

**CRITICAL READING ABILITY DEVELOPMENT THROUGH  
RECIPROCAL TEACHING: A CASE STUDY OF  
KALASINPITTAYASAN SCHOOL**

**BORWORN CHYTHAWIN**

**A Dissertation Submitted in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy Program in English and  
Language Arts  
at Maharakham University  
October 2015**

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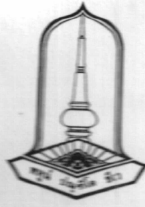
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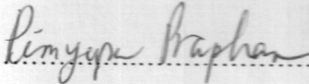
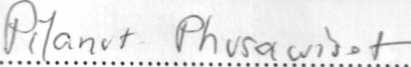
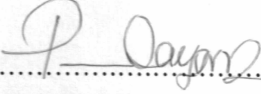


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The examining committee has unanimously approved this thesis, submitted by Mr. Borworn Chythawin, as a partial fulfillment of the requirements for the degree of doctor of philosophy in English and Language Art at Mahasarakham University.

Examining Committee

 ..... (Dr. Pimyupa Praphan)	Chairman (Faculty graduate committee)
 ..... (Dr. Pitanut Phusawisot)	Committee (Advisor)
 ..... (Asst. Prof. Dr. Photcharanon Sayankena)	Committee (Co-advisor)
 ..... (Dr. Thanawit Chaiyasuk)	Chairman (Faculty graduate committee)
 ..... (Asst. Prof. Dr. Saksit Saengboon)	Committee (External expert)

Mahasarakham University has granted approval to accept this thesis as a partial fulfillment of the requirements for the degree of doctor of philosophy in English and Language Art.

  
.....

 Dr. Kanokporn Rattanasuteerakul  
Dean of the Faculty of Humanities  
and Social Sciences

  
.....

(Prof. Dr. Pradit Terdtoon)  
Dean of Graduate School  
October 16, 2015

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Borworn Chythawin



**TITLE** Critical Reading Ability Development Through Reciprocal Teaching: A Case Study of Kalasinpittayasan School

**AUTHOR** Mr. Borworn Chythawin

**ADVISORS** Dr. Pilanut Phusawisot  
Asst. Prof. Dr. Photcharanon Sayankena

**DEGREE** Ph.D. **MAJOR** English Language and Arts of Language

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### **ABSTRACT**

The purpose of this research was three-fold: (1) to develop an instructional model based on reciprocal teaching with metacognitive reading strategy to enhance higher secondary school students' critical reading ability; (2) to evaluate the effectiveness of the developed instructional model; and (3) to investigate students' attitudes towards the developed instructional model. Fifty higher secondary students of Kalasinpittayasan School who studied in the academic year 2013 were purposively selected as a sample group. The study was a study with one-group pretest-posttest design. The pretest and posttest scores gained from multiple critical reading achievement test developed by the researcher yielded quantitative data. Teacher's journals and students' journals were utilized to collect qualitative data concerning students' critical reading ability progress as well as their opinions towards the model. A questionnaire was also employed to examine students' attitudes towards the model and to triangulate the data to support the effectiveness of the model.

The findings revealed that there was a statistically significant difference between the mean scores students gained from the pretest and posttest of critical reading ability at a significance level of 0.01. The data obtained from the teacher's journals and the students' journals showed that students had critical reading ability development. Students' positive attitudes towards the model were also detected from the students' attitude questionnaire, the teacher's journals, and the students' journals.



The findings suggest that the instructional model based on reciprocal teaching with metacognitive reading strategy is effective to increase higher secondary school students' critical reading ability and to support students' positive attitudes towards the developed model.



ชื่อเรื่อง	การพัฒนาความสามารถด้านการอ่านอย่างมีวิจารณญาณโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาท กรณีศึกษาโรงเรียนกาฬสินธุ์พิทยาสรรพ์
ผู้วิจัย	นายบวร ฉายถวิล
กรรมการควบคุม	อาจารย์ ดร.พิลาณูช ภูษาวิโสธร ผู้ช่วยศาสตราจารย์ ดร.พชรนนท์ สายัณห์เกษม
ปริญญา	ปร.ด. สาขาวิชา ภาษาอังกฤษและศิลปะทางภาษา
มหาวิทยาลัย	มหาวิทยาลัยมหาสารคาม ปีที่พิมพ์ 2558

### บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์สามประการคือ (1) เพื่อพัฒนารูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญา เพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณ สำหรับนักเรียนมัธยมศึกษาตอนปลาย (2) เพื่อประเมินประสิทธิผลของรูปแบบการเรียนการสอนในการพัฒนาการอ่านอย่างมีวิจารณญาณ และ (3) เพื่อสำรวจทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนที่ได้พัฒนาขึ้น กลุ่มตัวอย่างเป็นนักเรียนมัธยมศึกษาตอนปลาย จำนวน 50 คน ที่ได้ลงทะเบียนเรียนวิชาการอ่านและการเขียนในปีการศึกษา 2556 ซึ่งใช้การเลือกแบบจำเพาะเจาะจง และแบบแผนการวิจัยเป็นแบบ One-group pretest-posttest design การเก็บข้อมูลได้ดำเนินการโดยการใช้ข้อสอบวัดผลสัมฤทธิ์ในการประเมินความสามารถในการอ่านอย่างมีวิจารณญาณก่อนและหลังการทดลองโดยนำผลคะแนนของนักเรียนที่ได้จากการสอบก่อนและหลังการทดลองมาเปรียบเทียบโดยใช้ paired sample t-test และ gained score analysis เพื่อวัดความแตกต่างของผลคะแนนและระดับคะแนนที่พัฒนาขึ้นก่อนและหลังการสอนโดยใช้รูปแบบการเรียนการสอนที่พัฒนาขึ้น นอกจากนี้ระหว่างการทำทดลองยังใช้แบบบันทึกการเรียนของนักเรียนและแบบบันทึกการสอนของครูเพื่อเก็บข้อมูลเชิงคุณภาพเกี่ยวกับการพัฒนาทักษะการอ่านอย่างมีวิจารณญาณและทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอน และยังได้สำรวจทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยใช้แบบสอบถามที่ได้พัฒนาขึ้นโดยเฉพาะหลังการทดลอง

ผลการวิจัยพบว่า ผลคะแนนการอ่านอย่างมีวิจารณญาณก่อนและหลังการทดลองมีความแตกต่างกันอย่างมีนัยสำคัญที่ระดับ 0.01 เมื่อคำนวณระดับคะแนนการพัฒนาแล้วพบว่า 100% ของนักเรียนทั้งหมดมีการพัฒนา ด้านทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยพิจารณาจากแบบสอบถามทัศนคติ แบบบันทึกการเรียนของนักเรียน และ แบบบันทึกการสอนของครู พบว่านักเรียนมีทัศนคติที่ดีต่อรูปแบบการเรียนการสอนนี้

ผลการวิจัยแสดงให้เห็นว่า รูปแบบการเรียนการสอนที่พัฒนาขึ้นนี้เป็นรูปแบบที่มีประสิทธิภาพซึ่งสามารถนำไปใช้ในการพัฒนาความสามารถในการอ่านอย่างมีวิจารณญาณของนักเรียนมัธยมศึกษาตอนปลายได้



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## CHAPTER I

### INTRODUCTION

This study aims to develop instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students. The main purpose of this chapter is to introduce important issues concerning the current study including background of the study, statement of the problems, research questions, purposes of the study, hypotheses of the study, scopes of the study, operational definition of terms, and benefits of the study. The details are as follows.

#### **Background**

In the present time, English as an international language has a prominent role worldwide. English is a universal language of education. For students to participate in the world of education, they need to acquire all kinds of English skills: speaking, listening, writing, and reading. Especially, as intensive learning to gain various knowledge through numerous media, students need to be fluent in reading skills. Though reading is vital for modern life, Thai students have low level of reading achievement (NIETS, 2012 and PISA, 2012). Thus, it is important to boost Thai students' reading ability which is relevant to Thai National Education Act (1999).

Reading is more closely related to thinking. Critical reading is a higher level of thinking. Critical reading is a process involving ability to analyze, synthesize, and evaluate what one reads (Paul, 1990). Critical reading can be improved through metacognitive reading strategies and reciprocal teaching (Flavell, 1979, Naranunn, 1996, Schraw, 1998, More et al., 2003, Feryal, 2008, Yoosabai, 2008 and Philip & Hua, 2010)

According to the relationship among metacognitive reading strategies, reciprocal teaching and critical reading, metacognitive reading strategies follows reciprocal teaching, especially, when reciprocal teaching fails. Failing is considered to stimulate metacognitive reading strategies since learner strives to tackle the problem



(Robert & Erdos, 1993). According to the recognition of failing, again, students have to go back to use metacognitive reading strategies to control the use of reciprocal teaching strategies and to examine whether the desired goal has been fulfilled (Flavell, 1979 and Garner, 1990). As metacognitive reading strategies and reciprocal teaching strategy enable students to reach critical reading skills, lack of metacognitive reading strategy and reciprocal teaching may cause poor performance in reading critically. The application of using reciprocal teaching with metacognitive reading strategies to enhance critical reading was shown in figure 1.

