3 The delicate **reasoning** about the concept and the inner-relationship between **solutions and problem** itself.
- 4 Through the process of **reference** to the **observations**, make sense of the **solution** being **applied** to the problem.

5 Provisionally increase the certainty through the acceptance of **logical** and **scientific** explanation of the problem-solving situation (Minter, 2010).

As what we can see: the format of problem solving involved observing a situation, involved hypotheses, also involved reasoning and arguing about the facts, using logical and scientific way to describe the situation. These problem solving processes are already the most essential part of critical thinking.

While in the 1990s, based upon Dewey's hypothesis and evaluation components. Garrison developed the following five stages of CT: (a) problem identification (dissonance serves as a triggering event) (b) problem definition, (c) exploration, (d) applicability, and (e) integration (DaRosa, O'Sullivan, Younger, and Deterding, 2001).

Obviously the constructs of the CT stages reflect many PBL goals. Although Problem solving and CT are closely related, there are some difference between these two terms: Comparing problem solving, Critical Thinking cover a broader scope; Comparing to Problem solving CT includes logical reasoning and inference and also a larger process encompassing justification (DaRosa et. al., 2001).

### **English Writing Instruction**

In this section, the researcher firstly introduced the common English writing types, then the researcher focus on the review of Argumentative writing and current issues related to argumentative writing. The researcher also reviewed the literature of English writing instruction, especially teaching writing as a process. The researcher listed two major categories for writing assessment and introduced two major scoring approaches. In

the end the researcher reviewed about the literature of writing promoting critical thinking as well as writing and critical thinking in another perspective.

### **English writing types.**

There are many different ways to categorize English writing in writing instruction books and websites. The one which most relevant to this study claimed that there are five main types of writing: description, narration, exposition and persuasion.

When you describe the characteristic of a person, place or something, you are using description. It usually involves a lot of detail. If you tell your friends about the story you have for travelling, you are narrating or telling a story. A narration can be a fact and also a fiction. Exposition can be writing to inform or to explain. It involves presenting information, explaining through facts, ideas, or examples. Persuasive writing is a kind of writing to persuade your reader to agree with your opinions. (Winterowd and Murray, 1985)

### **Argumentative writing.**

Argumentative writing is a kind of writing to present an argument with the PROS (supporting ideas) and CONS (opposing ideas) of an argumentative issue. Argumentative writing has a deep relationship with descriptive writing in terms of construction. Although the purpose, method, and strategy of both writing may be different somehow, the thinking processes of both share great similarity. Both kinds of writing would like to achieve a larger purpose: explanation of an idea. However, The writer of argumentative writing should clearly take certain position and write to persuade the other side and provide a conclusion or solution for a problem or controversial issue (Dublerand Zarin, 1967)

### **Current issues related to argumentative writing.**

According to Thai Basic Education Core Curriculum, the grade 12 graduates should be able to “speak and write to describe their own feelings and express opinions about various matters, activities, experiences and news/incidents with proper reasoning”. That is to say they need to capture the basic argumentation or opinion writing.

While some textbooks or studies focus more on the language learning in argumentation class, in which they will begin to train students start from: understanding statement, providing support for statement, the use of connectives, functions of different paragraphs in an argumentation, conclusion, and argumentation model (Bary and Adrian, 2004). However, the argumentation class in this research takes writing as a process instead of product and focuses more on students’ critical thinking activity. As Carol and David (2000) suggested putting critical thinking in argumentation class is good because argumentation training specifically fosters critical thinking abilities. The discussion during the class about certain issue do active students thinking, however, as many researchers (Carol and David, 2000; Gordon,2000; Irwin and Karrin, 2000 ; Davidand Brian, 2000) inserted that overemphasizing on the adversarial approach in argumentation class may fail in preparing students for the real situation outside, and the win and lose style of argumentation burn students real thinking, cause they will emphasize in wining one point instead of finding out a solution for a problem. Instead, each of the essays concerning this field contributes some suggestions about how argumentation education can be reformed. The main trend in argumentation education, according to Carol and David (2000), is a shift from competitive approach towards negotiating approach. David

and Brian (2000) attached great importance on the potential of cooperative part in argumentation pedagogy. Irwin and Karrin (2000) try to prove that the problem solving is the final goal of argumentation class. The researcher agree with Irwin and Karrin's belief and put the discussion in argumentation class as a method to share and negotiate so that students can solve a practical problem faced and develop their critical thinking abilities during the process.

### **English writing instruction approaches.**

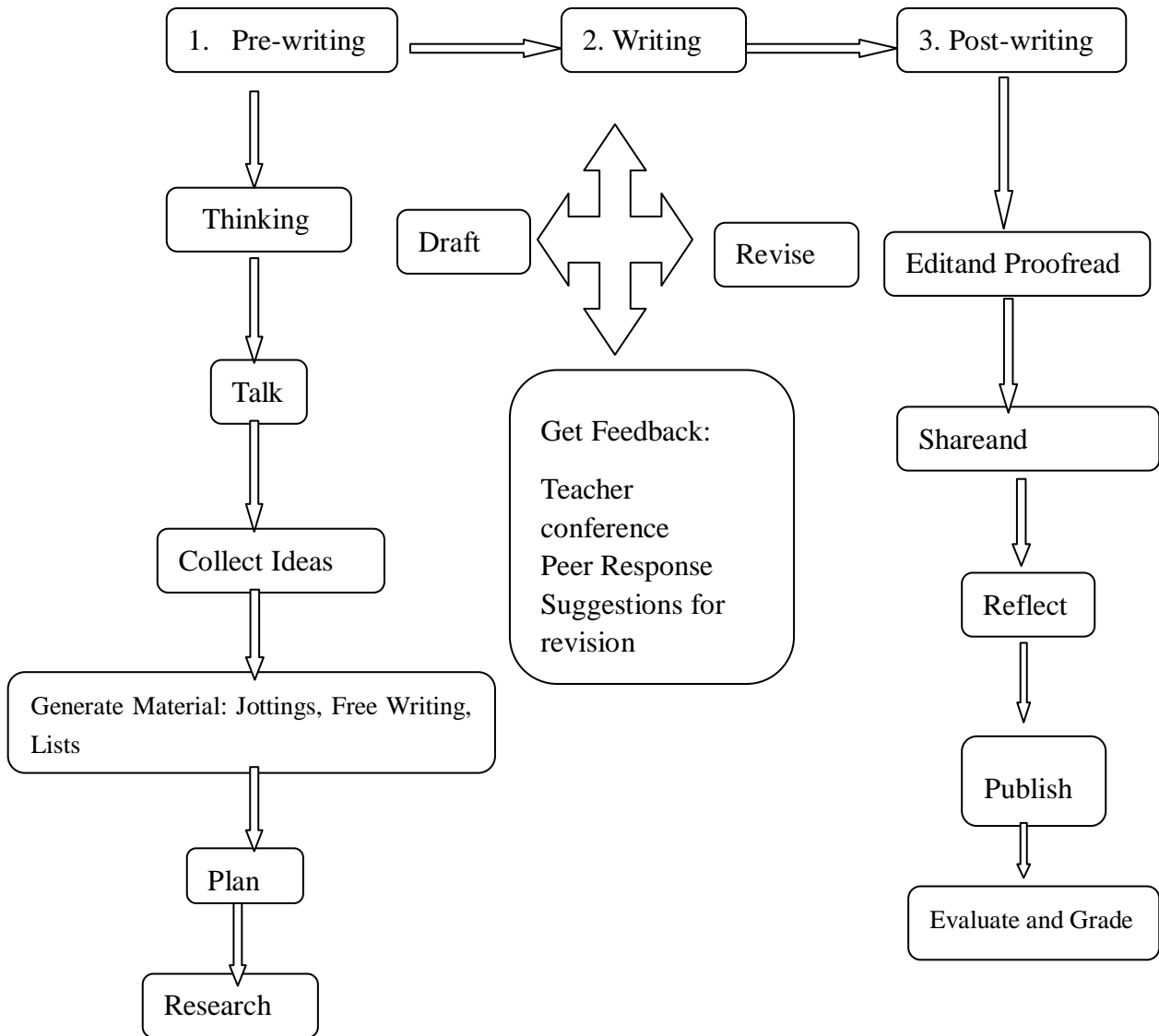
There are basically two kinds of approaches currently: the traditional approach and Process writing approach. Traditional approaches to L2 writing “served mainly to reinforce oral patterns and test grammatical knowledge” (Hedgcock, 2005: 604). However, these approach which focused on sentence level non-mistakes or forming certain solid pattern of writing have great limitations in reflecting students own ideas.

In contrast, most experts in this field suggest that process oriented approach has come to characterize many L2 writing contexts, especially ESL contexts in North America. (Panofsky, et al., 2005)

### **Teaching writing as a process.**

Writing could be defined as a process of expressing our ideas (Leeds, 2003). Researches about the process of writer's writing practice have shown that most of writing consists the following steps: pre-writing, drafting and revising, and post- writing, as shown in figure 2.1 stages of the writing process (Dronan, Rosen and Wilson, 2003:43).

Figure 2.1 Stages of Writing in Process Writing



In Figure 2.1, there are basically three steps for process writing: 1. pre-writing 2. writing 3. post-writing. There are a list of sub-steps in both pre-writing and post-writing. The writing part may involve draft and revise, and the draft and revision can be taken several times depending on the time limitation. The students will get feedback from teacher or peers.

Researchers of process writing divided it into three stages, as Britton (1970) labeled conception, incubation and production. Grave (1975) described a similar process of prewriting, composing, and post writing. Many researches indicate that process writing instruction better suits the informational society than traditional approach (Deng, 2003; Jia, 1998).

### **Writing assessment.**

Writing assessments can be categorized from different perspectives. From an assessment process point of view, writing assessment includes traditional summative assessment and portfolio assessment. According to different viewers, writing assessment can be divided into peer-evaluation, teacher evaluation and self-evaluation. Writing assessments can also be varied according to the different objectives of the writing assessment. If students take a risk of making grammatical mistake to try out new expressing time, shall we give them a lower grade or a higher one? We should encourage students to write a simple and safe essay or a complicated one? Language feature and ideas, which is more important (Zhang and Zhan, 2010)? This kind of consideration results in the category of writing assessment into assessment of content and structure and assessment of grammatical accuracy, in another way of saying Micro skill and Macro skill (Nezakatgoo, 2011).

From the assessment process point of view, traditional summative assessment and portfolio assessment are the major two kinds of assessment. Traditional assessment can provide students learning result at certain time point, but fail to provide the immediate, contextualized feedback useful for helping teacher and students during the learning



process (Garb, 2008), that is the reason it failed to show the holistic feature of process writing. Laura (1995), attached great importance to the assessment method when she talks about the problems existed in writing instruction. She believes that instruction and assessment must come from the same logic. Therefore, it is not proper to use traditional assessment to evaluate process writing. What is more, both assessment and evaluation are part of writing curriculum which is integrated and cannot be applied separately; teacher and students should work together during writing, assessing, and evaluation of process writing.

Due to different viewers, writing assessment can be divided into: Peer evaluation, Teacher evaluation and Self-evaluation. A joined study by Hokusei Gakuen University and Tokai University revealed that Peer ratings correlated significantly with teacher ratings. The students also prefer peer ratings as shown in the result of research questionnaire (Saito and Fujita, 2004). Another study by Matsuno (2009) indicated that many self-raters will underestimate their performance. To sum, teacher can use both teacher evaluation and peer evaluation to evaluate students' writing performance. In this study, the researcher use teacher evaluation.

In a general purpose course of EFL, the assessment may focus on language and style, self-confidence and expressive abilities, composing, rhetoric and acculturation (Cumming, 2001). However in terms of Argumentative writing, thinking skills should be another concern.

### **Scoring approaches.**

There are basically three kinds of scoring approaches according to Bailey (1998):

holistic, primary trait and analytical approach. In holistic evaluation, the raters who use this approach will consider the composition as a whole. In holistic scoring, there are a set of scores such as one to five. The example of holistic scoring rubric is shown below.

Table 2.1 GMAT Scoring Guide: Analysis of an Argument

<p><b>6 Outstanding</b></p> <p>6 point paper presents a cogent, well-articulated critique of the argument and demonstrates mastery of the elements of effective writing.</p> <p>A typical paper in this category exhibits the following characteristics:</p> <ol style="list-style-type: none"> <li>1. clearly identifies important features of an argument and analyzes them insightfully</li> <li>2. develops ideas cogently, organizes them logically, and connects them insightfully</li> <li>3. effectively supports the main points of the critique</li> <li>4. demonstrates superior control of language, including diction and syntactic variety</li> <li>5. demonstrates superior facility with the conventions(grammar, usage, and mechanics) of standard written English but may have minor flaws</li> </ol>
<p><b>5 Strong</b></p> <p>5 point paper presents a well-developed critique of the argument and demonstrates a strong control of the elements of effective writing.</p> <p>A typical paper in this category exhibits the following characteristics:</p> <ol style="list-style-type: none"> <li>1. clearly identifies important features of the argument and analyzes them in a generally thoughtful way</li> <li>2. develops ideas clearly, organizes them logically, and connects them with appropriate transitions</li> <li>3. sensibly supports the main points of the critique</li> <li>4. demonstrates clear control of language, including diction and syntactic variety</li> <li>5. demonstrates facility with the conventions of standard written English but may have minor flaws</li> </ol>
<p><b>4 Adequate</b></p> <p>4 point paper presents a competent critique of the argument and demonstrates adequate control of the elements of writing.</p> <p>A typical paper in this category exhibits the following characteristics:</p> <ol style="list-style-type: none"> <li>1. identifies and analyzes important features of the argument</li> <li>2. develops and organizes ideas satisfactorily but may not connect them with transitions</li> <li>3. supports the main points of the critique</li> <li>4. demonstrates sufficient control of Language to convey ideas with reasonable clarity</li> <li>5. generally follows the conventions of standard written English but may have some flaws</li> </ol>
<p><b>3 Limited</b></p> <p>3points paper demonstrates some competence in analytical writing skills and in its control of the elements of writing but is plainly flawed</p> <p>A typical paper in this category exhibits one or more of the following characteristics:</p> <ol style="list-style-type: none"> <li>1. does not identify or analyze most of the important features of the argument, although some</li> </ol>

<p>analysis of the argument is present</p> <ol style="list-style-type: none"> <li>2. mainly analyzes tangential or irrelevant matters, or reasons poorly</li> <li>3. is limited in the logical development and organization of ideas</li> <li>4. offers support of little relevance and value for points of the critique</li> <li>5. does not convey meaning clearly</li> <li>6. contains occasional major errors or frequent minor errors in grammar, usage, and mechanics</li> </ol>
<p><b>2 Seriously Flawed</b></p> <p>2 points paper demonstrates serious weaknesses in analytical writing skills A typical paper in this category exhibits one or more of the following characteristics:</p> <ol style="list-style-type: none"> <li>1. does not present a critique based on logical analysis, but may instead present the writer’s own views on the subject</li> <li>2. does not develop ideas, or is disorganized and illogical</li> <li>3. has serious and frequent problems in the use of language and in sentence structure</li> <li>4. has serous and frequent problems in the use of language and sentence structure</li> <li>5. contains numerous errors in grammar, usage, and mechanics that interfere with meaning</li> </ol>
<p><b>1 Fundamentally Deficient</b></p> <p>1 point paper demonstrates fundamental deficiencies in analytical writing skills.</p> <p>A typical paper in this category exhibits one or more of the following characteristics:</p> <ol style="list-style-type: none"> <li>1. provides little evidence of the ability to understand and analyze the argument</li> <li>2. provides little evidence of the ability to develop an organized response</li> <li>3. contains a pervasive pattern of errors in grammar, usage, and mechanics that severely interferes with meaning.</li> <li>4. has severe and persistent errors in language and sentence structure</li> <li>5. contains a pervasive pattern of errors in grammar, usage, and mechanics that results in incoherence</li> </ol>
<p><b>0 No score</b></p> <p>0 point paper is off topic, not written in English, is merely attempting to copy the topic; or consists only of keystroke characters.</p>
<p><b>NR Blank</b></p>

Table 2.1 presents a very standardized holistic scoring rubric, the user can judge an article according to the characters in each column.

In primary trait, which is indeed another way of holistic scoring; focusing on whether there is evidence of trait or particular feature that the teacher would like to see in

students' paper. Both language feature and content feature can be taken as trait (Pongto, 2010).

The last one is analytic scoring, analytical scoring procedure asks raters to evaluate a piece of composition in terms of a set of criteria, and the rater has to give score in each criteria. An example of analytical scoring rubric is "California State University, Long Beach Analytical Writing Rubric" as shown in Figure 2.2

Figure 2.2 California State University, Long Beach Analytical Writing Rubric

Your written work will be evaluated by the criteria below in order to give you specific feedback to help guide your development as a writer. Your writing will not be graded point by point by these items; it will be graded for its overall quality.

	<i>Excellent</i>		<i>Competent</i>		<i>Not</i> <i>0</i>
<b>Presentation</b>					
1. The purpose and focus are clear and consistent					
2. The main claim is clear					
3. The organization is clear and effective					
4. The sentence and word choice are varied and appropriate					
5. Punctuation, grammar, spelling, and mechanics are appropriate					
<b>Content</b>					
6. Information and evidence are accurate, appropriate, and integrated effectively					
7. Claims and ideas are supported and elaborated.					
8. Alternative perspectives are carefully considered and represented.					
<b>Thinking</b>					
9. Connections between and among ideas are made.					
10. Analysis/synthesis/evaluation/interpretation are effective and consistent					
11. Independent thinking is evident.					
12. Creativity/originality is evident					
<b>Assignment Specific Criteria</b>					
13. Responds to all aspects of the assignment					
14. Documents evidence appropriately					
15. Considers the appropriate audience/implied reader					

**Over all Evaluation:**

Excellent  Competent  Not accept

**Grade: \_\_\_\_\_**

**Comments** \_\_\_\_\_

Figure 2.2 is a standardized analytical writing rubric, the user could fill in every evaluation aspects and get an average score to see whether the overall evaluation is excellent, competent or not accept.

If we try to compare the holistic rubric with analytical rubric as shown above, we may found out that holistic rubric focus more on giving students the overall or a single assessment as a whole, while analytical rubric is able to bring a rating score for each small criteria. It is also easy for the teacher to give some feedback for analytical rubric(Writing@CSU, 2013, online).

**Writing and critical thinking.**

Writing is another way to enhance critical thinking. “We believe writing is the tool of thinking. The best way to learn to think is to read a lot of good writing and write a lot about what you’ve read” (Condon, Kelly-Riley, 2004: 1). As what Susan (1986) said writing in order to build the systematic connection in writing, students have to use the higher level cognitive function like synthesis and analysis. Writing is therefore, a skill which helps to build some of the critical thinking skills most educators list as a primary goal for liberal education. Students must draw on higher cognitive skills to analyze, synthesize and edit ideas to integrate new ideas in order to create additional text.

Hatcher (1990) explained the relationship between critical thinking and writing in a

more detailed way: “writing not only communicates ideas but also is a process by which ideas are clarified and corrected”. This means writing and rewriting involved critical thinking activity. Lipman(1988), founder and director of the Philosophy for Children Program, has pointed out that critical thinking is not simply thinking with reason but critical thinking itself is a kind of thinking with self-correction. Critical thinking is a constant process that it always evaluates and tries to make better its own position and argument. At the same time, experts in written composition tell us repeatedly that the purpose of writing is to clarify our own thinking, providing information and evidence to the reader, and persuade the reader of the strength of our position. This process involves writing, revision, and editing. For any kind of organized writing, planning or prewriting is a prerequisite. Naturally, planning requires critical thinking (Mok, 2009). According to Strunk and White (1918), one mark of a good writer is the willingness to be critical of what is written and, if necessary, to make the necessary revisions for clarity and understanding. Writing, like critical thinking, is a self-correcting process. And as we all know, one of the biggest obstacles to writing a good article is that students often have little to say about an issue or position taken in a text. An understanding of critical thinking can be helpful by giving students the important strategies and tools for critical analysis that in turn will allow them to have something reasonable to say about a text.

McLeod (1992:4) argues that “writing is not only a way of showing what one has learned but is itself a mode of learning — that writing can be used as a tool for, as well as a test of, learning” Cognitive psychologists stated that learners have to ‘use their minds to observe, think, categorize and hypothesize’ in terms of language education to know

exactly the way language system operate (William and Burdensm, 1997:13). The complex writing process which involves the intense thinking activity shortens the distance between good thinking and careful writing (Arapoff, 1967).

### **Writing and critical thinking in another perspective.**

It is not all kinds of writing can improve students' critical thinking abilities. A study in Washington University aimed to relate the score of students' writing and critical thinking surprisingly found out the higher score of one's writing, the lower of his critical thinking score (Condon and Kelly-Riley, 2004). This leads us to rethink about the relationship between writing and critical thinking. The concepts of writing and critical thinking are both abstract, complex and vary depend on context and situation. The inverse correlation between the critical thinking and writing score reflect the unrelated assessment between the two terms. It is not rare to find out many times the so called sound writing contain no critical thinking or just some superficial thought. Haswell's research (1991) indicates that when the writer wants to try a new way of thinking, often their writing structure will break down. The result in this study that students' writing score relate negatively with critical thinking score indicates that students begin to write does not mean they begin to write critically.

That is why Condon and Kelly-Riley (2004) stated that writing acts as a vehicle for critical thinking, but writing is not itself critical thinking. "We need to consider how overtly integrating critical thinking expectations into our writing instruction, writing assessment. The nature of the timed sample undervalues higher order thinking in the construct we are testing." (Condon and Kelly-Riley, 2004: 67)

To sum up, writing process involves higher cognitive function and revising process involves critical thinking activity, those contribute to the development of critical thinking abilities through writing. However, not all kinds of writing can promote critical thinking, that is why clear expectations towards students is important so that students will realize the thinking part inside of writing is valuable and try to practice it on purpose.

### **Problem- Based Learning Approach**

This section firstly introduced the definition of problem-based learning, then review the advantage and disadvantage of PBL as an approach. The researcher also reviewed the literature about PBL promote critical thinking. Knowing that PBL does promote critical thinking, the researcher reviewed the related literature about PBL and EFL especially PBL and writing.

#### **Definition of problem-based learning.**

Problem-based learning (PBL) is a student-centered instructional approach that enables the students to work cooperatively in small groups to seek solutions to problems (Rideout and Carpio, 2001). It was firstly developed at a medical school of McMaster University in Canada (Spaulding, 1969; Neufeld and Barrows, 1974; Fraenkel, 1978; Barrows and Tamblyn, 1980). Theoretically, Problem-based learning has roots in constructivism and the belief that knowledge is constructed by the learner's previous knowledge (Kock et al., 2004). It uses situations or problems as the context for students to increase their learning motivation for acquiring and applying knowledge (Sherwood, 2004). Students meet together as a small group with a tutor, discuss the situations, and assist each other in making connections between new ideas and prior knowledge, thereby



creating new meanings (Rideout and Carpio, 2001).

### **Advantage and disadvantage of PBL.**

Is PBL an effective approach to apply in classroom? As a new approach PBL has its own advantages and disadvantages. The primary research to evaluate PBL was also in medical field. The studies covered student and faculty attitudes, placement of students after graduation, effect on student learning styles, lifelong learning skills, effectiveness of students in clinical practice, and student retention of factual information (Berkson, 1993; Bernstein, Tipping, Bertowitz, and Skinner, 1995; Kaufman and Mann, 1996; Mennin, Kalishman, Friedman, Pathak, and Snyder, 1996; Vernon and Hosokawa, 1996; Caplow, Donaldson, Kardash, and Hosokawa, 1997; Birgegard and Lindquist, 1998). These studies either compare traditional approach and PBL or evaluate PBL on itself. There are also some studies in other fields, which include evaluating the use of PBL in law school, nursing education, and nutrition and dietetics (Moust, De- Volder, and Nuy, 1989; Lieux, 1996; Alexander, Baldwin, and Mc- Daniel, 1998).

### **Advantages of PBL.**

There are several advantages for PBL. Firstly, it is proven to be enjoyable for both students and faculty; secondly, it can help students develop self learning ability; thirdly, PBL is an effective way to promote greater learning outcome.

The strongest point to support PBL is that PBL provide both students and faculty a pleasing and stimulating learning environment (Bernstein et al., 1995; Birgegard and Lindquist, 1998; Creedy and Hand, 1994; Lieux, 1996; Vernon and Hosokawa, 1996). The literature review by Albanese and Mitchell (1993) on outcomes and implementation

issues of PBL found students' attitudes toward PBL to be positive. The research covered different subjects which involving implementation of PBL format in teaching microbiology, pharmacology, hematology, and endocrinology. The results indicated that PBL is perceived positively in different subjects' areas (Albanese and Mitchell, 1993).

The purpose of PBL as Albanese and Mitchell (1993) stated is to develop self-directed learning skills more effective and efficient, and to make students aware of their own responsibility for their intellectual growth. The reason is the classic PBL format involves group discussion and self-directed solution. A literature review seems to support this idea (Bernstein et al., 1995; Lieux, 1996; Mennin et al., 1996; Caplow et al., 1997).

Stefaniak (2009:1) point out Problem Based Learning (PBL) as an approach improves students' long term learning by delivering content and skills in an effective way. Amos and White (1998) adapted open-ended questions to assess the advantage and disadvantage of the students' PBL experiences. Many advantages were found including: development of critical thinking, learning skills, creativity in learning research skills, and personal growth. Edwards et al. (1998) evaluated a community health course taught with PBL. Many students found the course to be challenging and motivating as they learn how to locate and use new resources through the negotiation of problems that mimic contemporary personal, regional and global issues. Therefore, PBL promotes the development of cognitive functions and develops the skill which students can make use through their professional career.

### **Disadvantages of PBL.**

There are also several disadvantages for PBL. Firstly, students may have some concerns about this new approach. Secondly, it was found difficult for faculty to integrate PBL. Thirdly, the effectiveness of PBL in terms of the acquisition of factual knowledge is questioned.

Several negative perspectives were reflected in the literature review about the disadvantage of PBL, which include a fear of knowledge gaps, possible reinforcement of the wrong information, and too much time and work required (Bernstein et.al., 1995; Caplow et.al., 1997).

Faculty have also identified some problems with time and financial cost, resource problems, student evaluations problem, and not enough integration work to make PBL as part of the curriculum (Vernon and Hosokawa, 1996).

Six of ten studies reviewed by Albanese and Mitchell (1993) indicated that comparing to the traditional curriculum students, the PBL curricular students' score is lower. The research by Lieux (1996) did not show a significant difference between the PBL and traditional lectured students in a nutrition and dietetics class (Beers, 2003).

### **PBL promotes Critical thinking.**

Problem-based learning is a kind of learning approach which promotes critical analysis, self-directed learning and problem solving. The whole group will check the idea, recognize the situation and logically check the evidence. These skills reflect the construct of critical thinking (DaRosa, O'Sullivan, Younger and Deterding, 2001).

From a common sense perspective, Problem-based learning does attempt to

broaden the students' abilities in critical and analytical problem solving. Barnett (1997) has suggested that critical thinking in itself is a limited aspiration for a university, and he argues that the aim should be the development of 'critical being'. In this concept a student would not only develop critical-thinking skills, but would also be prepared to question assumptions about knowledge and values in both thought and action. In PBL, it is the tutors who need to promote these ideas by modeling, coaching and providing a space in which students themselves can rehearse critical thinking. Individuals can then develop a disposition towards 'critical being' through praxis, a process of reasoned argument and self-determination based on cycles of action and reflection. Students gradually take more responsibility for the learning environment through exercising judgment for themselves and for their peers.

Group discussion can enhance students' critical thinking skills (Beer, 2005). PBL involves a lot of group discussion and as an effective learning strategy is believed to help students to become learners that can direct one-self and develop several important skills such as: transferable skills, critical thinking skills, problem solving skills and teamwork skills (Kivela, 2005). Researchers in Sweden found that after PBL was introduced in the curriculum, students' perceptions that the curriculum encouraged CT increased significantly.

To sum up, PBL can bring students real-life situation and during the process the students will learn to find out the information they need, so they will analyze it, and communicate it to others (Williams, 2001). PBL gives students the chance to be actively enjoying the learning process and to develop critical thinking skills (Amos and White,

1998).

### **Problem-based learning and EFL.**

PBL is an approach combined cognitive and meta-cognitive teaching and learning. In EFL it engages students in learning language content while at the same time learns how to learn. In EFL context, problem based learning is an approach in which students learn a language by using it rather than simply memorizing and practicing it. Comparing with traditional school instruction, PBL is quite different in terms of teacher and students' role and responsibility. More often, the teacher acts as a facilitator who gives a problem for students to solve and the teacher will be the one who does necessary assist and give some feedback. Finally the teacher will evaluate the whole process and different members' performance (Mathews 2007).

The research in China about PBL and EFL proved that PBL can significantly improve language learners' language skills in general. However, the structure and written expression of the low achievers and high achievers' listening and reading skills are exception. Those findings also support that PBL can improve students' learning ability in terms of teamwork, higher-order thinking, and presentation skills together with self-confidence. The research indicated that PBL can be an effective approach of teaching English and it can be successfully applied in the students group who were used to traditional way of teaching (Yuan, 2008). There are several basic steps in PBL:

The first stage is to present and define the problem and all the aspects related.

Second stage is called exploring the possible solutions in which students present their own arguments and other students take a note. The third stage is narrowing down the

choices (or delimitation in research) and selecting appropriate one only as per requirement of the problem. And, for the sorted out solutions, students have to verify them and present the outcomes to the whole class (Rahman, Jumani, Dastgeer, Chishti, Tahirkheli, 2011:2). A more detailed stages as well as students and teacher's roles in PBL was provided by Aydinli (2007:2) which is illustrated in Table 2.2

Table 2.2 Role and process of problem-based Learning

Student role	Teacher's role
	<p>Pre-teach</p> <p>Make sure students understand the goals and benefits of a problem based approach for language learning.</p> <p>Emphasize the importance of using English in problem-solving activities.</p>
Meet the problem	<p>Introduce Problem and Vocabulary</p> <p>Introduce students to the problem using pictures, video, texts.</p> <p>Introduce vocabulary related to the problem.</p> <p>Ask students about previous personal experiences with the problem.</p> <p>Provide pre-reading exercises about the problem.</p>
Explore knowns and unknowns	<p>Group Students, Provide Resources</p> <p>Make sure that students understand the problem and the expectations of them.</p> <p>Emphasize that there is no single answer or solution, and that they need to choose what appears to be the most viable solution to them and be prepared to explain why they chose that solution.</p> <p>Give students access to resources such as the Internet, books, magazines, brochures, newspapers, television, and telephones.</p> <p>Make sure that students are aware of the range of resources available and know how to use them.</p> <p>Group students, preferably in groups with different language backgrounds and proficiency levels.</p>
Generate possible solutions	<p>Observe and Support</p> <p>Observe students and provide support as needed, but do not attempt to direct their efforts or control their activity in solving the problem.</p> <p>Observe, take notes, and provide feedback on student participation in the activity and on language used during the activity.</p>

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Consider consequences and choose the most viable solution	<b>Follow Up and Assess Progress</b> Provide students with opportunities to present and share the results of their work. Provide follow-up activities based on your observations; e.g., form focused instruction on grammar, pronunciation, or pragmatic issues. Assess students' participation and success in the activity.
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The same procedure can also benefit Thai students in terms of learner autonomy, learning process, solving problem ability and building knowledge. In Thai classroom context, both teacher and students should contribute a little in implementing PBL into local culture. The teacher should take new tasks, for example: organizing activities, establishing learning environments for students and promote the use of target languages. What is more, the teacher also becomes the source person during activities. The learner's role will change accordingly. The learners should actively use the language, try to negotiate the meaning and learn the proper form of the target language. These adjustments could make PBL more efficiently in EFL classroom (Simpson, 2011).

PBL can benefit students in many ways, however; there are also some challenges when we want to apply PBL in EFL. The first one is language use during the problem solving. Students tend to use native language rather than English to solve the problem. Secondly, PBL may not suitable for everyone, especially the students whose English level is not high. A third challenge is that the students communication model often change when teacher approach. Some students may stop talking, and some may turn to teachers for solution instead of solving problems by themselves (Smith, Harris and Reder, 2005).

### **PBL and writing.**

The nature of PBL helps students learn how to define rhetorical problems in various discourses so their writing becomes both academic and practical. In a composition course where content is not subject specific, the lack of constraining subject matter could make problem definition even more difficult. However, the researchers find out students prefer PBL writing instruction than the traditional form. PBL provides different situation for students to notice the importance of writing, in their attempt to "figure things out," and in their functionality within a group (Chapman, 2002: 265-67). "The PBL centered composition classroom has the potential to develop articulate, incisive composers of varied discourse and multimodal models of communication as well as proficient problem solvers." Therefore, Problem Based Learning is a viable approach to composition instruction where the net effect facilitates the development of imagination and effectiveness of students, professionals and citizens prepared to meet the challenges of a 21'century global economy (Stefaniak, 2009).

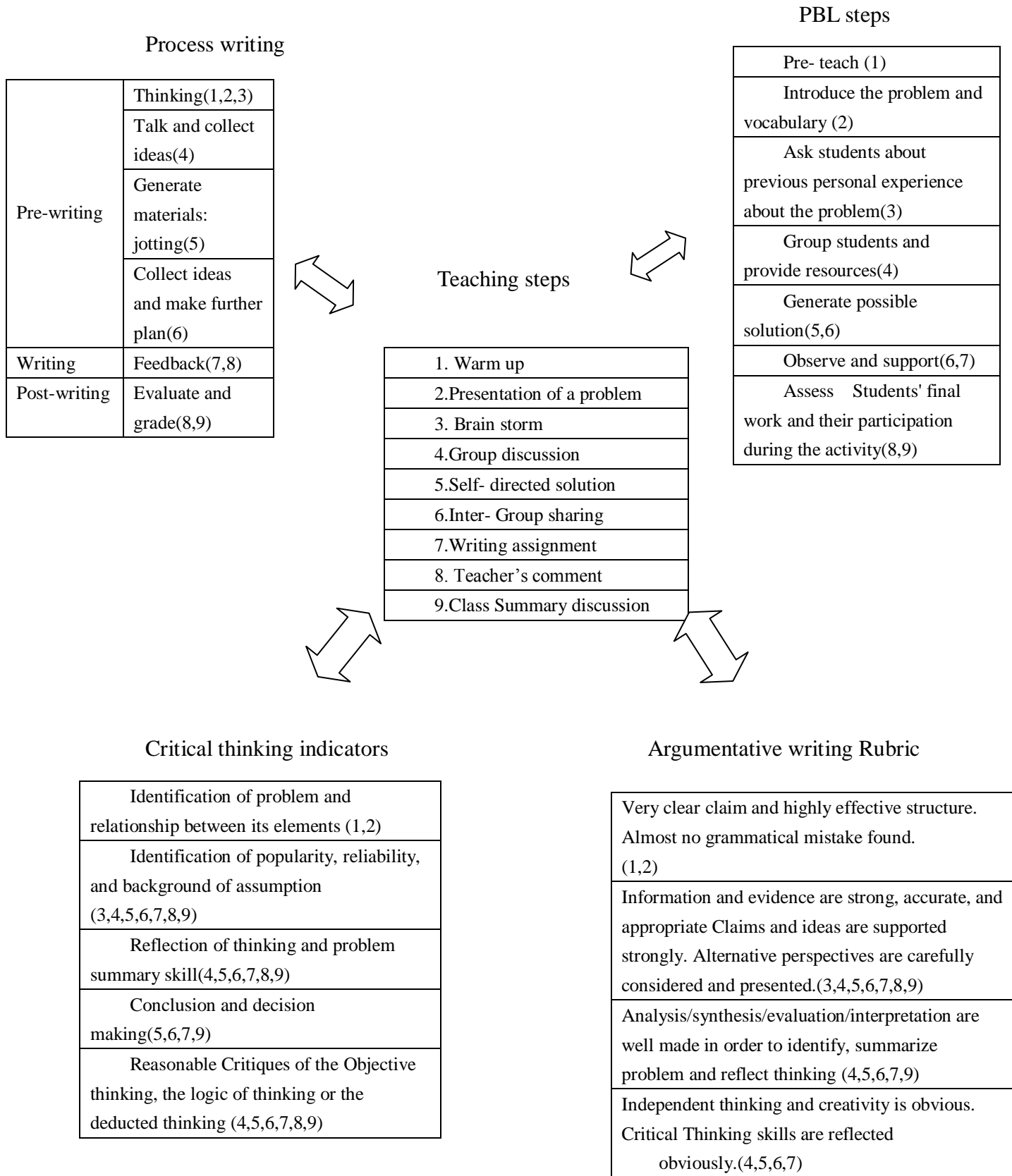
### **Summary**

All three main elements of this study were reviewed in separate: Critical thinking, writing, and problem-based learning. Critical thinking has its unique significance. It can be enhanced through argumentative writing. Compare with traditional ways of learning writing, problem-based learning can better assist students to understand the target issue and PBL was also proved to be effective in improving students' critical thinking. Teaching writing as a process provides enough teaching steps to take PBL activities into writing class.



Through literature review above, the researcher tries to find out the ways in improving students critical thinking abilities and finally come up with the conceptual framework below, which indicates that Problem based English writing instruction which integrated Problem based learning as well as writing teaching as a process could be beneficial for students critical thinking abilities development.

Figure 2.3 Conceptual Framework of This Study



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The teaching steps in this study is generated out from Process writing and PBL steps. For example, in this figure process writing part, thinking(1,2,3) means teaching step 1,2 and 3 are all under the concern of process writing thinking part. There are two products from the teaching steps: the critical thinking abilities and argumentative writing skill. So the teaching steps are also linked with the critical thinking indicators and the characteristics in argumentative writing rubrics.

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## CHAPTER III

### RESEARCH METHODOLOGY

This chapter introduced the design of this research, the population and participants of this study. It also presents the research procedures, research instruments. The researcher also describes the instructional instruments in this research and the problem-based English writing instructional process in detail. Data collection and data analysis process is presented at the end of this chapter.

#### **Research Design**

This study employed research and development strategy which divided into two major phases. The first phase was the development of Problem based English writing instruction model and instruments. The second phase was a pretest-posttest experiment research study that implemented the Problem based English writing instruction model for upper secondary school students. Critical thinking test was used to measure students' critical thinking abilities before and after the instruction. Four pieces of writing assignments were given to the students and an argumentative writing rubric was designed to evaluate students' assignments. The independent variable was Problem based English writing instruction. The dependent variable was students' mean score on critical thinking test and writing assignments.

#### **Population and Participants**

The population of this study was upper secondary school students from public schools in Bangkok. The participants in this study were 46 M6 (Grade 12) students who enrolled in an elective course which focused on writing: Critical Thinking and

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Argumentative Writing. This was a girls' school so all the participants were female. Data of critical thinking pre and post test score as well as the first and fourth argumentative writing assignment score were successfully collected for analysis.

**School context.**

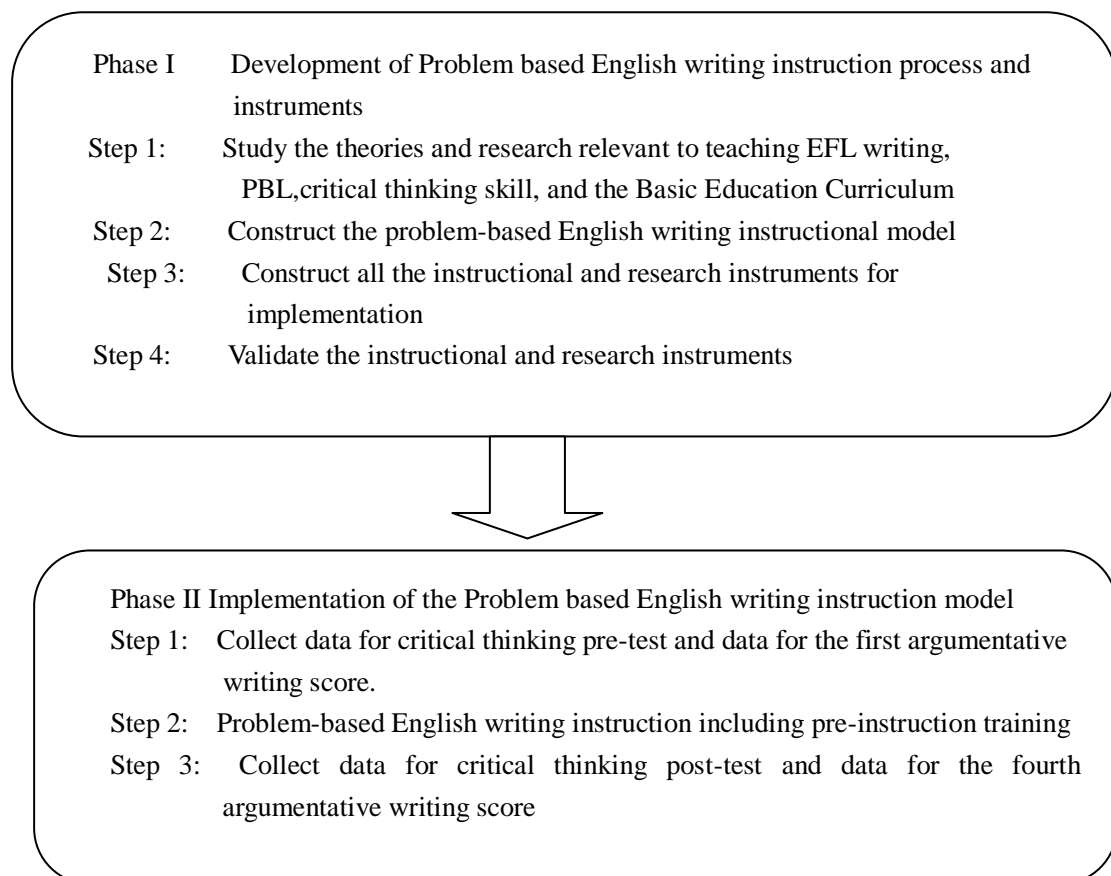
This school is a female secondary school famous for cultivating good manner students in Bangkok. The school is located not far from the center of the city. The students in this school are normally well disciplined. The school has strict standard on students' behavior and appearance. Most students come from normal working class family. The English teaching department of this school is a multi-national working environment. So the students have been experiencing foreigner's and Thai teacher's instruction for 6 years (lower secondary, upper secondary). Some foreigner teachers are not native speaker, for example: from Netherlands. So it was not the first time for the students to take class from Non-Thai, Non-native speaker's English class, but it was the first time for them to take English class from a Chinese teacher. The general English ability of this school is higher than the national average at the same age level. This was evident by the Ordinary National English Test (ONET) in 2011. The average score for that school students was 29.98, while the average for the whole country was 21.80, and the total score is 100. The result above is the most recent ONET result available for public (suriyothai, 2011, online).

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## Research Procedures

Research procedures of the present study will be discussed under two stages: Development of problem-based English writing instructional model and instrument and implementation of the problem-based English writing Instructional model.

Figure 3.1: Research Procedure



## Research Instruments

The research instruments in this study included a Survey Questionnaire, Critical thinking pre-test and post-test, argumentative writing assignments and scoring rubric

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### **Questionnaire.**

This questionnaire was designed to collect students' background information, learning styles and preferred topics. There are 12 items in the questionnaire (as seen in Appendix A) which covered general personal information, information about students' preferred learning styles (1,2,3,4,5), preferred topics of discussion (question 6,7,8), preferred group setting (9,10,11), English learning problem (12). The researcher could also elicit more information to better help understand student's writing ability.

The survey questionnaire was validated by 3 experts through IOC process and tried out with other M6 students during pilot-study. The IOC result is 0.75 which is above 0.

### **Critical thinking abilities pretest and posttest.**

The researcher used the pretest and posttest of Critical thinking abilities to measure students' critical thinking abilities development. The test (as seen in Appendix B) was developed as a national project from bureau of educational innovation development of Thailand. A group of experts (including one expert in educational measurement and evaluation, two experts in educational psychology) from Chulalongkorn University faculty of education accepted the project and develop the test in 2009. There were two basic types of thinking measured in the test: Thinking Group A- the thinking in social tools such as scientific thinking, problem solving thinking and creative thinking, and Group B- the thinking in human tools such as analytical thinking, critical thinking, and decision thinking. There were five items in Group B to evaluate students'

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critical thinking in the test to test five critical thinking abilities. This test was used as it was developed by Thai scholars in the field of educational measurement and evaluation as well as educational psychology. In addition, the test was used with the high school students in Thailand and proved to be valid and reliable in the Thai context. The test is valid by the evidence of the test structure (Appendix B), and the test reliability value is 0.52 proved by Educational testing center, Chulalongkorn University (Sirichai Kanjanawasee et al., 2009). The researcher consulted the test developers and confirmed that the section on critical thinking which consisted of five items can still be used individually to test students' critical thinking abilities. The construct of the test on critical thinking are shown as following:

Item 5: Identification of problem and relationship between its elements

Item 6: Identification of popularity, reliability, and background of assumptions

Item 7: Reflection of thinking and problem summary skill

Item 8: Conclusion and decision making

Item 9: Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking

Students were given 20 minutes to finish the critical thinking test which is from item 5 to item 9, and the result was taken as data for analysis.

### **Argumentative Writing assignments.**

There was a writing assignment in every two weeks. There were totally



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four writing assignment. The topic of writing assignment was based upon data of Survey. The first and the fourth writing assignments which were taken as research instrument were as following:

Table 3.1 Writing assignment samples

**The First Assignment:** Some people think the University education cannot produce the suitable talents for the society but the training agency could directly provide students necessary skills which is more beneficial. What is your opinion about this?

**The Fourth Assignment:** Some people said animal has feeling and emotion like human being, so they have basic rights for survival and that is why we should not kill animal; however, others consider animal do not have right, and we can kill them to take their meat and fur for human. What is your opinion?

The assignments from the first week and last week were taken for comparison. The assignments were evaluated through argumentative rubric. The indicators of the rubric were developed upon critical thinking test indicators. The score of two assignments were later compared to see students' improvement in terms of Critical thinking abilities and Argumentative writing skills. The validity of writing assignment was proved by three English teachers with M6 English writing instruction experience through IOC process. The IOC value is 0.76. IOC experts

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suggested these writing assignments could be used as tools of evaluation.

The language use in the writing assignment was simplified

according to the experts' comments.

### **Scoring Rubric (Appendix C).**

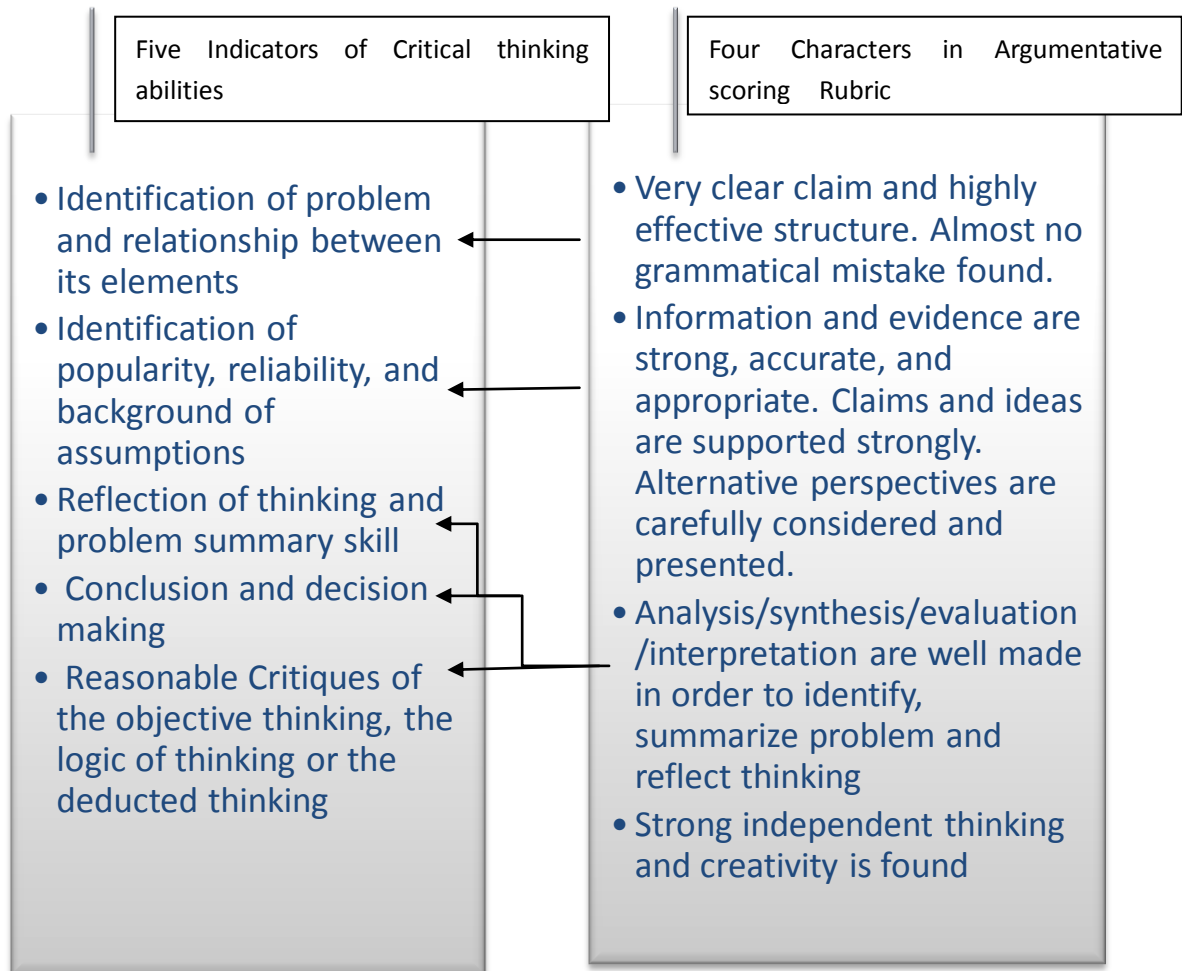
In this study "Analytical Writing assessment GMAT Scoring guide" (Graduate Management Admission Council, 2009) was originally adapted to assess students' critical thinking abilities and argumentative writing skills. However, during the 10 weeks pilot study in a high school, the researcher found the GMAT scoring rubric was too complicated to use in this study, thus, the researcher developed an argumentative writing scoring rubric (Appendix C) based upon critical thinking indicators of this study to assess students' critical thinking abilities and argumentative writing skills.

The developed argumentative writing scoring rubric consists of 6 levels of description and each level was described in terms of 4 characteristics. The structure and some description of the characters of the rubric was adapted from GMAT scoring rubric; however, the characteristics can better reflect this particular study because the rubric characteristics were developed based upon critical thinking test indicators of this study. The first characteristic in scoring rubric (1. Very clear claim and highly effective structure. Almost no grammatical mistake found.) reflects the general structure and grammatical correctness which are the basic criteria to evaluate an article. It also reflects the first indicator of Critical thinking in this study (1. Identification of problem and relationship

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between its elements). The second characteristic reflects the specific features in an argumentative writing: use of evidence, support and concern about the alternative aspect. The second characteristic (Information and evidence are strong, accurate, and appropriate. Claims and ideas are supported strongly. Alternative perspectives are carefully considered and presented.) reflects the second indicator (2. Identification of popularity, reliability, and background of assumptions). The third characteristic (Analysis/synthesis/evaluation/interpretation are well made in order to identify, summarize problem and reflect thinking) reflects the thinking process inside of the arguing part. It also reflects the third, fourth and fifth critical thinking indicators (3. Reflection of thinking and problem summary skill. 4. Conclusion and decision making. 5. Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking). The fourth characteristic is the independent thinking and creativity of an article. The following Figure 3.2 is a demonstration about the relationship between the critical thinking indicators and four argumentative scoring rubric characters in this study.

Figure 3.2 The relationship between CT indicators and Argumentative Scoring Rubric Characters



After, the construction of the scoring rubric, the researcher validated it through IOC process by asking three experts from Chulalongkorn University to evaluate and comment the rubric. Then the researcher piloted it with another rater in pilot-study. To familiarize and learn to assess the writing based on this created scoring rubric, the —

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researcher practiced using the scoring rubric to assess the students' actual writing assignments for one semester, thus the researcher trained the other rater who is a master degree graduate in English education field about how to use the rubric. Inter-rater correlation was analyzed for the first two assignment answers. There were 20 students participated in the first assignment and 22 students participated in the second assignment, and the Pearson correlation were .821 and .841 in separate. These inter-rater coefficients were acceptable, thus the researcher used this scoring rubric in the main study.

### **Instructional Instruments**

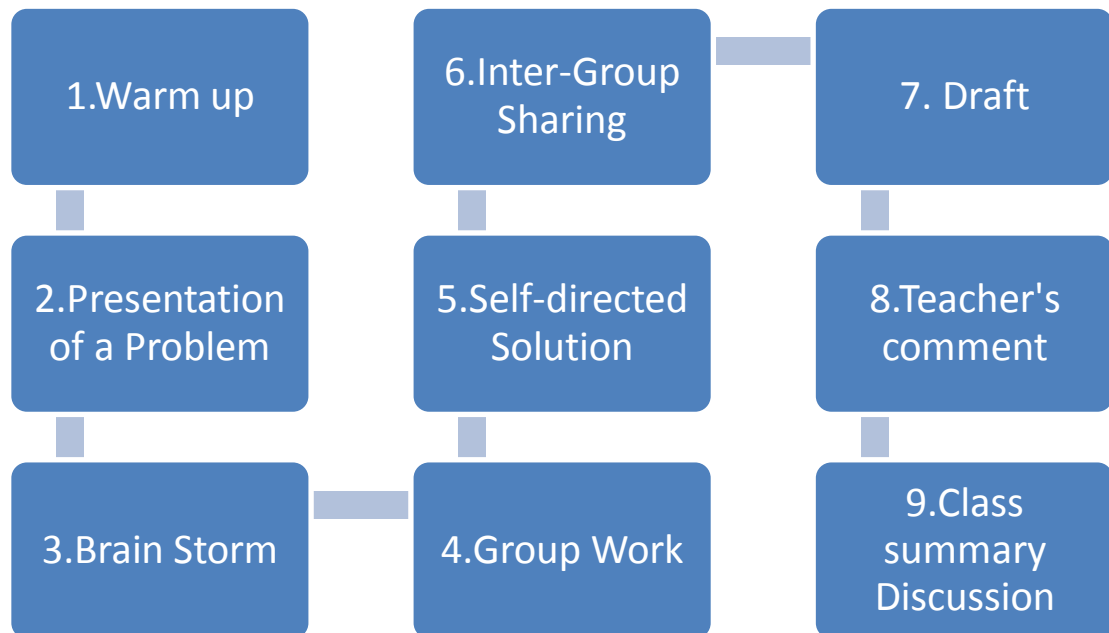
Instructional instruments include instructional process, lesson plans and instructional materials.

#### **Instructional Process.**

Before developing lesson plans, the researcher developed Problem based English Writing Instructional Process, which was based upon Problem based Learning steps (Aydinli, 2007) and Process writing steps (Dronanet et al., 2003). The framework of PBL steps, Process writing steps and Problem based English writing instructional process steps are seen in Chapter II Figure 2.3. Figure 3.3 is a brief process about problem based English writing instruction.

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Figure 3.3 Problem based English Writing Instructional Process



1. Warm up (whole class activity): This step coincides with the pre-teach step in PBL, in which rules such as using English only and goals of the class were settled. Some related questions were asked which is equal to the first step in Process writing: pre-writing: thinking. So in this step, teacher's role was rule setting and asking questions, while students were exposed to the problem related questions, which leads them to think and identify the concept of the problem and reflect related issue and thought, so this step can contribute to the development of students' critical thinking abilities in terms of "Identification of problem and relationship between its elements" and "Reflection

of thinking and problem summary skill”. A sample teaching step

Teaching step	Description of teacher’s role	Description of students’role	Learning outcome	Evaluation
1 Warm up (15min)	The teacher introduces the topic and asks questions related to the animal rights and tries to get students different opinions. For example: What is love? Do you think students should fall in love?	The students answer the question from the teacher. They will form a four people group and discuss with each other and later write down their answer about what is love.	Identification of problem and relationship between its elements “Reflection of thinking and problem summary skill”.	Objective 1. Identify the conflict value and attitude towards Love through discussion or research. Evaluated through class observation

was shown in Table 3.2

Table 3.2 Sample teaching step 1 in real lesson

2. Presentation of a problem (whole class activity): This is a step designed based upon PBL step “introduce the problem and vocabulary and Process writing step “pre- writing: thinking”. In this step, teacher’s role was to introduce the problem using pictures, video, or texts. The related vocabulary was also introduced. During this process, students’ role was further reflecting their own thought or other people’s ideas so they could have chance to further identify the problem. That is why this step still focuses on the critical thinking abilities “Identification of problem and relationship between its elements” and “Reflection of

thinking and problem summary skill” (see Table 3.3).

Teaching step	Description of teacher’s role	Description of students’role	Learning outcome	Evaluation
2Present ation of the problem (20min)	The teacher ask the students to watch a short video (part of the movie <i>love the little crazy thing</i> )and answer related questions. For example: Do you think it is a real life story? Do you think it is touching? Why is it touching?	Students watch the video and answer the question from the teacher with their own reason. Through watching the video and answering the questions, the students will begin to understand the problem:  Some people want to chase their love at the price of losing themselves.	Identification of problem and relationship between its elements  “Reflection of thinking and problem summary skill”.	Objective 1. Identify the conflict value and attitude towards Love through discussion or research.  Evaluated through class observation

Table 3.3 Sample teaching step 2 in real lesson

3. Brain-storm (whole class activity): This is a step designed based upon PBL step “ask students previous experience” and Process writing step “pre-writing: thinking”. As illustrated in Table 3.4, in this step, teacher’s role was still to ask some leading questions, and to write down students’ answers while students previous personal experience could be dig out and students were free to give short comments or some on spot solutions at this step. Because in this step, it concerns about personal experience, and students would also be exposed to other people’s personal experience related to the target problem and give short



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comments, it must involve the critical thinking abilities “Reliability, popularity and background of the assumption identification”. Students needed to logically identify whether other people or even opinion or experience of himself could apply to the particular situation or problem, thus enhanced the critical thinking abilities above. The students’ short comments about the issue or other people’s experience or thought could contribute to the development of another critical thinking abilities “Reasonable critiques of the objective thinking, the logic of thinking or the deducted thinking” because the objective of the comments

Teaching step	Description of teacher’s role	Description of students’role	Learning outcome	Evaluation
3.Brain	The teacher show	Students watch	Identification	Objective3

is the thinking itself.

Storm (25min)	students a group of slides and ask students to brainstorm their opinions and solutions for the problem : If you were Nam, do you want to change yourself like her? Is it worthwhile to change yourself for the one you love?	the slide and brainstorm. Then the student who come up with the idea will come to the front and speak out their opinions	Of reliability, popularity and background of the assumption Reasonable critiques of the objective thinking, the logic of thinking or the deducted thinking.	Conclude the problem and express a solution based upon reasonable arguing in oral or written form. Evaluated through class observation as well as solutions written down by each group
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Table 3.4 Sample teaching step 3 in real lesson

4. Group work (group activity): This step is based upon PBL step “Group students and provide resources” and Process writing step “Talk and collect ideas”. Teacher’s role in this step was trying to group students. Teacher can do some adjustment to make sure a general balance would happen among different groups. 4 to 6 people is an ideal size according to researcher’s teaching experience. Students in this step were grouped randomly each time. Students would work together to find all the possible information and talk with each about other people’s opinions. Again in this step, students would reflect each other’s thought through discussion and summarize the problem, while they would naturally identify the reliability of the source and other peers’ thought during the discussion. So this step could contribute to two critical thinking abilities: “Identification of popularity, reliability and background of assumptions”, “Reasonable Critiques of the objective thinking, the logic of thinking or the deducted

thinking”. Table 3.5 illustrates the detailed information for this teaching step.

Table 3.5 Sample teaching step 4 in lesson plan

Teaching step	Description of teacher’s role	Description of students’ role	Learning outcome	Evaluation
3.Group work (25min)	<p>The teacher ask students work in a group to share each other’s opinion and solution. The problem here will be:</p> <p>According to the You tube video, as well as the solutions That we brainstormed, now work in group and make a Collective answer about only one issue:</p> <p>Do you think it really worthwhile to change yourself for someone else, or we should maintain ourselves?</p> <p>What is your reason?</p>	<p>The students will work in a group of 4 and begin to discuss. They need to negotiate with each other and get a collective opinion for the problem. The opinions and solutions could be different from each other and also can be different from the previous brainstorm result. Each group need to write down their solution in the the representative need to read their solution in front of the class.</p>	<p>Identification of Reliability, popularity and background of the assumption Reasonable critiques of the objective thinking, the logic of thinking or the deducted thinking.</p>	<p>Objective 2. Analyze and argue the content and opinions of others in oral form or written form .</p> <p>Evaluated through class observation as well as solutions written down by each group</p>

5. Self-directed solution (individual activity): This step is based upon PBL step “Generate possible solution” and Process writing step “Generate material: jottings, free writing, lists”. As in Table 3.6, teacher’s role was mainly observation and give necessary assistance. Students in this step would begin to write down their raw summary of possible solutions based upon the group talk. At this time, the students might have several possible solutions and many people’s opinions at hand. They

would need to reflect everyone’s reason in supporting a particular solution, thus they could make a logical decision and write it down. This process involves critical thinking abilities “Reflection of thinking and problem summary skill” and “Conclusion and Decision making skill”.

Table 3.6 Sample teaching step 5 in lesson plan

Teaching step	Description of teacher’s role	Description of students’ role	Learning outcome	Evaluation
Self-directed solution (20min)	The teacher provides the students additional resource to explore or assignment to finish. Here in sample lesson, the assignment is about a debate.	The students have to make self- directed solution about the opinions of the debate topic. They can search on internet or depend on the resource given by teacher	Reflection of thinking and problem summary skill Conclusion and Decision making skill	Objective 1. Identify the conflict value and attitude towards Love through discussion or research. Analyze and argue the content and opinions of others in oral form or written form .  Evaluated through class observation and class presentation in next class

6. Inter-Group sharing (group activity): This step is based upon PBL step “provide students opportunities to present and share the result of their work” and Process writing step “Collect ideas and make further plan”. In this step, there could be many flexible ways. For the teacher, he or she could re-build the group so that students can mix with other group or each group could send a representative to present their group solution in front. Argumentation about the underlying logic in each

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group's solution is encouraged. Students should also jot down other groups' solution, their logic behind as well as main argumentation from other group. In this research, a good example for this step was debate. Two groups of students will share their ideas in the form of class debate. The students' critical thinking abilities "Identification of popularity, reliability, and background of assumptions" would be strengthened because they have a chance to judge whether other groups' assumption is logical or not when they are presented by other groups' people. "Reflection of thinking and problem summary skill" would also be built because argumentation about the underlying logic was encouraged, so they have a chance to reflect other peoples' thinking and "Reasonable Critiques of the objective thinking, the logic of thinking or deducted thinking" skills would be strengthened during the process as well for the same reason (see Table 3.7).

Table 3.7 Sample teaching step 6 in lesson plan

Teaching step	Description of teacher's role	Description of students' role	Learning outcome	Evaluation
6.inter-group sharing	<p>The teacher repeat the debate rules</p> <p>The teacher assign one student as the debate timekeeper</p> <p>The teacher serves as MC of the debate and organize the debate according to the process above.</p> <p>The teacher provide note taking template.</p> <p>After the debate, the teacher will make comments about both sides in terms of language logic and way of expression. Then the teacher will organize vote round.</p>	<p>Students firstly discuss and prepare inside of groups for about 25 minutes and they can ask teacher for help.</p> <p>Students will arrange the room to be debate room.</p> <p>Students will begin debating</p> <p>Students will vote for the best debater.</p> <p>Because of the time limitation, there will be only one focus as the criteria for the voting: whether the debater or the Group gives a sound arguing based upon reasons.</p>	<p>Identification of popularity, reliability, and background of assumptions</p> <p>Reflection of thinking and problem summary skill</p> <p>Reasonable Critiques of the objective thinking, the logic of thinking or deducted thinking</p>	<p>Objective 3. Conclude the problem and express a solution based upon reasonable arguing in oral or written form.</p> <p>Evaluated through class observation and class presentation in next class</p>

7. Draft (individual activity): This step is designed based upon PBL step "Observe and support" and Process writing step "writing". The structure of a paragraph and the whole article would be trained before the formal experiment and in this step the teacher's role was to mention some tips about how to write a good article once again as well as reminding students about all the opinions during the class discussion. Students needed to synthesize all the necessary

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information and write down a draft argumentation essay which aimed at solving a problem and logically arguing about all the options. The students' critical thinking abilities "Identification of popularity, reliability, and background of assumptions" would be strengthened for during the argumentation writing process students needed to consider the weak point of the counter part's opinion in terms of the popularity, reliability and background of the assumptions. "Reflection of thinking and problem summary skill" would be strengthened as well because in the convention of argumentation, the writer usually lists all the possible solutions or opinions to reflect and then summarize the problem. "Reasonable Critiques of the objective thinking, the logic of thinking or deducted thinking" skills would also be strengthened because the writer needs to argue against the opposite opinion sometime in terms of the logic of thinking. In this research, students usually need to take around 2 hours to finish their draft, so they would make it at home.

8. Teacher's comment (teacher's activity): This step is generated through PBL step "Observe, take notes and provide feedback" as well as Process writing step "Get feedback from teacher and Peer response". In this step, teacher's role is to revise students' work and also give comments. The teacher would revise mostly on grammar mistakes and spelling mistakes, and he/she would comment based

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upon the argumentative writing rubric, to talk about the structure, language use, certain arguing skills, critical thinking skills and independent thinking. If time permits, peer evaluation activity could be included as well. The students' critical thinking abilities "Identification of popularity, reliability, and background of assumptions" will be enhanced because they have to see whether the target article could provide a sound assumption or not. "Reflection of thinking and problem summary skill" will also be enhanced during the evaluation cause the evaluation activity itself is a reflection process, it reflects other people's thinking outcome and the evaluator has to summarize the features from the article and judge it based upon the rubric thus "Reasonable Critiques of the objective thinking, the logic of thinking or deducted thinking" skills will be strengthened as well cause the thinking logic or how people develop the idea in the article is also one criteria from the rubric which needed the evaluator to reasonably criticize.

9. Make a class summary discussion (whole class): This step is based upon PBL step "Assess students' final work and their participation during the activity" and Process writing step "Post-writing: Evaluate and grade". In this step, teacher's role is to make the category and conclusion of the problems in the articles. If, peer evaluation existed, students would list the mistakes they see either in



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terms of logic or in terms of language usage in the argumentative writing then the teacher together with the students would work together to summarize. If there's no peer evaluation due to time limitation, then the students would try to category the common mistakes given by the teacher. Because students have to summarize the problems they see, so their "Reflection of thinking and problem summary" skill will be enhanced, during the process of categorizing problems and mistakes, they can also build their critical thinking abilities in terms of "conclusion and decision making". The writing mistakes will be categorized according to the writing rubric, thus students' argumentative writing skills will also be enhanced.

Table 3.8 Sample teaching step 9 in lesson plan

Teaching step	Description of teacher's role	Description of students' role	Learning outcome	Evaluation
Summary Discussion and writing assignment (50min)	Teacher and students together to conclude and categorize all the mistakes found in argumentative writing from last week. The teacher will also summarize all the opinions of the new issue and provide a basic outline for students in case some students cannot come out one by themselves.	The students will reflect their own writing from last assignment based upon the teacher's comments and summary discussion. The students need to begin to write the new assignment in the class and when the students get back home, they need to <b>finish the writing assignment</b> based upon the opinions they noticed during brainstorm, class debate and their own research	Reflection of thinking and problem summary skill Conclusion and Decision making skill	Objective 3 Conclude the problem and express a solution based upon reasonable arguing in oral or written form. The class discussion part will be evaluated through class observation. The <b>writing assignment</b> will be evaluated through Writing Rubric

The instructional Process above was evaluated by three experts who are experienced in teaching English writing at Upper Secondary level School through IOC process. The IOC result was 1 which was higher than 0. The researcher also piloted this instructional process for one semester and found out this process was suitable to conduct in classroom.

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### **Lesson plans (Appendix D).**

The researcher has developed 9 weeks lesson plans for the writing class. Four weeks lessons were based on Problem-based English Writing Instructional Process. Two main problem were addressed: 1. Shall we change for the one we love? 2. Do animals have rights? Three lessons were designed as training lessons. One lesson was designed as introduction and one lesson was designed as summary lesson. For the four training lessons, each of which aims to teach the students to understand the problem solving procedure, to promote critical thinking abilities as well as practice argumentative writing. The instruction was done once a week with each last for 110 minutes. Each lesson plan includes title of the lesson, terminal objective, enabling objectives, and procedures. The students need to finish 4 writing assignments in total, two of them were taken as data. Sample lesson plans (Appendix D) were validated by three experts in teaching writing at Upper Secondary level School through IOC. The IOC result is 0.9 which is higher than 0. The researcher also tried the lesson plan in a high school for one semester as pilot study, and the researcher found out the lesson plans were suitable to use in experiment.

### **Instructional material (Appendix E) (sample note template in Appendix F).**

There were three kinds of instructional material: PPT, Prezi and videos. These visual materials were design based upon the survey result that

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students prefer English video as one of the most favorite learning material and many students comment that visual presentation could help them learn better. PPT was designed by the researcher and most pictures were downloaded from internet. Prezi was a new visual presentation tool which attracted great interest from pilot study. Those materials covered the topics of interest reflected in survey (University education as an example). Some topics shown in instructional material were the topics selected from various critical thinking teaching books: (Fisher, 2005), (Basshamet et al., 2008), (Mayfield, 1994), (Day et al., 2003). Sample Instructional material is shown in Appendix E. All the instructional material was evaluated by three experts in teaching writing field at Upper Secondary level School through IOC and the IOC result was 0.9 which was higher than 0. The researcher piloted the instructional material in pilot school, and found out the instructional material was suitable to use in the main study.

### **Data Collection**

The data collection period was in the second research phase. The procedure for data collection is as follows

1 In the second week class (first class is introduction) all the participants were asked to finish a survey questionnaire.

2 In the second week class, all the participants were asked to take a pretest of *The thinking measurement of basic education students* with time given of 20 minutes

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under teacher's observation. The score of pretest was checked and kept for comparison with the posttest.

3 The researcher implemented the writing instruction based on PBL for 9 weeks. In every two lesson, students have to do writing assignment. The first, and the fourth assignment were collected as additional evidence.

4 In the last class (Feb, 2013), the participants were asked to do the posttest to check their critical thinking abilities improvement again.

Table 3.9 Data collection week plan

Time	Activity
Week 1	Introduction
Week 2	Critical thinking pre-test and Collect writing sample
Week 2-8	Treatment
Week 9	Critical thinking Post-test and last writing sample

### **Data Analysis**

The score of the pretest and post test were analyzed to answer the research question with the following procedures: using SPSS program for window version10. The participation number, Mean score and standard deviation were reported. Paired

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sample T-test was used to compare the mean score difference between posttest and pre-test to see whether students' critical thinking abilities significantly improved. The effect size was calculated (Cohen's *d*, 1988, online). The writing assignments were collected and evaluated through writing rubric. The result was analyzed through SPSS program to further support their critical thinking abilities and writing improvement. The participation number, Mean score and standard deviation were reported. Paired sample T-test was used to compare the mean score difference between the first writing assignment and the fourth writing assignment to see whether students' argumentative writing skills significantly improved. The effect size was also calculated (Cohen's *d*, 1988).

Two cases were analyzed qualitatively. The researcher picked up 2 students' (the highest improvement in terms of argumentative writing score) work to analyze their argumentative writing improvement in terms of argumentative writing skill and critical thinking abilities through argumentative writing rubric and critical thinking test indicators.

### **Summary**

This study aimed at studying the effect of Problem-based English writing instruction on critical thinking abilities and argumentative writing skills improvement of Thai upper secondary school students. The research was conducted with 46 M6 female students for 9 instructional weeks. Students' critical thinking mean scores were compared through pre-test and post-test. Their first and fourth writing assignments score were compared through scoring rubric. Two cases were analyzed qualitatively to

further prove the assumption of this study.

Table 3.10 Summary of research activities in this study

<b>Research questions</b>	<b>Research Instruments</b>	<b>Data collection</b>	<b>Data analysis</b>
To what extent do critical thinking abilities of Thai upper secondary school students significantly improve after problem-based English writing instruction?	The critical thinking test <i>(The Thinking measurement of basic education students)</i>	Pre-test  Post test	The score of the pretest and post test was analyzed using SPSS program for window version10. T-test was used to compare the difference between the score of posttest and pretest
To what extent do argumentative writing skill of Thai upper secondary school students significantly improve after problem-based English writing instruction?	Writing assignments with scoring rubrics	Writing assignment will be collected every other week.	The writing assignments were collected and analyzed through scoring rubric to further support their critical thinking ability improvement. 2 students' work were chosen to analyze their writing improvement in terms of argumentative writing skill and critical thinking abilities through argumentative writing rubric and critical thinking test indicators.

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## **CHAPTER IV**

### **FINDINGS**

This chapter presents the results from the study of effects of problem-based English writing instruction on Thai upper secondary school students' critical thinking abilities and argumentative writing skill. The findings were presented in three parts based on the research questions as follows:

Part 1: The analysis of effects of problem-based English writing instruction on Thai upper secondary school students' critical thinking abilities.

Part 2: The analysis of effects of problem-based English writing instruction on Thai upper secondary school students' argumentative writing skill.

Part 3: Case analysis



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**The analysis of effects of problem-based English writing instruction on students' critical thinking abilities.**

The descriptive data about critical thinking pre-test and post-test was demonstrated in Table 4.1

Table 4.1 Result of critical thinking pre-test and post-test

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Mode of Assessment	N	Mean	SD
Pre-test	46	2.41	1.600
Post-test	46	3.09	.839

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The result of the descriptive data on Table 4.1 showed that there were 46 students participating in pre, post critical thinking test and two assignments. The Mean score for the Pre-test is 2.41, and the Mean for the Post-test is 3.09, with the full score 5 points, this is an obvious improvement. The Standard Deviation for Pre-test and Post-test is 1.600 and 0.839 in separate, which indicated the SD also decreased during the experiment.

The mean scores differences in from the Critical thinking Pre-test and Post-test were compared using t-test which is illustrated on Table 4.2

Table 4.2 Compare means of the critical thinking pre-test and post-test score

Mode of Assessment	Mean	Mean Differences	t.	Df.	Si g
Pre-test	2.41	-.674	-2.821	45	.007
Post-test	3.09				

\*P<.05

The result of the t-test as showed on Table 4.2 indicated that the Mean score of the post-test 3.09 which is higher than the pre-test mean scores 2.41. The Mean difference was-.674 and the t value was -2.821 with a degree of freedom of 45. The difference between the mean score from pre and post English test was significant at a level of 0.05.

The effect size measured the strength of the relationship between pretest and posttest (Cohen's *d*, 1988, online) was 0.26, which is bigger than 0.25 smaller than 0.4. In this case, it confirmed that there was a significant gain from the posttest which implied that the standard was middle effect.

**The analysis of effects of problem-based English writing instruction on students' argumentative writing skill**

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The descriptive data about the first argumentative writing assignment and fourth argumentative writing assignment score were demonstrated in Table 4.3

Table 4.3 Result of the first argumentative writing assignment and fourth argumentative writing assignment

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Order of Assignments	N	Mean	SD
First	46	3.24	.603
Fourth	46	4.50	.810

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The result of the Descriptive data on Table 4.3 showed that there were 46 students. The Mean score for the first assignment is 3.24, and the Mean for the fourth assignment is 4.50. The Standard Deviation for first and fourth assignment is .603 and .810 in separate.

The mean scores differences from the first argumentative writing assignment and the fourth argumentative writing assignment were compared using t-test which is illustrated on Table 4.4

Table 4.4 Compare means of the first argumentative writing assignment and the fourth argumentative writing assignment score

Order of Assignments	Mean	Mean Differences	t.	Df.	Significance
First	3.24	-1.261	-13.967	45	.000
Fourth	4.50				

\*P<.05

The result of the t-test as showed on Table 4.4 indicated that the Mean score of the fourth argumentative writing assignment 4.50 which is higher than the first argumentative writing assignment mean scores 3.24. The Mean difference was-1.261 and the t value was -13.967 with a degree of freedom of 45.The difference between the mean score from pre and post English test was significant at a level of 0.05.

The effect size was 0.7, which is bigger than 0.4. In this case, it confirmed that there was a significant gain from the posttest which implied that the standard was large effect.

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## **Cases analysis**

The researcher found only quantitative analysis may not able to provide readers a thorough understanding of the detail improvement of the students in terms of critical thinking and argumentative writing. That is the reason the researcher picked two cases to conduct further in-depth analysis. Those two students who got biggest improvement during the experiment were chosen for this analysis. Their authentic writing can better illustrate their own improvement in terms of argumentative writing and critical thinking development. The researcher kept the original text from the students, which means the following students' assignments may include their grammar or vocabulary mistakes.

### **Case 1: Student A.**

Student A is one of the biggest improvement makers. The first assignment score is 4 points and the fourth assignment is 6 points according to the analysis based upon the scoring rubric. There is big improvement in terms of making clear claims. In the first assignment, the writer simply said I disagree with this passage (line1). No clear claim was made. However as shown in the fourth assignment, the writer clearly claimed animals have right, and we are breaking animals'right (line 9, 10, 11). There are many misspelling words and small grammatical mistakes in the first assignment. No paragraphs division in the first assignment answer, however, there is certain structure. The inner structure is also not clear. However, the fourth article is better in spelling, clearer in paragraphing, and the researcher can clearly find out the beginning, body and conclusion. There are some evidence and information to support the first

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article but the information is not strong, while in the fourth article, the researcher found more sentences to support the writer's claim (line 1, 2, 3, 4, 19, 20, 26, 27). No alternative perspective presented in the first article, however, we can find the alternative perspective in line 4 and line 14. There are some analysis/synthesis/evaluation made in the first assignment (4, 5, 6, 9, 10). But the researcher found stronger analysis in the fourth assignment. The writer considered different perspectives for analyzing. The writer used a certain skill "historical view" to set the tone of the article in the beginning. Some psychological analysis is used in the beginning of the second paragraph which helps the writer to analyze the psychological reason for human to hurt animal (7, 8, 9, 10, 11, 14, 15, 17, 32). Independent thinking and creativity is obvious (9, 10, 11, 26, 27) as she was the first student who specifically finds an existing organization to support her opinion. So it seems her opinion is already well accepted, but the creativity and independent thinking is not obvious in the first assignment.

The critical thinking skills also improved according to the analysis based upon critical thinking test indicators. In the first assignment the writer didn't identify the problem clearly. She only say I disagree with this passage (1), while in the fourth assignment , the problem is better identified (line 1, 2, 3, 4, 5, 7, 8, 9). There is a few lines refer to Identification of popularity, reliability, and background of assumption in the first assignment (1, 2, 3), while in the fourth assignment, the writer made more effort on this point (1, 2, 3, 4, 19, 20, 26, 27). The writer didn't reflect any thinking or summarize the problem in the first assignment, while in the fourth assignment, the

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writer reflect the thought that human beings are more talented so we can abused animal. Her using a lot of self- asking questions indicated her reflection about the whole idea of animal-human relationship. This is a good reasoning skill which will provoke readers' thinking. (14, 17, 18, 32, 33, 35, 36, 37). Both article reflected conclusion and decision making skill. In terms of reasonable critiques of objective thinking, there are more reflected in the fourth assignment (10, 11, 12, 13, 14, 15, 17, 18) than the first assignment (7, 8, 9, 10).

**The First Assignment Answer:**

1. In my opinion I disagree with this passage. I thought every stitudes can produce  
2. the suitable talents, it doesn't matter that stitute is University or the training  
3. agency. In University the professors will give the students a lot of knowledges.  
4. Most of the knowledges are about the theories. They almost study from books. By  
the 5. way the training agency will teach the students to do it by themslef more than  
learn 6. from books. The teachers in this agency will allow their students to invent  
7. things. I agree that the training agency could provide students necessary skills but I  
8. disagree that the skills that they are learning is more beneficial. The University  
9. also provide students necessary skills too. If we didn't know any theories, we  
10. wouldn't understand the reason of the beginning of that thing. Example, Evolution  
11. theory of Charlse Darwin. If you don't know this theory, you won't understand the

12.beginning of humans. So I disagree with this passage and if the University can't

13.provide the necessary skills why the people still want to attend it.

### **Analysis.**

According to the argumentative writing rubric, the first assignment reflected indicators:

1. Claim is found, but not clear (1), not effective structure
2. Information and evidence not adequate (2, 3, 4, 5, 10). Claims and ideas are supported (3, 4, 5, 6, 9, 10, 11). Alternative perspectives are not considered and presented
3. Some analysis/synthesis/evaluation are made in order to identify, summarize problem and reflect thinking (4, 5, 6, 9, 10).
4. Independent thinking and creativity is not obvious

According to critical thinking skill test indicators, the fourth assignment reflected:

1. Identification of problem and relationship between its elements  
Not obvious
2. Identification of popularity, reliability, and background of assumption  
(1, 2, 3)
3. Reflection of thinking and problem summary skill  
Not obvious
4. Conclusion and decision making



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(12, 13)

5. Reasonable critiques of the objective thinking, the logic of thinking or deducted thinking (7, 8, 9, 10).

**The fourth assignment answer**

“ I’m not your food!!”

1、 For 1000 years, animals and humans live together in this world. Humans use  
2、 animals for food, clothes, and so on. But many times animals were abused and  
3、 killed by humans. Since then until now it still happen. You can see it obviously at  
4、 the circus, matador show, etc. But in otherwise, many animal-rights organizations  
5、 were established. These organizations will help animals from harm. Do you wonder  
6、 why these people have to protect them? I’ll tell you.

7、 In our life, we do everything to keep ourselves feel safe and comfortable. We  
8、 think we have rights to do everything we want but sometimes we use rights in the  
9、 wrong way. We break other rights including animals. Yes, I’m saying that animals  
10、 have rights. Some people may not agree with me but I don’t care. I think if  
11、 humans can have rights, why animals can’t? I agree that humans are more clever  
12、 than animals. Our life is more complicated than them. We have higher social,  
13、 language to communicate, and so on. But that doesn’t mean we can hurt or kill  
14、 them. By the way, I think if we have so many talents more than them, why don’t  
15、 we use these to help them?

16、 We use animals for too long time. Why we kill and hurt them? Maybe the  
17、 answer is because we have to eat it for our good health. But do we have right to do  
18、 that? What right can we use? I think it's just a non-responsible excuse. It's time to  
19、 stop abuse and kill animals. They have feeling, of course they have! For example  
20、 when someone stabs the pig, it screams! What does that mean? That means it hurt!  
21、 It has the feeling!! When we make someone hurt, we should feel sorry and so are  
22、 animals. If we feel sorry, what should we do? We should stop killing them.  
23、 Believe me, do it now before it's too late and don't be afraid that you will be the  
24、 only one who stops to hurt and kill them. Out there in the world, there are so many  
25、 organizations which will support you.

26、 People for Ethical Treatment of Animals (PETA) is the largest organization  
27、 for animals in the world. Their slogan is "Animals not ours to eat, wear,  
28、 experiment on, use for entertainment, or abuse in anyway." This organization  
29、 work for animals. They protect animals from harm. Today many animals are  
30、 endangered. So they will be the most powerful organization that will save this  
31、 kind of animals.

32、 In sum, we are the most clever animal of this world. We have abilities and  
33、 rights to do many things. I think we should use these in the right way. It's time  
34、 that we should stop abusing and killing animals. Don't hurt it because your  
35、 personal reasons. Animals have feeling, it can feel pain. So please stop hurting  
36、 them and respect their rights, let them survive in this world, and help them

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37、 instead.

**Analysis:** According to the argumentative writing rubric, the fourth assignment reflected indicators:

1. Clear claim (line 9, 10, 11), effective structure(1, 7, 16, 26, 32)
2. Information and evidence are enough (1, 2, 3, 4, 19, 20, 27). Claims and ideas are supported (11, 12, 13, 14, 15). Alternative perspectives are considered and presented(4, 14)
3. Analysis/synthesis/evaluation are made in order to identify, summarize problem and reflect thinking(7, 8, 9, 10, 11, 14, 15, 17, 32)
4. Independent thinking and creativity is found(9, 10, 11, 26, 27)

According to critical thinking skill test indicators, the first assignment reflected:

1. Identification of problem and relationship between its elements  
(line 1, 2, 3, 4, 5, 7, 8, 9).
2. Identification of popularity, reliability, and background of assumption  
(1, 2, 3, 4, 19, 20, 26, 27)
3. Reflection of thinking and problem summary skill.  
(14, 17, 18, 32, 33, 35, 36, 37)
4. Conclusion and decision making  
(32, 33, 34, 35, 36, 37)

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5. Reasonable critiques of the objective thinking, the logic of thinking or deduced thinking(10, 11, 12, 13, 14, 15, 17, 18).

**Example 2: Student B**

Student B is another biggest improvement makers. The first assignment score is 4points and the fourth assignment is 6 points according to the analysis based upon the scoring rubric. For the first assignment, we can find beginning sentence and ending but because there is no paragraphing so there is no clear structure. While the fourth assignment has a big improvement that the structure is very clear, and each paragraph begin with a transition word (firstly, secondly...) as seen in line (4, 12, 16, 19). The fourth assignment also provide very adequate information and evidence to support her idea (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15) compared with the limited information in the first assignment(4, 5, 6, 7, 8). Alternative perspectives are considered and presented in thefourth assignment (4, 12, 16: the writer considered from three perspectives: ecology, human biology, and human-animal relationship). In the first assignment, the writer alsoviewed in another perspective (7). The analysis reflected in the fourth assignment is the biggest improvement for the article. the writer analyzed the issue from ecological perspective saying human being is part of the food chain and she also analyzed eating meat from human biological perspective, claimed it is not healthy to be vegetarian. The writer analyzed human and animal and consider they are same, thus support the writer's opinion (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18),

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while the analysis in the first assignment is limited and not as strong(2, 3, 7). There is no obvious independent thinking and creativity as shown in the first assignment, however, the title in fourth assignment is very creative, and the writer is the only student in the sample group who support killing animal (2, 3). The critical thinking skills also improved according to the analysis based upon critical thinking test indicators. In the first assignment the writer didn't identify the problem clearly. She only express her own opinion(1), while in the fourth assignment , the problem is better identified (line 1, 2, 3) in a whole paragraph. There is a few lines refer to Identification of popularity, reliability, and background of assumption in the first assignment (1, 2, 3), while in the fourth assignment, the writer made more effort on this point (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15: these supporting sentences created a strong background for the main claim and make the claim sounds reliable). The writer didn't reflect any thinking or summarize the problem in the first assignment, while in the fourth assignment, the writer reflect the thought of being vegetarian (12, 13, 14, 15). Both article reflected conclusion and decision making skill. In terms of reasonable critiques of objective thinking, there are more reflected in the fourth assignment even from the title also seen in line (16,17,18) . For the first assignment, the critiques of objective thinking is not obvious.

<b>The First Assignment Answer:</b>
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1.I think both university education and training agency are good in theirself. Because both 2.of these are teach and give many thing to the student. But everything are not same, they 3.have something different, that is the way to teach and the way to learn. The training 4.agency teach student by practical, that makes student can solving the problem and can 5.fixing the machine, so they have many experience to work, and 6.the student can apply it in their life and their job. But sometime they can't explain 7.because they don't have much knowledge of theory. On the other hand, the 8.university, have the examination to test the knowledge of student, spent the time in the 9.classroom, and when they graduate education, they will receive the degree. So the 10.student graduate education from university have many reliability for apply for a job. 11.But somewhere, they want people that have experience to do the job. In 12.conclusion, no matter which institution you graduated from, you can find a job 13.anyway.

### **Analysis**

According to the argumentative writing rubric, the first assignment reflected indicators:

1. Claim is found (1), not effective structure
2. Information and evidence are presented (4, 5, 6, 7, 8). Claims and ideas are supported (2, 3, 6, 7). Alternative perspectives are considered and presented(7)
3. Some analysis/synthesis/evaluation are made in order to identify, summarize

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problem and reflect thinking(2, 3, 7)

4. Independent thinking and creativity is not obvious

According to critical thinking skill test indicators, the first assignment reflected:

1. Identification of problem and relationship between its elements

(1, 2, 3)

2. Identification of popularity, reliability, and background of assumption

(2, 3)

3. Reflection of thinking and problem summary skill

Not obvious

4. Conclusion and decision making

(12, 13)

5. Reasonable critiques of the objective thinking, the logic of thinking or

deducted thinking. Not obvious

**The Fourth Assignment Answer:**

If lion can eat meat, why can't people?

- 1、 Some people said animal has feeling and emotion like human being. So they
- 2、 have basic rights for survival and that is why we should not kill animal. But I
- 3、 don't think so. I think the human can kill them to take their meat.
- 4、 First, In the ecology, every life have to eat the other for survive and have energy
- 5、 to be alive. That make "food chain"----that shows how each living thing gets food

6、and how nutrients and energy are passed from creature to creature, food chain begin  
7、 with plant-life, and end with animal-life, some animals eat plants, some animals eat  
8、 other animals. And “ food web”----that make a full circle, and energy is passed  
9、 from plant to animal to decomposer and back to plant. There can be many links of  
10、 food chains. If some species become extinct, the food chain and food web is not  
11、 complete, and it would be unbalance.

12、 Second, meat is an essential part of the human diet. Many vegetarians, while  
13、 taking iron supplements and vitamins to fill in for the lack of meat, their body  
14、 isn't as strong as the bodies of those who eat meat. Besides, not everyone can  
15、 afford to buy these supplements, which be very expensive.

16、 Finally, humans are at the same level as animals, if animals are allowed to eat  
17、 animals, and we are like animals, then we should be allowed to eat animals as  
18、 well.

19、 Consequence, humans eat meat that make complete and balance ecology. A  
20、 meat make human's body become healthy. And humans should not ignore this  
21、 important part of their diet. And it is important for us, if lion can eat meat.

### **Analysis.**

According to the argumentative writing rubric, the fourth assignment obviously developed in terms of:

1. Clear claim (line 1, 2, 3), effective structure (4, 12, 16, 19: transitional words are also seen, for example: firstly, secondly.)



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2. Information and evidence are enough (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15). Claims and ideas are supported (4, 5, 6, 7, 8, 9, 12, 13, 14, and 15). Alternative perspectives are considered and presented (4, 12, and 16: the writer considered from three perspectives: ecology, human biology, and human-animal relationship)

3. Analysis/synthesis/evaluation are made in order to identify, summarize problem and reflect thinking(4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18:the writer analyzed the issue from ecological perspective saying human being is part of the food chain and she also analyzed eating meat from human biological perspective, claimed it is not healthy to be vegetarian. The writer analyzed human and animal and consider they are same, thus support the writer's opinion)

4. Independent thinking and creativity is found (The title is very creative, the writer is the only student who support killing animal, also line 2, 3)

According to critical thinking skill test indicators, the fourth assignment reflect:

1. Identification of problem and relationship between its elements

(line 1, 2, 3).

2. Identification of popularity, reliability, and background of assumption

(4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15: these supporting sentences created a strong background for the main claim and make the claim sounds reliable.)

3. Reflection of thinking and problem summary skill.

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(12, 13, 14, 15: this part the writer clearly reflect the vegetarianism)

4. Conclusion and decision making

(19, 20, 21)

5. Reasonable critiques of the objective thinking, the logic of thinking or

deducted thinking ( title, 16, 17, 18).

In conclusion, the cases above indicated that students' obviously development in terms of both argumentative writing skills and critical thinking abilities. Students can express their claim in a more logical and structural way with great creativity and independence. Lots of examples and analysis were used to support their claim and finally lead to the conclusion or a sound decision making.

## **Summary**

This chapter reported the finding in order to answer the research question whether problem-based English writing instruction can significantly improve Thai upper secondary school students' critical thinking abilities and argumentative writing skill. The result was analyzed both quantitatively and qualitatively. The Critical thinking post test score was significantly higher than pre-test score at a medium effect size. The Argumentative writing score was proved to be significantly higher in the fourth assignment than the first assignment in a big effect size. The further analysis in

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students' writing assignments tried to find out the emerging feature to further support the students' Critical thinking and writing improvement, and the result is positive. Thus the researcher can generally conclude that the hypothesis which stated that Problem-based English Writing can significantly improve students' critical thinking abilities and argumentative writing skill was accepted.

## **CHAPTER V**

### **DISCUSSIONS AND RECOMMENDATIONS**

There are six parts in Chapter V. Part one is a brief summary of the whole research. Part two summarizes the result of the study. Part three is the discussion related to the finding. Part four presents the limitation of the research. The fifth part is the pedagogical implication from this study. The sixth part provides the recommendation for further research.

#### **Summary of the study**

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The study is mainly a research aimed at improving students' Critical thinking skill and argumentative writing abilities. The reason that researcher came up with this research goal was because of the great importance of Critical thinking in the whole educational area. And through literature review, the researcher found out the Critical thinking skill is one of the main goals for Thai Educational Ministry but the students' critical thinking level is not high. So again through literature review, the researcher found both writing and problem-based learning can significantly improve students' critical thinking skill. Thus, the researcher developed a new English writing instruction based upon Process writing and Problem based learning to promote students' critical thinking skill, and since it was English writing instruction so the students' writing skill becomes a secondary goal in this research. Hence, the research objective for this study is: To examine effects of Problem based English Writing Instruction on Thai upper secondary school students' critical thinking abilities and argumentative writing skill.

A series of instruction and research tools were developed or found to fulfill the need of this research objective. These tools include: a questionnaire, a critical thinking test, an instruction process, lesson plans, instruction materials, writing assignments, a scoring rubric.

After the research tools building up, the researcher conducted a 10 weeks pilot-study in a high school in Bangkok. This one semester pre-study enabled the researcher fully analyze all the instruments. During that time, the researcher also collected data and find out the positive result for the experiment. Then the researcher

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adjusted the instruction and research tools according to the pre-study and successfully passed IOC process.

The main research was conducted in the second semester of 2012 at a girls' school. The population for this study is upper secondary school students from public schools in Bangkok. The participants in this study were 46 M6 students who enroll in a compulsory course: Critical Thinking and Argumentative Writing. This is a female school so all the participants are female. There were totally 9 weeks' instructions. Critical thinking pre and post test were give at the second and the ninth weeks. The score of pretest was checked and kept for comparison with the posttest. Students have to finish four writing assignments in total. The first, and the fourth assignment were collected as additional evidence. After the collection of data, the critical thinking pre and post test scores were compared through SPSS. The first and the fourth writing assignments were scored according to the scoring rubric and the scores of the first and fourth writing assignment were also compared through SPSS. After the quantitative analysis, the researcher looked into the detail of students' writing assignment, trying to find out their specific improvement, thus became the qualitative analysis in this research.

### **Summary of the results**

The findings of the study were summarized in two parts: Critical thinking abilities and Argumentative writing skill

#### **Critical thinking abilities.**

Sample group's Critical thinking post test score was significantly higher than

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pre-test score on average with a medium effect size. The further in-depth case analysis was performed with the two pieces of writing from the students who get the highest score. The result was analyzed by using argumentative writing rubric. From the case analysis it can be concluded that students' critical thinking abilities were improved seen from students' work. The reasoning ability was obviously improved.

### **Argumentative writing skills.**

Sample group's fourth argumentative writing assignment score was higher than first argumentative writing assignment in average with a large effect size. The further in-depth case analysis of the two students' articles also supports the conclusion above. The students developed better structure with a clear beginning, body and conclusion. They even developed very flexible structure, which indicates they capture higher organizing skill. They could handle a longer passage. The students' language use was obviously improved in terms of using evidence or analysis to support their ideas. Their article presents less grammar mistakes as well. Alternative perspectives were reflected in the case as well. Analysis/ synthesis/evaluation/interpretation were well made to identify, summarize problem and reflect thinking. Independent thinking and creativity were obvious. These new emerging writing skills proved that the students' argumentative writing became more skillful after the experiment.

### **Discussions**

The discussion for the main finding: The researcher will firstly discuss about effectiveness of the main finding and analyze the reason behind. The researcher believe it was because the strong inner relationship among PBL, Critical thinking and

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writing.

### **Effectiveness of problem-based English writing instruction.**

The real instruction is actually very short. Though the researcher has been teaching for 16 weeks in the selected secondary school, there were two weeks for Mid-term and final exam and another 4 weeks for holiday and activities. The instruction period is about 10 weeks, which include a self-introduction class and a final summary class, so problem-based English writing instruction was just 8 weeks. The pre-training had taken four weeks. So the whole range of problem based English writing instruction was implemented for only four weeks. With only four weeks' training, both students' critical thinking abilities and argumentative writing skills were improved significantly. That is why the researcher considered the hypothesis that the problem-based English writing instruction can improve students' critical thinking abilities and argumentative writing skill should be accepted.

### **Improve critical thinking abilities through PBL and writing.**

In such short training hours, the students' critical thinking abilities and argumentative skills were highly improved. The researcher considered that is partly due to the strong inner-relationship between PBL and critical thinking. PBL in fact provide a chance for students' development of Critical thinking. Students are motivated to gain and use their knowledge by putting themselves into a problem solving situation as a context (Sherwood, 2004). For example: in the lesson about campus love, the researcher firstly showed the students part of the movie "*Love the*

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*little crazy thing*”, then the students need to assume themselves as the main character, and considered whether it was worthwhile to change yourself for someone you love. The relationship between problem solving and critical thinking as Mary (2010:38) suggests “If one accepts a basic definition that critical thinking means making reasoned judgment, then the process of critical thinking would logically include the classic problem-solving format”. For example, in the debate about whether animal should be taken for experiment, the students firstly identified the problem, then they analyzed the problem according to the real situation (there were not enough volunteer to do the experiment), and then they summarize the problem and came out a reasonable solution or choose a particular opinion. Another factor to contribute the success of this study is the link between critical thinking and writing, as Hatcher (1990) explained: “Writing not only communicates ideas but also is a process by which ideas are clarified and corrected.” Both clarifying and correcting ideas involved strong reasoning. For example, in many extreme cases in Chapter IV, many students clarified the animal rights problem in different aspects: Animals having rights because they have emotion, they have feeling, or they are part of the ecological system..... That is the reason why in this study many students’ critical thinking development was promoted through their argumentative writing practice.

During the observation of the experiment, the researcher also find out the debate part inside of the instruction can really promote students critical thinking. In fact, the debate part became a students’ self-driven part. Dee Fink (2003) considered debate as a teaching step with rich learning experience. Debate allows students to



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acquire several significant learning experiences. Most students were very into it and they naturally used different reasoning skills to defend themselves. However the grouping of the debate could be a problem. For example, in the debate about whether animal should have right or not, most girls would naturally consider animals are all born with rights. If the researcher groups them according to their own will, then the debate cannot continue. So the researcher usually randomly grouped them, but this may affect their original thoughts and the students may write according to their own team opinions because they are more aware of their own opinions.

### **Limitation of the study**

Undeniable, there were many limits in this study. 1. The time period of experiment is the second semester of 2012, and that was the semester for the students to prepare the University entrance exam. Because most of the University entrance exam would not include writing essay, or argumentative writing, so student may feel they cannot get direct help from this class in a short term. While most other classes were preparing a very important national English exam in that class, the researcher's two classes were learning how to write argumentative writing, that is why they may not focus fully on the class especially the assignment, because it may take too much time for them to prepare. 2. Because it was the last semester, there were many activities and exams going on, the experiment cannot coherently go on. So the researcher's real instruction time was only 10 weeks in a 16 weeks semester. 3. Another important limitation was about data collection. The students took researcher's class at 11:50 am, which was directly after lunch, this time students were very sleepy,

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so it may affect the whole class learning quality and atmosphere. 4. A factor seriously affected the data collection is the students' previous class is art, and there would be a lot of art assignment need to finish, so many students would work together in the noon time, and came to researcher's class seriously late or even absent half of the class. The late comers seriously affected other students' examination.

### **Pedagogical implication**

The model in this study can be used in Writing class as well as advanced English speaking class due to the instruction process involves many discussion steps. The lesson plan designed by the researcher can be taken as sample of Problem-English Writing Instruction lesson plan. The questions in writing assignment are also highly debatable which is quite suitable for argumentative writing. The teaching steps of this study which developed by researcher is very effective; however, educators can adjust according to the class size and instructional period.

### **Topic selection for Problem based English writing Instruction.**

The researcher considered choosing good topics are very important for Problem-based English writing instruction. From the finding as in shown in cases analysis, we can see students developed their writing in the way that they were able to present alternative perspective. That is because different from the normal problem based learning, in which a problem is usually a very concrete issue which can be solved through detailed plan, the problems in this study are usually ambiguous, debatable and may concern different aspects. There won't be any proved answers in

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real life for those problems. The reason why the researcher chose those topics (example: shall we maintain ourselves for the one we love or shall we change ourselves for the one we love) is only debatable issue can help students improve their critical thinking. Those debatable issues require more reasoning than common issue. Thus, as shown in the cases analysis finding, analysis, synthesis, evaluation and interpretation were made to identify, summarize problem and reflect thinking. What is more, people would find it difficult to write an argumentation upon a normal problem which can be easily solved or get answer (for example: how to find the nearest bus station from school). Those controversial issue gave students a larger space to explore information and present thinking, thus they have opportunity to present an article with more independent thinking and greater creativity as shown in cases analysis.

The students' interest may not be a debatable issue but may point out a direction for discussion. For example, most students in the questionnaire stated they concern about how to get to a good University now. This is not a controversial issue but it help the researcher to develop a good topic for discussion: University education and agency training, which one is really valuable? However, not all level students are suitable for those topics. The researcher would suggest the topics (1.University education and agency education, which one is really valuable? 2. Inner beauty and outside beauty, which one is really important? 3. Shall we change for the one we love? 4. Do animal have rights?) in this study being used for upper secondary school or University students.

**Problem solving in problem-based English writing instruction.**

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The finding in this study suggest students' critical thinking abilities and writing skill were significantly improved through the experiment, which means the problem solving activities are effective. Traditional problem based learning would require students to come up with a concrete solution for a concrete problem, for example, to find the cheapest way to go from Bangkok to Chiang Mai city. In problem-based English writing instruction, the Problem solving solution does not mean students must solve a problem or give a concrete plan to solve the problem, because the problem which suitable for argumentation are generally great issue for the entire human beings or the whole society. No individual can truly proved to solve those issues so far. The problem solving here means to take a certain perspective for this issue and give sound reason to explain your behavior towards this issue. A problem solved in the inner world of student. For example, whether human beings can achieve peace through war? This is a highly debatable issue. No individual is capable to give a concrete plan to solve this world-wide, historical issue. But people can have their understanding, perspective, behavior towards this issue. Problem solving for students towards this issue means students understand this issue and the important perspectives in this issue, through reasoning, they understand what position they should hold, and what behavior they should conduct, thus their inner value system is strengthened and this issue won't become a trouble in their mind. So this problem is solved in their heart. The solution was expressed as an answer for the writing assignment. So the argumentative writing is the proof for the teacher to see whether students really solved the problem or not.

**Rubric design.**

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The IOC process validated the writing rubric in this study, and the IOC value is 0.8 which is higher than 0. The findings as shown in cases analysis also indicated that this rubric can be used in writing class which concerns about argumentative writing. Because of the unique concept of Problem solving in Problem-based English writing Instruction as shown in previous section, the design of argumentative writing rubric must be given highly concern about the reasoning in the article instead of the common writing rubric which emphasis more on language accuracy. That is the reason, the researcher design this rubric according to the critical thinking indicator. That is the reason, the designing of rubric in this study could reflect certain critical thinking abilities that teacher would like to measure.

### **Recommendation for further research**

Firstly, since this study was conducted in a girls' school, the researcher would like to suggest doing the same experiment in a coed school. Secondly, the researcher suggested conducting the same experiment in a longer instructional period. Thirdly, it is strongly recommended that the future researcher conduct a research about problem based English writing instruction on students' critical thinking disposition. Because as a developing field, the concept of critical thinking can be interpreted from different perspectives and critical thinking as a disposition is becoming more and more important in this field. Fourthly, the findings indicated both critical thinking abilities and argumentative writing skill were improved through the experiment. Though literature review did suggest that writing can promote critical thinking, a causal-relationship research should be conducted to further identify the relationship

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between two variables. Fifth, the topics for problem based English argumentative writing instruction are usually very debatable, controversial, thus it may be interesting for undergraduate students or even higher level, since the senior students may have more insights in the profound topic, which will benefit themselves more during the class discussion.

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## APPENDICES

### Appendix A

#### Survey Questionnaire

*This survey study is to assess students' interested topics, preferred way of learning and faced problem in their daily study and life. Such knowledge will help us understand the needs and interested topic of students, which, in turn, will be useful in making lesson plan.*

*Your responses are anonymous and cannot be traced back to you. By completing this questionnaire, you declare your consent to participate.*

*I would like to thank you very much.*

Please click on any answer that is proper for you, and the answer can be multiple.

#### Basic Knowledge

Gender:    Male        Female   

**1. What is your favorite learning material?**

- 
- English music
  - English video
  - English story book
  - English game
  - English magazine
  - English radio program
  - English textbook
  - Other (please specify)

**2. What is your favorite English skill?**

- listening
- speaking
- reading
- writing

**3. What is your favorite learning type?**

- listen and note taking
- group working
- pair working
- individual task
- whole class discussion

Others (please specify)

**4. How long time do you spend for learning English after school ?**

- less than 15minutes

- 
- more than 15 minutes but less than half an hour
  - more than half an hour but less than one hour
  - more than one hour but less than two hours

Other (please specify)

**5. In which way you think you can understand a topic more clearly before writing?**

- By reading a relevant passage
- By watching a relevant video
- By discuss with other friends
- By checking internet
- By looking into dictionary or finding books by yourself
- By giving you enough time to think
- By teacher's explanation

Other (please specify)

**6. What is your most favorite topic to discuss with friends?**

- Movie and Movie star
- Music and music star
- Science fiction
- Video game
- Sports
- Literature: Novel, Poems, Drama, love story
- Jokes

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National and international news

Family

Religions and belief

Classmates and friends

Teachers

Others (please specify)

**7. What is the problem you are facing now?**

**8.**

**What do you concern or worry most now?**

**9. How many people do you think is proper in a discussion group?**

3

4

5

**10. Do you prefer a fixed discussion group or change every time during one semester?**

Fixed

Changed

**11. Do you prefer to form a group by your own or randomly assign you every time?**

Form by myself

Randomly assign

**12. What is your personal learning problem for English writing?**

Grammar use

Vocabulary

- 
- Find the good topic
  - Writing structure
  - Writing logic and coherence
  - Ways of expression

**Others**

**Appendix B**

Critical thinking testตอนที่ 2      แบบวัด B42 การคิดอย่างมีวิจารณญาณ

สถานการณ์ที่ 2    ให้นักเรียนอ่านสถานการณ์ที่กำหนดให้และตอบคำถาม โดยเลือกคำตอบที่ถูกต้องที่สุด

เลขาธิการคณะกรรมการอาหารและยา กล่าวภายหลังการประชุมหารือเบื้องต้นเกี่ยวกับการกำกับดูแลและผลิตภัณฑ์เสริมเซลล์หรือเซลล์ต้นกำเนิดที่ใช้ในการวิจัยและรักษาโรค ครั้งที่1/2550ว่า ในการประชุมวันนี้ได้เชิญคณะทำงานจัดทำระบบการกำกับดูแลผลิตภัณฑ์จากเซลล์ต้นกำเนิดและผลิตภัณฑ์จากเนื้อเยื่อ อาทิ แพทย์สภา กองการประกอบโรคศิลปะ ตัวแทนมหาวิทยาลัยแพทย์ เพื่อ

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ร่วมกันพิจารณาการกำกับดูแลเซลล์ต้นกำเนิดที่จะมีการนำเข้าใจอนาคต ซึ่งขณะนี้การนำเข้าในเชิงพาณิชย์ยังไม่ชัดเจน รวมถึงการใช้เซลล์ต้นกำเนิดในทางการแพทย์ โดยจะต้องใช้กฎหมายหลายฉบับร่วมกันอย่างบูรณาการ เพื่อให้สามารถดำเนินการกำกับดูแลได้อย่างมีประสิทธิภาพ ได้แก่ พระราชบัญญัติยา พ.ศ. 2510 พระราชบัญญัติประกอบวิชาชีพเวชกรรม พระราชบัญญัติการประกอบโรคศิลปะ และพระราชบัญญัติสถานพยาบาล ซึ่งในอนาคตหากเทคโนโลยีเปลี่ยนก้าวหน้าขึ้น ก็จะนำพ.ร.บ.วิชาชีพเทคนิคการแพทย์ พ.ร.บ.สัตวแพทย์ ซึ่งมีความเกี่ยวข้องไม่มากนักน้อย รวมถึงเสนอจัดทำพ.ร.บ.ควบคุมผลิตภัณฑ์เทคโนโลยีขั้นสูง

นอกจากนี้เลขาธิการฯ กล่าวต่อว่า สำหรับการนำพระราชบัญญัติยา พ.ศ. 2510 และฉบับแก้ไขเพิ่มเติม เป็นกฎหมายที่มีความใกล้เคียงที่สุดในการจะนำมากำกับดูแลเซลล์ต้นกำเนิดและผลิตภัณฑ์เซลล์ต้นกำเนิด โดยจะจัดให้เป็นชีววัตถุ ภายใต้พ.ร.บ.ยา แต่หากพ.ร.บ.ดังกล่าวไม่สามารถควบคุมได้ครอบคลุมเนื่องจากเซลล์ต้นกำเนิดเป็นเทคโนโลยีใหม่ที่มีการเปลี่ยนแปลงตลอดเวลา ทำให้กฎหมายตามไม่ทันเพราะมีการผลิตแปรรูป นำสเต็มเซลล์ที่ผ่านกระบวนการทั้งหมด นำกลับมาฉีดให้กับผู้ป่วย ซึ่งเป็นข้อกังวลของคณะกรรมการ เนื่องจากสเต็มเซลล์ได้รับการยอมรับในเบื้องต้นเฉพาะเรื่องการปลูกถ่ายไขกระดูกเพื่อรักษาโรคมะเร็งเม็ดเลือด ส่วนการรักษาโรคอื่นๆ ด้วยเซลล์ต้นกำเนิดยังอยู่ในขั้นตอนวิจัยและพัฒนา เพื่อศึกษาประสิทธิภาพการรักษา

ในส่วนของขั้นตอนการวิจัยรักษาโดยเซลล์ต้นกำเนิด จำเป็นต้องอาศัยข้อบังคับขั้นตอนการวิจัยเข้ามาดูแล แต่เนื่องจากประเทศไทยยังไม่มีพระราชบัญญัติการวิจัยทดลองในมนุษย์ จึงได้อาศัยข้อกำหนดนานาชาติในเรื่องจริยธรรมการวิจัยในคนมาใช้ ซึ่งแต่ละสถาบันจะต้องยึดถือข้อกำหนดในเรื่องนี้อย่างเคร่งครัด

“การรักษาด้วยสเต็มเซลล์ขณะนี้ยังอยู่ในขั้นตอนการวิจัย ในอนาคตอันใกล้อาจมีการรักษาด้วยเซลล์ต้นกำเนิด โดยต้องศึกษากระบวนการวิธีโดยการเตรียมเซลล์ และการให้ผลในสัตว์ทดลอง

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และการทดสอบทุกขั้นตอนในมนุษย์ ทั้งในด้านประสิทธิภาพและความปลอดภัย ซึ่งกรณีที่เป็นปัญหาในปัจจุบัน คือ การนำไปหาประโยชน์เชิงธุรกิจมีการโฆษณาชวนเชื่อ ผู้ป่วยทั่วไป โดยเฉพาะผู้ป่วยโรคลิ้นหัวใจ หากผลการรักษาไม่เป็นไปตามที่หวัง อาจทำให้การรักษาด้วยสเต็มเซลล์ได้รับผลกระทบเชิงลบในระยะยาว เพราะขาดความน่าเชื่อถือ ดังนั้น ประชาชนควรระมัดระวังในการเชิญชวนเข้าไปรักษาโดยเซลล์ต้นกำเนิดของสถานพยาบาลด้วย”

การแต่งตั้งคณะกรรมการกลางที่จะศึกษาวิจัยเรื่องเซลล์ต้นกำเนิด จะมีการนำเสนอรัฐมนตรีว่าการกระทรวงสาธารณสุข ใ้เร็วที่สุด คาดว่าจะสามารถนำรายชื่อคณะกรรมการทั้งหมดเข้าสู่การประชุมผู้บริหารกระทรวง ช่วงกลางเดือนตุลาคมนี้

ผู้เชี่ยวชาญสาขาประสาทวิทยา ภาควิชาอายุรศาสตร์ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย กล่าวว่า ขณะนี้การวิจัยและรักษาโรคโดยใช้เซลล์ต้นกำเนิดได้ผลและเป็นที่ยอมรับเฉพาะการปลูกถ่ายไขกระดูกเพื่อรักษาบางโรค เช่น มะเร็งเม็ดเลือด เท่านั้น ส่วนโรคอื่นๆ เช่น ด้านสมอง ที่สถานพยาบาลต่างๆ โฆษณาประชาสัมพันธ์อยู่นั้น ยังอยู่ในขั้นตอนการศึกษาวิจัยอยู่นอกจากนี้โรงพยาบาลหลายแห่งยังได้จัดทำแพ็คเกจ การทำคลอดและเก็บสายสะดือทารกแรกเกิดโดยคิดราคาประมาณ 1-3 แสนบาท และมีค่าบำรุงอีกหลายหมื่นบาท เพื่อนำมาใช้เป็นประโยชน์กับเจ้าของสายสะดือในอนาคตนั้น ข้อเท็จจริงแล้วสายสะดือดังกล่าวสามารถจัดเก็บได้นานเพียง 7-8 ปีเท่านั้น หากเกินกว่านั้นจะไม่ได้ผล ซึ่งเรื่องนี้ประชาชนทั่วไปยังไม่ค่อยทราบ อาจทำให้สิ้นเปลืองโดยใช้เหตุได้

## 5. ประเด็นปัญหาที่สำคัญคือข้อใด

- 1.การทดลองใช้สเต็มเซลล์ในมนุษย์
- 2.ผลเสียของการใช้สเต็มเซลล์ในมนุษย์
- 3.การควบคุมการใช้สเต็มเซลล์ในมนุษย์

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4.ประโยชน์ของการใช้สเต็มเซลล์ในมนุษย์

5.สาเหตุและผลการใช้สเต็มเซลล์ในมนุษย์

6. จากข้อความ “การใช้พระราชบัญญัติฯ พ.ศ. 2510 และฉบับแก้ไขเพิ่มเติม เป็นกฎหมายที่มีความใกล้เคียงที่สุดในการจะนำมากำกับดูแลเซลล์ต้นกำเนิดและผลิตภัณฑ์เซลล์ต้นกำเนิด โดยจะจัดให้เป็นชีววัตถุ ภายใต้พ.ร.บ.ยา” ข้อใดสอดคล้องกับข้อสันนิษฐานที่ปรากฏในข้อความที่กำหนดให้

1. ยังไม่มีกฎหมายใดใช้กำกับดูแลเซลล์ต้นกำเนิดได้
2. ไม่มีกฎหมายใกล้เคียงที่สามารถนำมาใช้กำกับดูแลเซลล์ต้นกำเนิดได้
3. พ.ร.บ.ยา 2510 เป็นกฎหมายที่มีความใกล้เคียงที่สุดในการกำกับดูแลเซลล์ต้นกำเนิดได้
4. เซลล์ต้นกำเนิดเป็นชีววัตถุจึงสามารถใช้พ.ร.บ.ยา กำกับดูแลได้โดยตรง
5. สามารถใช้พ.ร.บ.ยา พ.ศ.2510 และฉบับแก้ไขเพิ่มเติม กำกับดูแลเซลล์ต้นกำเนิดได้โดยตรง

5. จากข้อความที่กำหนดให้ ข้อใดสรุปได้ถูกต้องที่สุด

1. เราสามารถเก็บสเต็มเซลล์ไว้ใช้ในการรักษาโรคของตนได้ตลอดไป
2. สเต็มเซลล์สามารถนำมาใช้ในการรักษาโรคได้อย่างมีประสิทธิภาพ
3. สเต็มเซลล์ที่มีการผลิตแปรรูปแล้วไม่สามารถใช้กฎหมายใดควบคุมได้
4. การโฆษณาเกี่ยวกับการรักษาด้วยสเต็มเซลล์ช่วยให้เกิดผลดีในระยะยาว
5. สเต็มเซลล์ยังไม่สามารถนำมาใช้ในการรักษาโรคได้อย่างมีประสิทธิภาพ

ข้อความต่อไปนี้ใช้ตอบคำถามข้อ8-9

“ส่วนขั้นตอนการวิจัยรักษาโดยเซลล์ต้นกำเนิด จำเป็นต้องอาศัยข้อบังคับขั้นตอนการวิจัยเข้ามาดูแล แต่เนื่องจากประเทศไทยยังไม่มีพระราชบัญญัติการวิจัยทดลองในมนุษย์ จึงได้อาศัย



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ข้อกำหนดนานาชาติในเรื่องจริยธรรมการวิจัยในคนมาปรับใช้

ซึ่งแต่ละสถาบันจะต้องยึดถือ

ข้อกำหนดในเรื่องนี้อย่างเคร่งครัด”

8. จากข้อความดังกล่าวข้อใดเป็นการลงความเห็นที่ถูกต้องที่สุด

1. ผู้วิจัยต้องมีจริยธรรมในการวิจัยมนุษย์
2. จริยธรรมการวิจัยเป็นเรื่องที่ควบคุมได้ยาก
3. นักวิจัยในประเทศไทยขาดจริยธรรมในการวิจัย
4. ข้อกำหนดเกี่ยวกับจริยธรรมการวิจัยควรแตกต่างกันแต่ละสถาบัน
5. เป็นการเสียประโยชน์หลายประการในการคำนึงถึงจริยธรรมในการวิจัย

9. “ขณะนี้อการวิจัยและรักษาโรคโดยใช้เซลล์ต้นกำเนิดได้ผลและเป็นที่ยอมรับเฉพาะการปลูกถ่ายไขกระดูกเพื่อรักษาบางโรค เช่น มะเร็งเม็ดเลือด เท่านั้น ส่วนโรคอื่นๆ เช่น ด้านสมอง ที่สถานพยาบาลต่างๆโฆษณาประชาสัมพันธ์อยู่นั้น ยังอยู่ในขั้นตอนการศึกษาวิจัยอยู่ นอกจากนี้โรงพยาบาลหลายแห่งยังให้จัดทำแพ็คเกจ การทำคลอดและเก็บสายสะดือทารกแรกเกิด โดยคิดราคาประมาณ 1-3 แสนบาท และมีค่าบำรุงอีกหลายหมื่นบาท เพื่อนำมาใช้ประโยชน์กับเจ้าของสายสะดือในอนาคตนั้น ข้อเท็จจริงแล้วสายสะดือดังกล่าวสามารถจัดเก็บได้นานเพียง 7-8 ปี เท่านั้น” จากข้อความที่กำหนดให้ข้อใดแสดงข้อโต้แย้งได้เหมาะสมที่สุด

1. เห็นด้วย เพราะ ขั้นตอนในการนำมาใช้มีความทันสมัย
2. เห็นด้วย เพราะ เป็นสิทธิส่วนบุคคลในการดูแลสุขภาพตน
3. ไม่เห็นด้วย เพราะ โฆษณาประชาสัมพันธ์เหล่านั้นไม่น่าเชื่อถือ

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4.ไม่เห็นด้วย เพราะ การนำมาใช้ย้อยู่ระหว่างขั้นตอนการศึกษาวิจัย

5.ไม่เห็นด้วย เพราะ อาจทำให้เกิดความเหลื่อมล้ำในด้านนโยบายสุขภาพของรัฐ

### **English translation**

Part 2 Test B42: Judgment

Situation 2 Please read the following situation and answer the questions.

The secretary of Food and Drug Administration said, after an initial conference on the control of stem-cell products for disease research and treatment 1/2007, that the task force for organizing controlling system of stem-cell products and tissue-based products, such as The Medical Council, Medical Registration Division and representatives from medical schools, was invited to discuss about the future import of stem cells. Currently the commercial import and the use of stem cells in medical practice are still unclear. Many laws are needed to be used integratively to make the control effective. These laws are Medicine Act B.E.2510, Medical Practitioners Act, Medical Registration Act and Places of Service Act. In the future, if technology is more advanced, Medical Profession Act and Veterinary Act, which are more or less

relevant to the control, will be included. Advanced Technology and Product Control Act will also be proposed.

The secretary said further that Medicine Act B.E.2510 and its edited version are the most relevant law to be used to control stem-cell products. The products will be categorized as bio-objects under Medicine Act. The act, however, cannot entirely cover the products as stem cells are a new technology which changes continually, leaving the law behind because there is a transmutation which takes stem cells that have gone through all the process and inject them to patients. This is the task force's concern as stem cells are initially accepted only in terms of bone marrow transplant for illness treatment such as leukemia. Other stem-cells treatments are in the process of research and development to study the efficiency of the treatments.

In terms of steps in stem-cell treatment research, research step regulation is needed; however, since Thailand does not have human test-subject act, adaptation of international regulations in terms of research ethics in human are needed. Each institute must follow the regulations strictly.

“Stem-cell treatment now is in research process. In the near future, there might be stem-cell treatment. We have to study the process from cell preparation and results in animal test-subjects and we have to test every step in human in terms of efficiency and safety. The problematic case today is the use in commercials. For patients, especially the desperate ones, if the treatment does not yield the expected result, long term stem-cell treatment might be negatively affected due to the discredit. Therefore, people should be careful about commercial stem-cell treatments in medical institutes.”

The establishment of central committee for the stem-cell study will be proposed to the minister of public health as soon as possible. It is expected that all the names in the committee will be in the ministry conference in the middle of this October.

A neurological expert, Department of Medicine, Faculty of Medicine, Chulalongkorn University said that the stem-cell research and treatment were effective and were accepted only in bone marrow transplant to treat some diseases such as leukemia. Other diseases such as brain disease, in which many medical institutes are promoting, were in research process. In addition, many hospitals had a package “child delivery and umbilical cord preservation”, which costs one hundred to three hundred thousand baht plus other maintenance cost around ten thousands baht, to use in the umbilical cords' owners in the future. The fact is that an umbilical cord can only be preserved for 7-8 years. The longer preservation is ineffective. Many people do not know this and their money can be wasted.

5. What is the important issue here?

1. The test of stem cells in human
2. Disadvantages of using stem cells in human
3. The control of stem-cell use in human
4. Benefits of using stem cells in human
5. Causes and effects of using stem cells in human

6. From the statement “Medicine Act B.E.2510 and its edited version are the most

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relevant law to be used to control stem-cell products. The products will be categorized as bio-objects under Medicine Act.”. Which statement is in line with the assumption presented in the given statement?

1. There is no law to control stem-cell products
2. There is no relevant law to control stem-cell products
3. Medicine Act B.E.2510 is the most relevant law to be used to control stem-cell products
4. Stem cells are bio-objects so Medicine Act can directly control them
5. Both Medicine Act B.E.2510 and its edited version can be used to directly control stem-cell product

7. From the given statements, which one is correct?

1. We can forever preserve stem cells for later treatment
2. Stem cells can be efficiently used to treat diseases
3. Processed stem cells cannot be controlled by any laws
4. Advertisements about stem-cell treatment have long-term advantages
5. Currently, stem cells cannot be used to treat diseases efficiently

Use this paragraph to answer question 8-9.

“In terms of steps in stem-cell treatment research, research step regulation is needed; however, since Thailand does not have human test-subject act, adaptation of international regulations in terms of research ethics in human are needed. Each institute must follow the regulations strictly.”

8. From the paragraph, which is the most correct opinion?

1. The researchers must have ethics in human experiment
2. Research ethics are hard to control
3. Thai researchers lack research ethics
4. Regulations regarding research ethics should be different in each institution
5. Thinking about research ethics causes loss of benefits.

9. “The stem-cell research and treatment were effective and were accepted only in bone marrow transplant to treat some diseases such as leukemia. Other diseases such as brain disease, in which many medical institutes are promoting, were in research process. In addition, many hospitals had a package “child delivery and umbilical cord preservation”, which costs one hundred to three hundred thousand baht plus other maintenance cost around ten thousands bath, to use in the umbilical cords’ owners in the future. The fact is that an umbilical cord can only be preserved for 7-8 years.”

From this statement, which one is the most proper argument?

1. Agree because the process is
2. Agree because it is people’s right to take care of their health
3. Disagree because these advertisements are not trustable
4. Disagree because the use of it is in research process
5. Disagree because it causes inequality in government’s public health policy

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**Construction of the measurement in Thinking Group B**

<b>The Thinking Measurement</b>	<b>The Assessment</b>		<b>Mark point</b>	<b>Total</b>
	<b>No.</b>	<b>Total</b>		
Part 1 Analytical Thinking Situation 1	1. To inform the element of things. 2. To inform the similar components 3. To identify the relationship 4. To evaluate the reasonability of the relationship	4	2.5	Total 10 points

Part 2 Critical Thinking Situation 2	5. To identify the problem, its element, and the relationship. 6. To identify popularity, reliability and background hypothesis	2	3	Part1 6points Part2 6points Total 12 points
	7. To reflect the thinking and summarize the problem 8. To conclude and make the decision 9. To criticize the objective thinking	3	2	
Part 3 Decision Thinking Situation 3	10. To identify the determined problem and its environment 11. To target the goal of decision thinking	2	1	Part1 2points Part2 6points Total 8points
	12. To create the alternative. 13. To analyze and compare both advantage and disadvantage of the alternative 14. To determine the appropriate alternative 15. To evaluate the achievement of the alternative	4	1.5	
Total		15		30points

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## Appendix C

### Argumentative Writing Rubric

#### 6 Outstanding

6 point paper presents a cogent, well-articulated critique of the argument and demonstrates mastery of the elements of effective writing.

A typical paper in this category exhibits the following characteristics:

1. Very clear claim and highly effective structure. Almost no grammatical mistake found.
2. Information and evidence are strong, accurate, and appropriate. Claims and ideas are supported strongly. Alternative perspectives are carefully considered and presented.

3. Analysis/synthesis/evaluation/interpretation are well made in order to identify, summarize problem and reflect thinking
4. Independent thinking and creativity is obvious. Critical thinking skills are reflected obviously.

#### 5 Strong

5 point paper presents a well-developed critique of the argument and demonstrates a strong control of the elements of effective writing.

A typical paper in this category exhibits the following characteristics:

1. Clear claim and effective structure. A few grammatical mistakes found.
2. Information and evidence are enough. Claims and ideas are supported. Alternative perspectives are considered and presented.
3. Analysis/synthesis/evaluation/interpretation are made in order to identify, summarize problem and reflect thinking.
4. Independent thinking and creativity is found. Critical thinking skills are reflected.

#### 4 Adequate

4 point paper presents a competent critique of the argument and demonstrates adequate control of the elements of writing.

A typical paper in this category exhibits the following characteristics:

1. Claim is found and basic structure is presented. Some grammatical mistakes found but do not affect understanding.
2. Information and evidence are presented. Some claims and ideas are supported. Part of Alternative perspectives are considered and presented.
3. Some Analysis/synthesis/evaluation/interpretation are made in order to identify, summarize problem and reflect thinking.
4. Independent thinking and creativity is not obvious. Critical thinking skills are reflected in certain degree.

#### 3 Limited

3points paper demonstrates some competence in analytical writing skills and in its control of the elements of writing but is plainly flawed

A typical paper in this category exhibits one or more of the following characteristics:

1. Main claim is not clear and structure and organization is poor, with few transition words. A lot of grammatical mistakes found and slightly affect understanding.
2. Information and evidence are not adequate. Some claims and ideas are not well supported. No Alternative perspectives are considered and presented.
3. Little Analysis/synthesis/evaluation/interpretation are made in order to identify, summarize problem and reflect thinking.
4. Independent thinking and creativity is not found. Very few Critical thinking skills are reflected.

#### 2 Seriously Flawed

2 points paper demonstrates serious weaknesses in analytical writing skills. A typical paper in this category exhibits one or more of the following characteristics:

1. Main claim is not found or and structure and organization is extremely limited, paragraph is not reasonably divided, with no transition words. A lot of grammatical mistakes found and seriously affect understanding.



<p>2. Information and evidence are not presented. Most claims and ideas are not well supported. No Alternative perspectives are considered and presented.</p> <p>3. No Analysis/synthesis/evaluation/interpretation are made in order to identify, summarize problem and reflect thinking.</p> <p>4. Independent thinking and creativity is not found. No Critical thinking skills are reflected.</p>
<p>1 Fundamentally Deficient</p> <p>1 point paper demonstrates fundamental deficiencies in analytical writing skills.</p> <p>A typical paper in this category exhibits one or more of the following characteristics:</p> <p>1 point paper is off topic, not written in English, is merely attempting to copy the topic; or consists only of keystroke characters.</p>
<p>NR Blank</p>

## Appendix D

## Lesson plans

Long range plan

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### Problem based English writing Instruction

Appropriate for grades M 6

**OVERVIEW:** The long range lesson plan consist of nine weeks lessons, with each week 110 minutes. This nine weeks lesson plan can be divided into

two parts: argumentative writing pre-training lessons (4 weeks including introduction) and problem-based English writing training lessons. (5weeks including summary lesson). The training lessons covered two topics: campus love and animal rights. Each topic takes two weeks to finish.

The argumentative writing pre-training lessons aimed at helping students understand the basic elements and arguing skills in argumentative writing.

The problem-based English writing training lessons aimed at improve students critical thinking abilities and argumentative writing skills through problem based English writing instruction.

Title of a lesson	Objectives	Main activities	evaluation method
Lesson 1 Argumentative writing: Class Introduction and Pre-test for Critical Thinking(110mins)	To know students English level, critical thinking level, learning style To introduce students class content	1. Self-introduction 2. Learning style survey 3. Critical thinking pre-test 4. Class content and evaluation introduction	Students will practice oral English skills of self-introduction Questionnaire, Critical thinking pretest to evaluate learning style and critical thinking skills of students
Lesson 2 Argumentative writing: Pre-test for writing, Statement and Support(110ms)	To know students writing skills. Enable students to identify statement, support in argumentative writing	1. Pre-test for argumentative writing 2. Class presentation about debatable, non-debatable statement and support. 3. Ask students to identify debatable, non-debatable statement and support in argumentative writing	Class observation and writing on a paper card to evaluate students performance. Writing assignment to test students' writing skills.
Lesson 3 Argumentative writing: Connectives, Topic Sentences and	Enable students to write a short paragraph with clear topic sentence and connectives.	1. Class presentation about connectives, topic sentences and paragraph settings. 2. Identify	Class observation on students' oral performance. evaluate students' writing through paragraph

Paragraph(110mins)		connectives in an article. 3. Match topic sentences for a few paragraph. 4.Short paragraph writing practice	writing practice. Whether students can use good topic sentence and connectives is the key point for evaluation
Lesson 4 Argumentative writing: Showing you know both sides and article structure introduction (110mins)	Enable students to imitate the sample article and write a short argumentative essay which present opinions from different sides	1.Class presentation about showing both sides. 2.Sample article analysis together with students 3.Opinion generation game 4.Writing assignment as homework	Class observation on students' performance during article analysis and opinion generation game. Writing assignment will be evaluated through writing rubric
Lesson 5 Campus love(220mins)	Enable students to write a piece of argumentative writing about Campus love which can promote students' critical thinking and writing skills	1. Warm up 2. Presentation of the problem 3.Brainstorm 4. Group work 5.Self-directed solution 6.Inter-group sharing 7.Draft(not class time) 8.Teacher's comment(not class time) 9. Class summary discussion	Class observation on students participation of brainstorm, group work and inter-group sharing activities. Students' writing including writing template during the class as well as the third and fourth writing assignments evaluated through argumentative writing rubric
Lesson 6 Do animal have rights(220mins)	Enable students to write a piece of argumentative writing about animal rights which can promote students' critical thinking and writing skills.		
Lesson 7 Farewell class	1.Help students to review about all the important content during the semester. 2.Get to know	1.Presentation to review the content for the whole semester 2.Ask students to finish Critical	Class observation on activity 1. Critical thinking post-test

	students' critical thinking level through critical thinking Post-test 3. Inspire students' learning through some motivating videos. 4. Teach students to judge a person in a positive way.	thinking Post-test 3. Motivating video show 4. Activity: judge people from a good side.	
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Detailed learning outcome especially for lesson 5 and lesson 6 was shown in the following lesson plans.

## Lesson 1

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### **Argumentative writing: Class Introduction and Pre-test for Critical Thinking (110mins)**

Appropriate for grades M 6

**OVERVIEW:** This lesson will provide an opportunity for the teacher to know each student as well as let each student know the teacher and the brief

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introduction of the whole semester's lesson. The students need to finish a Critical-thinking pretest and a questionnaire which will help the teacher to design the syllabus.

**OBJECTIVES:**

- For teacher:
1. Get to know the students and have a basic understanding about the students' current English level.
  2. Get to know students' Critical thinking level through Critical thinking test
  3. Get to know students' learning style and interested topic through questionnaire and discussion in class.
- For students:
4. Get to know the teacher
  5. Understand the class atmosphere and expectation of the class
  6. Have a brief idea about the content of the class
  7. Make a decision about the evaluation method of the class

**ACTIVITIES:**

1. The teacher makes a brief self-introduction and then plays several video about himself. Then the teacher gives the students chance to ask questions about himself. (10mins) (OBJECTIVE 4)
2. The teacher will let the students finish a questionnaire.(10mins)(OBJECTIVE 3)
3. The teacher then throw a ball to one student and let her introduce herself: what is unique about herself. The student will pass the ball to another student till all the students have finish the ball passing. (50mins)  
( OBJECTIVE 1)
4. The teacher will ask the students to finish a critical thinking pre-test(20mins)  
( OBJECTIVE 2)
5. The teacher will make an introduction about the teaching content, class arrangement and expectation. (10mins)(OBJECTIVE 5,6)
6. The teacher will hold a class discussion about the evaluation (10mins)  
(ENABLING OBJECTIVE 7)

**RESOURCES/ MATERIALS NEEDED:**

PPT projection

ball

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## **EVALUATION**

OBJECTIVE 2 and 4 will be evaluated. The evaluation will be done through critical thinking test and questionnaire.

### Lesson 2

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#### **Argumentative writing: Pre-test for writing, Statement and Support (110mins)**

Appropriate for grades M 6

**OVERVIEW:** This lesson covers the topic about what is argumentative writing, what is statement, the debatable statement and non-debatable statement, the concept of support, what can be used as support and

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how should we use support. The lesson will also include a pre-test for argumentative writing.

**OBJECTIVES:**

For teacher:

1. Understand the students' argumentative writing level.

For students:

2. Identify a statement sentence and a non-statement sentence.
3. Orally express their understanding about what is argumentative writing, what is statement, what is support.
4. Identify debatable statement and non-debatable statement.
5. Identify statement and support in a paragraph and an article.

**ACTIVITIES:**

1. The teacher will introduce about the class arrangement (5mins)
2. The teacher will introduce about the pre-test for writing and begin pre-test. (50mins)(OBJECTIVE 1)
3. The teacher presents slogans, advertisement to show what a statement is. (2min) (ENABLING OBJECTIVE 2)
4. The teacher give definition of statement then the students will be asked to identify which is a statement, which is not from a given group of sentences. (3 min) (ENABLING OBJECTIVE 2,3)
5. The students will be asked to write a statement, and the teacher will check several students to see if they get the idea. (3min) (ENABLING OBJECTIVE 2)
6. The teacher teaches about the difference between debatable statement and non-debatable statement.(2min) (ENABLING OBJECTIVE 4)
7. The students will be asked to identify which is debatable statement, which is not debatable statement from a group of statements and give reasons. (5min) (ENABLING OBJECTIVE 3,4)

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8. The students will be asked to write down a debatable statement and a non-debatable statement. The teacher will check some of the answers by asking them to show it in front.(7min)  
(ENABLING OBJECTIVE 3,)
  9. The teacher teaches about the concept of support and gives certain example.(2min)  
(ENABLING OBJECTIVE 3,5)
  10. The students will be asked to identify the statement part and support part in a paragraph. (3 min)  
(ENABLING OBJECTIVE 3,5)
  11. The teacher will talk about where shall we use support and how shall we use it.(2min)  
(ENABLING OBJECTIVE 3)
  12. The students will be given a card; the students will write a statement. Then the teacher will collect the cards and hand them out randomly, the students who get the card have to write two supporting sentences. The teacher will ask some students to show in front.(15min)  
(ENABLING OBJECTIVE 2,3,4,5)
  13. The teacher will make conclusion of the class and lead to the concept of Argumentative writing: statement+ support= argumentation. (5min)  
(ENABLING OBJECTIVE 3)

Pre test writing assignment: Some people think the University education cannot produce the suitable talents for the society but the training agency could directly provide students necessary skills which is more beneficial. What is your opinion about this? Write no less than 150 words.

#### **RESOURCES/ MATERIALS NEEDED:**

PPT projection

Handout

paper card

#### **EVALUATION**

Objective 1 will be evaluated through a writing rubric. The rest objectives in this



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lesson plan can be measured through teacher's observation. In activities step:3,4,7,8,10,12 the students need either answer the questions or present in front of the class. The teacher can observe their performance and check whether they get correctly the answer so that the objectives in this lesson will be evaluated.

### Lesson 3

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#### **Argumentative writing: Connectives, Topic Sentences and Paragraph (110mins)**

Appropriate for grades M 6

**OVERVIEW:** This lesson covers the topic about what are Connectives, the function of the Connectives, what is topic sentence, the basic structure of a paragraph.

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**TERMINAL OBJECTIVES:** At the end of this lesson, the students should be able to write a short paragraph with clear topic sentence and connectives.

**ENABLING OBJECTIVES:** The learner will be able to:

1. Identify various connectives.
2. Orally express their understanding about what is the function of different connectives and the function of topic sentence
3. Orally express their understanding about the structure of a paragraph

**ACTIVITIES:**

1. Introduction about the class (5min)
2. The teacher makes a presentation about what are connectives and its usage. (30min)  
(OBJECTIVE 1)
3. The teacher will give a sample article and together with the students to find out the connectives and discuss about its functions. (10 min)  
(OBJECTIVE 1,2)
4. The teacher will introduce the concept of topic sentence and ask students to match or write topic sentence for a few paragraphs. (15min)  
(OBJECTIVE 2)
5. The teacher will take the article as a sample to talk about the paragraph structure. (10mins)  
( OBJECTIVE 3)
6. The students will be asked to write a short paragraph with proper connectives and topic sentence. (25min)  
( OBJECTIVE 1,2,3)
7. The teacher will analyze the mistakes and good points of the first argumentative writing. (15min)

**RESOURCES/ MATERIALS NEEDED:**

PPT projection

Handout

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sample article

## **EVALUATION**

Most Objectives in this lesson plan can be measured through teacher's observation. In activities step:3,4,6 the students need either write a sentence or a paragraph and the teacher can check from the assignment on the class.

Lesson 4

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### **Argumentative writing: Showing you know both sides and article structure introduction (110mins)**

Appropriate for grades M 6

**OVERVIEW:** This lesson covers the topic about the importance of showing your understanding about both sides of opinion and the way of expression your understanding. This lesson will also cover the basic introduction of the article structure.

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**TERMINAL OBJECTIVES:** At the end of this lesson, the students should be able to imitate the sample article and write a short argumentative essay which present opinions from different sides

**ENABLING OBJECTIVES:** The learner will be able to:

1. Identify different opinions in a given article.
2. Orally express different opinions for a single given topic
3. Identify the basic structure of a given article.
4. Write opinions from different perspectives.

**ACTIVITIES:**

1. Introduction about the class (5min)
2. The teacher makes a presentation about the importance of showing you know both sides and its usage. (20min)  
(OBJECTIVE 1)
3. The teacher will give a sample article and together with the students to find out the different opinions inside the article and discuss about the way of expression. (10 min)  
(OBJECTIVE 1, 2)
4. Opinion generation game: the teacher will divide the class into four groups  
step 1: group A and B are preparing for a debate( appearance and inner beauty, which one is more important)  
group C support A, group D support B  
step 2: Each group will be given 20 pieces of diamond for trading.  
every time group C come up with an opinion to support group A, group A need to give group C 1 diamond, the same with group B and D.  
step 3: Group A and B debate, the wining team will get 5 diamond from the losing team.  
step 4,5,6 will be the debate between C and D(same topic). (40 minutes)
5. The teacher generates all the opinions and comment on the debate, then the students imitate the structure of a given article and write a short argumentation (35mins)

Homework: Writing assignment 2

Some people think a good appearance makes you feel good and sometimes give others a sense of profession. Some people consider modern society already overemphasize on appearance, people should go

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back and seek inner-beauty. What is your opinion?

Write an argumentation with no more than 300 words. Try to make use of the debate result if you can.

**RESOURCES/ MATERIALS NEEDED:**

PPT projection

Handout

sample article

Diamond

**EVALUATION**

Most Objectives in this lesson plan can be measured through teacher's observation.

The main parts for evaluation are step 5 and homework, teacher will evaluate students' work through a writing rubric.

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Lesson 5

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**Campus love (cover two classes totally 220 minutes)**

Appropriate for grades M6.

**OVERVIEW:** The lesson covers an issue about Campus Love. Students have to understand the situation and come up the proper solution for the problem presented.

**TERMINAL OBJECTIVE:** To write a piece of argumentative writing about Campus love which can promote students' critical thinking and writing skills

**ENABLING OBJECTIVES:** The learner will be able to:

1. Identify the conflict value and attitude towards Love through discussion or research.
2. Analyze and argue the content and opinions of others in oral form or written form .
3. Conclude the problem and express a solution based upon reasonable arguing in oral or written form.

**The first class covered teaching step 1-4  
(step 5 is arrangement for after class assignment) aimed at all the enabling objectives**

Teaching steps	Activity Description		Learning Outcome	Focused Objective and Evaluation
	Teacher's role	Students' role		
1 Warm up (15min)	The teacher introduces the topic and asks questions related to the animal rights and tries to get students different opinions. For example: What is love? Do you think M6 students should fall in love?	The students answer the question from the teacher. They will form a four people group and discuss with each other and later write down their answer about what is love.	Problem identification skill	Objective 1 Evaluated through class observation
2 Presentation of the problem (20min)	The teacher ask the students to watch a short Video (part of the movie <i>love the little crazy thing</i> ) and answer related questions. For example: Do you think it is a real life story? Do you think it is touching? Why is it touching?	Students watch the video and answer the question from the teacher with their own reason. Through watching the video and answering the questions, the students will begin to understand the problem:  Some people want to chase their love at the price of losing themselves.	Problem identification skill  Identification of background assumption skill	Objective 1 Evaluated through class observation
3. Brain Storm (25min)	The teacher show students a group of slides and ask students to brainstorm their opinions and solutions for the problem : If you were Nam, do you want to change yourself like her?	Students watch the slide and brainstorm. Then the student who come up with the idea will come to the front and speak out their opinions	Problem identification, background assumption identification skill	Objective 2 Evaluated through the students <b>writing</b> on the white board as well as writing template

	Is it worthwhile to change yourself for the one you love?			
4. Work in Group (25min)	<p>The teacher ask students work in a group to share each other's opinion and solution. The problem here will be:</p> <p>According to the You tube video, as well as the solutions that we brainstormed, now work in group and make a collective answer about only one issue:</p> <p>Do you think it really worthwhile to change yourself for someone else, or we should maintain ourselves? What is your reason?</p>	<p>The students will work in a group of 4 and begin to discuss. They need to negotiate with each other and get a collective opinion for the problem.</p> <p>The opinions and solutions could be different from each other and also can be different from the previous brainstorm result.</p> <p>Each group need to <b>write down</b> their solution in the the representative need to read their solution in front of the class.</p>	<p>Reflect of thinking and problem summary skill</p> <p>Conclusion and decision making skill</p> <p>Reasonable critiques of logic of thinking skill</p>	<p>Objective 3</p> <p>Evaluated through class observation and also the solutions <b>written down</b> by each group</p>
5. self-directed solution(15mins)	<p>The teacher provides the students additional resource to explore or assignment to finish.</p> <p><b>Debate :</b> Hello, girls! Today we have a really interesting topic. Now we have different opinions about whether it is worthwhile to change oneself for the one we love. We will randomly divide ourselves into two groups. Each group</p>	<p>The students search on internet or library to find information to prepare for the coming debate.</p> <p>They need to form a 7 person team by themselves and elect a group leader.</p> <p>They have to work our strategy to win the debate and fully explore and discuss the issue</p>	<p>Identification of problem, identification of popularity and background assumption</p> <p>Reflection of thinking and problem summary skill</p> <p>Conclusion and decision making skill</p> <p>Reasonable Critiques of</p>	<p>Objective 1,2</p> <p>This is after class assignment. Teacher can evaluate it through next class presentation</p>



	<p>will firstly select a leader, then the leader will select another 6 people in your group as debating team. The other students serve as supporting team. The supporting team can join debate in the free debate period.</p> <p>Group A: Debating team</p> <p>Team 1: For the one we love, it is worthwhile to change ourselves</p> <p>Team 2: We should maintain ourselves to attract the people we love</p> <p>Example :</p> <p>Group A number 1:introduction.(1min)</p> <p>Group B number 1:introduction.(1min)</p> <p>Group A number 2:.....(1min)</p> <p>Group B number 2:.....(1min)</p> <p>Group A number 3:.....(1min)</p> <p>until...</p> <p>Group A number 7.....(1min)</p> <p>Group B number 7.....(1min)</p> <p>Free debate: any member from each group can free argue with any opposite</p>		<p>the objective thinking, the logic of thinking or the deducted thinking</p>	
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	<p>opinion(20mins)</p> <p>Group A number1 conclusion(1 min)</p> <p>Group B number 1 conclusion(1min)</p> <p>Vote for the best debater</p>			
<b>The second class from Step 6 to Step 7 will focus on terminal objective</b>				
6.self-directed solution and inter-group sharing(60mins)	<p>The teacher repeat the debate rules</p> <p>The teacher assign one student as the debate timekeeper</p> <p>The teacher serves as MC of the debate and organize the debate according to the process above.</p> <p>The teacher provide note taking template.</p> <p>After the debate, the teacher will make comments about both sides in terms of language logic and way of expression. Then the teacher will organize vote round.</p>	<p>Students firstly discuss and prepare inside of groups for about 25 minutes and they can ask teacher for help. Students will arrange the room to be debate room.</p> <p>Students will begin debating</p> <p>Students will vote for the best debater.</p> <p>Because of the time limitation, there will be only one focus as the criteria for the voting: whether the debater or the Group gives a sound arguing based upon reasons.</p>	<p>Identification of problem, identification of popularity and background assumption</p> <p>Reflection of thinking and problem summary skill</p> <p>Conclusion and decision making skill</p> <p>Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking</p>	<p>Objective 3</p> <p>Evaluated through class observation, other groups' vote as well as <b>the note taken down</b>by the debating groups.</p>
7. Summary Discussion and writing assignment	<p>Teacher and students together to conclude and categorize all the mistakes found in argumentative writing</p>	<p>The students will reflect their own writing from last</p>	<p>Identification of problem, identification of popularity and</p>	<p>Objective 3</p> <p>The class discussion part will be evaluated</p>

(50min)	<p>from last week. The teacher will also summarize all the opinions of the new issue and provide a basic outline for students in case some students cannot come out one by themselves.</p> <p>The new writing assignment:</p> <p>Some people said that they would like to do everything they can to win their love, and they consider making a change is a positive step to bring a piece of romantic relationship, other people consider the most attractive way is being yourself and no need to change. What is your opinion about this issue? write a short argumentation (200- 300 words) to express your opinion towards the issue with sound reasons</p>	<p>assignment based upon the teacher's comments and summary discussion. The students need to begin to write the new assignment in the class and when the students get back home, they need to <b>finish the writing assignment</b> based upon the opinions they noticed during brainstorm, class debate and their own research</p>	<p>background assumption Reflection of thinking and problem summary skill Conclusion and decision making skill Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking</p>	<p>through class observation. The <b>writing assignment</b> will be evaluated through Writing Rubric</p> <p><b>Terminal objective finished:</b> To write a piece of argumentation about animal rights which can promote students' critical thinking and writing skills.</p>
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Lesson 6

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**Do animal have rights? (cover two classes totally 220 minutes)**

Appropriate for grades M6.

**OVERVIEW:** The lesson covers an issue about Animal rights. Students have to understand the situation and come up the proper solution for the problem presented.

**TERMINAL OBJECTIVE:** To write a piece of argumentative writing about animal rights which can promote students'critical thinking and writing skills.

**ENABLING OBJECTIVES:** The learner will be able to:

1. Identify the conflict value and attitude towards animal rights through discussion or research.
2. Analyze and argue the content and opinions of others in an oral form or written form
3. Conclude the problem and express a solution based upon reasonable arguing in oral or written form.

**The first class covered teaching step 1-4  
(step 5 is after class assignment) aimed at all the enabling objectives**

Teaching steps	Activity Description		Learning Outcome	Focused Objective and Evaluation
	Teacher's role	Students' role		
1 Warm up (15min)	The teacher introduces the topic and asks questions related to the animal rights and tries to get students different opinions. For example: Do you think animals have rights? Why they have, why not?  What kind of rights do they have?	The students answer the question from the teacher and argue with each other's opinion. The students need to give reasons for their own answer. Students will write down their answer on the writing template.	Problem identification skill	Objective 1 Evaluated through class observation
2 Presentation of the problem (20min)	The teacher ask the students to watch a short video <a href="http://www.youtube.com/watch?v=mwtitWcCEps">http://www.youtube.com/watch?v=mwtitWcCEps</a> and answer related questions. For example: Do you think the elephant feel good to be treated like this? Shall we consider their feeling or simply ignore them because they are less intelligent than human? Thai people love elephant very much, do you think pig should share the same right with elephant, why? Do you think animals can feel? Do you think animals have emotion?	Students watch the video and answer the question from the teacher with their own reason. Through watching the video and answering the questions, the students will begin to understand the problem:  Human beings take advantage of animals and their right were being violated. Students will write down their answer on the writing template.	Problem identification skill  Identification of background assumption skill	Objective 1 Evaluated through class observation
3. Brain Storm (25m)	The teacher show students a group of slides and ask	Students watch the slide and brainstorm. Then the student who	Problem identification, background	Objective 2 Evaluated through the

in)	<p>students to brainstorm their opinions and solutions for the problem(animal rights may be violated) : Are animal's right being violated? In which way human kinds are violating animals' right? How shall we solve these problems?</p>	<p>come up with the idea will come to the front and <b>write down</b> their opinions on the white board as well as writing template.</p>	<p>assumption identification skill</p>	<p>students <b>writing</b> on the white board as well as writing template</p>
4.Work in Group (25min )	<p>The teacher ask students work in a group to share each other's opinion and solution. The problem here will be: According to the You tube video, as well as the solutions That we brainstormed, now work in group and design a role play about the following situation:</p> <ul style="list-style-type: none"> <li>• Scientists recently found out eating snakes' brain can improve High school students' mathematic performance. So many people began to catch snakes and sell them.</li> </ul> <p>A: You are snake brain sellers. B: You are animal rights supporters.</p> <p>You have five minutes To argue with each other</p>	<p>The students will work in a group of 4 and begin to discuss. They need to negotiate with each other and get a united solution for the problem. The opinions and solutions should be related with our brainstorming result. Each group need to <b>write down</b> their solution in the writing template and the representative need to perform it in front of the class</p>	<p>Reflect of thinking and problem summary skill Conclusion and decision making skill Reasonable critiques of logic of thinking skill</p>	<p>Objective 3 Evaluated through class observation and also the solutions <b>written down</b> by each group</p>

<p>5. Assignment and Further Research (15mins)</p>	<p>The teacher provides the students additional resource to explore or assignment to finish.</p> <p><b>Debate :</b> Hello guys! Really miss you guys for a long time. It is a pity today I only see 2/3 of you guys! We will hold a debate in next two weeks. We will have four groups. Group A, B, C and D. Each group 7 members.</p> <p>Group A vs Group B Group A: animals have emotion and feeling so they have right for free living, we should not kill them for fur or meat.</p> <p>Group B: animals do not have right, human beings can decide whether to kill an animal for its meat or fur.</p> <p>Group C vs Group D Group C: animals should not be taken for doing experiment, it is inhuman.</p> <p>Group D: We should continue to do experiment on animal for our own interest.</p> <p>There is a head of each group to introduce your group idea for one minute and then each member in the group will talk from your point of view for one</p>	<p>The students search on internet or library to find information to prepare for the coming debate. They need to form a 7 person team by themselves and elect a group leader. They have to work our strategy to win the debate and fully explore and discuss the issue</p>	<p>Identification of problem, identification of popularity and background assumption Reflection of thinking and problem summary skill Conclusion and decision making skill Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking</p>	<p>Objective 1,2</p> <p>This is after class assignment. Teacher can evaluate it through next class presentation</p>
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	<p>minute.  Example :  Group A number  1:introduction.(1min)  Group B number  1:introduction.(1min)  Group A number  2:.....(1min)  Group B number  2:.....(1min)  Group A number  3:.....(1min)  .  Group A number  7.....(1min)  Group B number  7.....(1min)  Free debate: any  member from each  group can free argue  with any opposite  opinion(3min)  Group A number1  conclusion(1 min)  Group B number 1  conclusion(1 min)</p>			
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**The second class from Step 6 to Step 7 will focus on terminal objective**

<p>6.Class  Debate  (60min)  Class  debate  will  naturally  include  self-direct  ed  solution  and  inter-grou  p sharing</p>	<p>The teacher repeat the  Debate rule.The teacher  assign one student as the  first debate timekeeper  and another student for the  second debate time keeper  The teacher serves as MC  of the debate and organize  the debate according to the  process above.  The teacher provide note  taking template.  After the first round debate,  the teacher will make  comments about both sides  in terms of language logic</p>	<p>Group A and Group B  students  begin debating while  they <b>take notes</b> of the  opposite opinion for  further arguing.  Group C and Group D  students observe the  first round debate and  they need to vote for  the wining team and  best debater.  For the second round  Group C and D debate  and <b>take notes</b>, Group  A and B evaluate and</p>	<p>Identification of  problem,  identification of  popularity and  background  assumption  Reflection of  thinking and  problem  summary skill  Conclusion and  decision making  skill  Reasonable  Critiques of the  objective</p>	<p>Objective  1,2,3  Evaluated  through  class  observatio  n, other  groups'  vote as  well as <b>the  note  taken  down</b>by  the  debating  groups.</p>
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	<p>and way of expression. Then the teacher will organize the second debate.</p>	<p>make votes. Because of the time limitation, there will be only one focus as the criteria for the voting: whether the debater or the Group gives a sound arguing based upon reasons.</p>	<p>thinking, the logic of thinking or the deducted thinking</p>	
<p>7. Summary Discussion and writing assignment (50min)</p>	<p>Teacher and students together to conclude and categorize all the mistakes found in argumentative writing from last week. The teacher will also summarize all the opinions of the new issue and provide a basic outline for students in case some students cannot come out one by themselves.</p> <p>The new writing assignment:</p> <p>Along with more and more severe ecological environment damage in 21 century, many people began to reflect what human being did to the environment and animal kingdom. They claimed that animals are not property of human. We should not kill, buy, do experiment, torture, slave animal out of our own selfishness. However, many people against this idea, because this means</p>	<p>The students will reflect their own writing from last assignment based upon the teacher's comments and summary discussion. The students need to begin to write the new assignment in the class and when the students get back home, they need to <b>finish the writing assignment</b> based upon the opinions they noticed during brainstorm, class debate and their own research</p>	<p>Identification of problem, identification of popularity and background assumption Reflection of thinking and problem summary skill Conclusion and decision making skill Reasonable Critiques of the objective thinking, the logic of thinking or the deducted thinking</p>	<p>Objective 1,2,3 The class discussion part will be evaluated through class observation. The <b>writing assignment</b> will be evaluated through Writing Rubric  <b>Terminal objective finished:</b> To write a piece of argumentation about animal rights which can promote students' critical thinking</p>

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	<p>people should not eat meat, wear leather shoes, or even put on cosmetic. What is your opinion about this?</p> <p>Try to use the discussion and research result both in and out of class.(200&lt;words&lt;300)</p>			<p>and writing skills.</p>
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## Lesson 7

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### **Farewell class**

Appropriate for grades M 6

**OVERVIEW:** This lesson will serve as a review lesson. All the Argumentative writing skills will be reflected in this lesson. The problem based-learning lessons will also be reviewed. The critical thinking post test will be hold in the middle of the class.

### **OBJECTIVES:**

- For teacher:
1. Help students to review about all the important content during the semester.
  2. Get to know students' Critical thinking level through Critical thinking Post-test
  3. Inspire students' learning through some motivating videos.
  4. Teach students to judge a person in a positive way.
- For students:
1. Review the important content during the semester.
  2. Test their own critical thinking level through the test.
  3. Self motivation through the video
  4. Learn to judge a person in a positive way

### **ACTIVITIES:**

1. The teacher makes a brief introduction about the content today and then open the Powerpoint and review the important content in the past whole semester (30mins)  
(OBJECTIVE 1)
2. The teacher will let the students finish the critical thinking post test (25mins)  
(OBJECTIVE 2)
3. The teacher will show the students several motivating videos from China got talent (30mins)  
( OBJECTIVE 3)
4. The teacher will hold an activity. The steps of the activity are shown as following:  
  
1/Each student will be given an envelope and some blank paper card
  1. **You need to write your name at the back of the envelope**
  2. **You should take ten pieces of paper**
  3. **You need to give the envelope to Linbo**
  4. **You get the new envelope from Linbo**

- 
5. **Write at least 3 good points of that person on the paper and put it into envelope.**
  6. **Once finished, you can trade your envelope with another person but you can not see the name in advance**
  7. **When the class over, please put the envelope on the wall, from then on you can freely write anything to anyone.**

#### **RESOURCES/ MATERIALS NEEDED:**

PPT projection

paper card

envelopes

#### **EVALUATION**

It is necessary to evaluate OBJECTIVE 2 . The evaluation will be done through critical thinking test.

---

## Appendix E

### Sample Instructional Material



Do you think animals have emotion?

Do you think animals can feel?





**Why do they have rights?**

**And why not?**



**What kind of rights do they have?**

---

In which way do we violent animal right?



For meat and fur supply



For entertainment

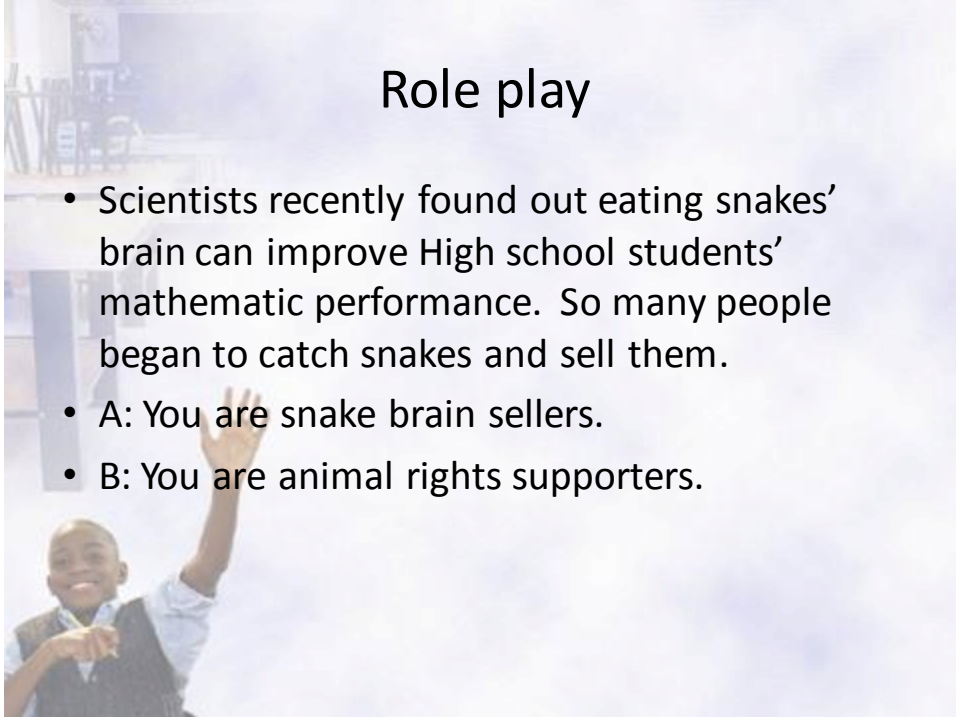
For experiment



---

## Role play

- Scientists recently found out eating snakes' brain can improve High school students' mathematic performance. So many people began to catch snakes and sell them.
- A: You are snake brain sellers.
- B: You are animal rights supporters.

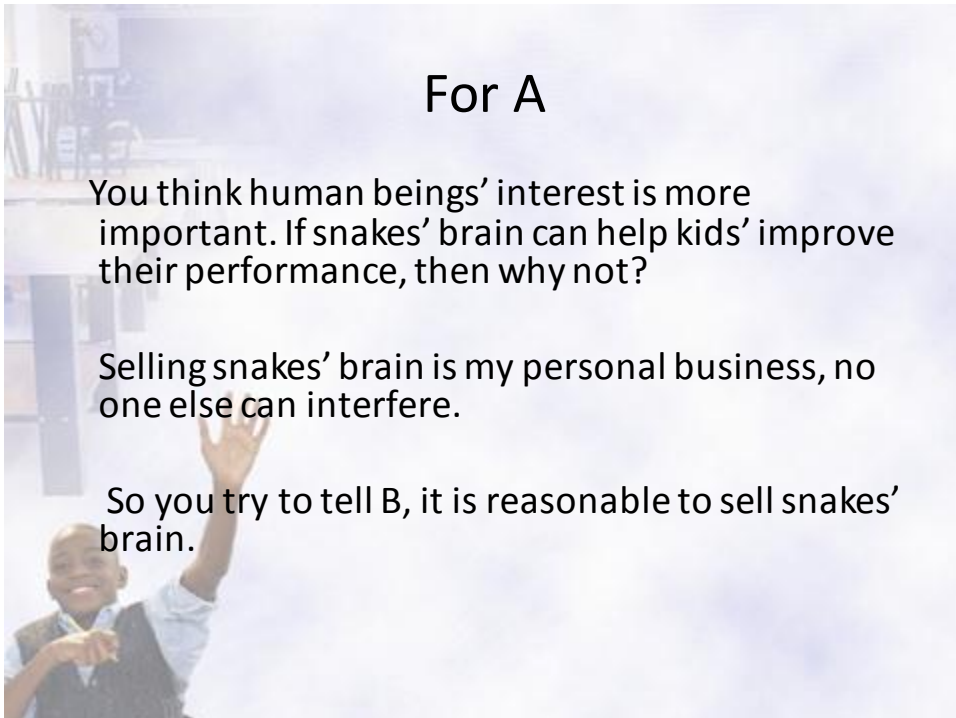


## For A

You think human beings' interest is more important. If snakes' brain can help kids' improve their performance, then why not?

Selling snakes' brain is my personal business, no one else can interfere.

So you try to tell B, it is reasonable to sell snakes' brain.





---

## For B

You think animals have their rights.

Selling snakes' brain will increase the killing of wild snakes.

You think selling snakes' brain should be prohibited.

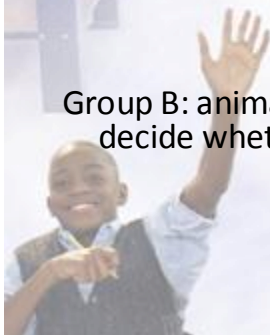


## The last Class Debate

Group A vs Group B

Group A: animals have emotion and feeling so they have right for free living, we should not kill them for fur or meat.

Group B: animals do not have right, human beings can decide whether to kill an animal for its meat or fur.

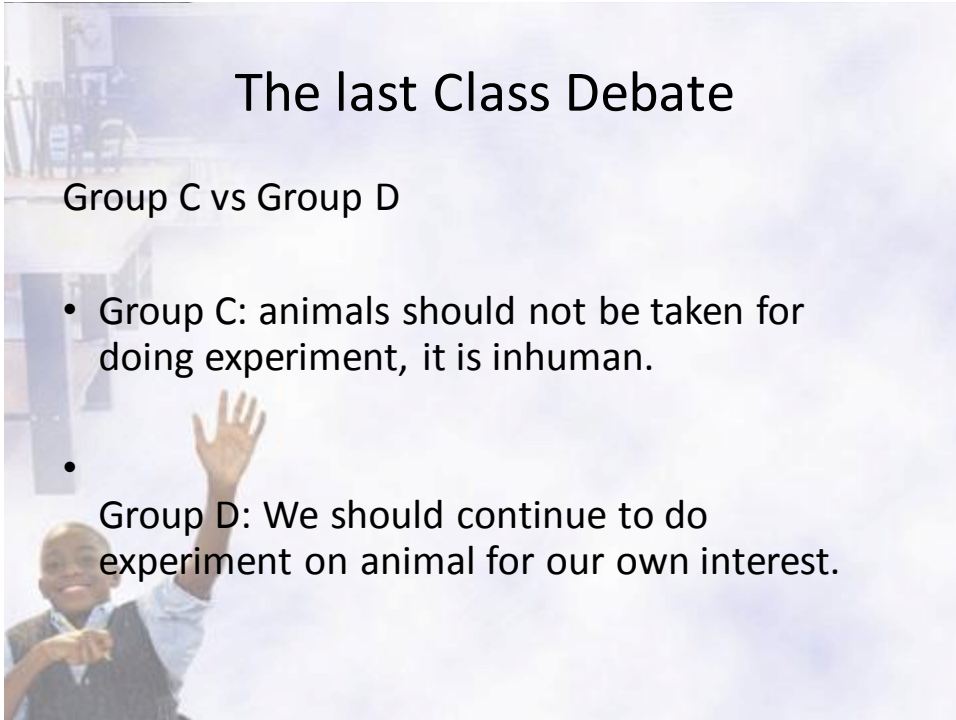


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## The last Class Debate

### Group C vs Group D

- Group C: animals should not be taken for doing experiment, it is inhuman.
- Group D: We should continue to do experiment on animal for our own interest.



---

## Appendix F

Class Note Template

Name: \_\_\_\_\_

Group Number \_\_\_\_\_



### 1. warm up

- Do you think animals have rights? A Yes B No (circle the answer)
- Why they have and why not?

---

- What kind of rights do they have?

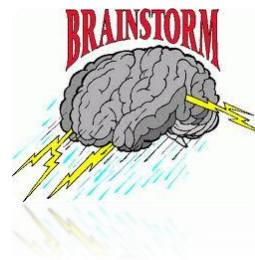
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### 2. Problem presentation



- Do you think animals can feel? A Yes B No (circle the answer)
- Do you think animals have emotion? A Yes B No (circle the answer)



### 3. Brainstorm

- In which way human beings are violating animals' right?

---

- How shall we solve these problems?

---

---

---

## 4. Group Plan



- Write down your group plan

1: Your Goal!

---

2: The resource that you need!!

---

3: Your steps!!

---

---

---

---

---

# Debate Note Template

Our main claim:	The opposite claim:
Support point 1:	Support point 1:
Support point 2:	Support point 2:
Support point 3:	Support point 3:
Support point 4:	Support point 4:
Support point 5:	Support point 5:
Support point 6:	Support point 6:
Support point 7:	Support point 7:
Conclusion:	Conclusion:

---

## Appendix G

Class 3 and Class 8's critical thinking result

Class 3

	Pretest score	Post test score
1	2	3
2	2	2
3	2	2
4	0	3
5	1	3
6	3	3
7	0	3
8	0	2
9	3	2
10	3	1
11	3	4
12	0	3
13	3	2
14	3	2
15		2
16	2	3
17	1	3
18	2	3
19	1	3
20	3	4
21	0	3
22	1	3
23	0	3
24	2	3
25	2	3
26	3	3
27	2	2
28	2	3
29	0	2
30	0	4
31	0	4
32	1	3
33	2	2
34	3	3
35	3	2
36	1	1
37	3	3

38	2	3
----	---	---

Class 8

Number	pretest	posttest
1w		4
2	4	4
3	4	
4	4	4
5	3	3
6	5	4
7	1	3
8w	5	2
9w	5	4
10w	2	2
11	3	3
12	3	3
13	3	4
14	3	4
15	4	4
16	5	4
17w	3	
18	3	3
19	5	3
20w	4	4
21w		3
22w	4	3
23w	2	4
24	1	4
25	5	4
26w	4	3
27	5	4
28w	4	4
29w	5	4
30	2	3
31w	2	4
32w	4	
33	3	4
34	5	3
35	3	4
36w	4	4
37w	4	3
38	0	4
39	1	3

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40w	5	3
41	4	3
42w	4	4

the number with “w” means the data was not valid either because the students came late for the exam either pre-test or post-test or absent.



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## Appendix H

Class 3 and Class 8's writing assignment result

Class 3

Number	first	fourth
1	4	5
2	4	5
3	3	4
4		
5	4	5
6	2	3
7	4	5
8	3	4
9	3	4
10	3	5
11	3	4
12		3
13	3	3
14	3	5
15		
16		
17		
18	3	3
19		4
20	3	5
21	3	4
22	3	5
23	3	5
24		
25	3	4
26	3	4
27		
28		
29	3	4
30	3	5
31	4	6
32		
33		3
34		
35	2	3
36	3	3
37	3	4
38	3	4

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### Class 8

Number	first	fourth
1w	3	3
2	3	3
3	3	5
4	4	5
5w		5
6	3	4
7	3	5
8w	4	5
9w	3	5
10w	4	5
11w		5
12	4	6
13	2	4
14	3	5
15	2	4
16	3	5
17	3	6
18	4	5
19	4	5
20w	3	5
21w	2	3
22w		5
23w	4	5
24	4	5
25	3	4
26w	3	4
27	4	5
28w	4	5
29w		4
30	4	5
31w	2	4
32w		3
33	4	6
34	4	5
35		
36w	4	6
37w	3	5
38	3	5
39	4	5

---

40w	4	5
41	3	5
42w	2	4

## Appendix I

### IOC for lesson plan objectives, activities, material and teaching steps

Descriptions	Expert			Avg
	1	2	3	
1. Objectives				
● The lesson plan objectives are appropriate to students' level	1	1	1	1
● The lesson plan is designed to achieve all enabling objectives	1	1	1	1
● The lesson plan is designed to achieve the terminal objective	1	1	1	1
● The objectives involve concerning about both critical thinking and wring skill development	1	1	Blank	1
2. Teaching steps				
● The teaching steps are easy to apply	1	1	1	1
● The teaching steps can reflect process writing and problem based learning	1	1	1	1
● The teaching steps can help promote critical thinking	1	1	1	1
3. Activities				
● Activities are suitable for students' learning abilities	1	1	1	1
● Activities are related to lesson plan objectives	1	1	1	1
● Activities are easy to apply	1	1	1	1
● Activities can reflect Problem based English writing instruction steps	1	1	1	1
● Activities are attractive for students in general	1	1	0	0.67
4. Materials and content				
● Materials display attractive layout	1	1	1	1

● The content in the material is attractive	1	1	Blank	1
● The content in the material is healthy and can promote students' critical thinking	1	1	0	0.67
5. Evaluation				
● The evaluation is coherent with the lesson	1	1	1	1
● The evaluation is feasible	1	1	1	1

Comments from Expert: Check the grammar and make sure you can finish all the activities in time.

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### IOC for questionnaire

Questionnaire				
● The language use in the questionnaire is understandable	1	-1	1	0.33
● The questionnaire can help researcher find out the topic of students' interest	1	1	1	1
● The questionnaire can help researcher understand the problem of students' concern in their daily life	1	0	1	0.67
● The questionnaire can help researcher understand students' learning style	1	1	1	1

Comments from Expert: No comments

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### IOC for Scoring Rubric

Descriptions	Expert			Avg
	-1	0	+1	
1. Rubric Design				
● The layout and format of Rubric is well structured	1	0	1	0.67
● The Rubric design is convenient to use	0	1	1	0.67
2. Criteria				
● The criteria of rubric can evaluate students' argumentative writing skill	1	0	1	0.67
● The criteria of rubric following a reasonable development of progress	1	1	0	0.67
● The criteria of rubric is easy to understand	1	1	1	1
● The indicators are easy for teacher to match students' work	1	0	1	0.67
● The holistic nature is valid for this study	1	1	1	1

Comments from Expert: \_\_\_\_\_ The layout of the Rubric can be improved to make it look more structured.

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## **BIOGRAPHY**

Li Yibo was born on the 30<sup>th</sup> June 1986 in Liaoning Province, China. He obtained his Bachelor's degree of Literature majoring in English and minoring in Spanish, Jilin University. After graduating, he was sent to Bangkok, Thailand as a volunteer teacher. After one year service, he continued his Master degree in Teaching English as a Foreign Language, faculty of Education, Chulalongkorn University.