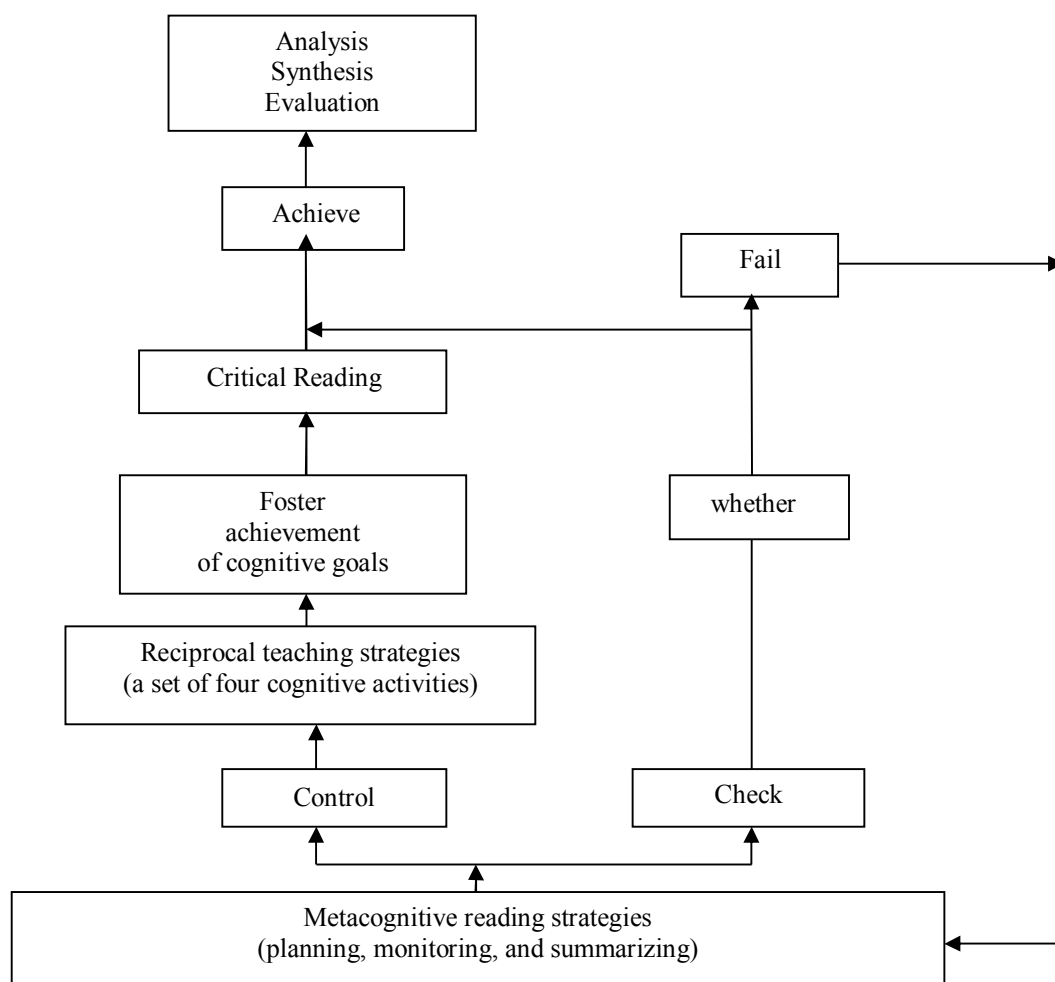


Figure 1: Using reciprocal teaching with metacognitive reading strategies to enhance critical reading abilities



Figure 1 shows the combination of reciprocal teaching and metacognitive reading strategies to foster critical reading ability. Metacognitive reading strategies play two important roles including controlling the use of reciprocal teaching to enhance critical reading ability, and examining to see whether reciprocal teaching can increase critical reading. If reciprocal teaching fails to foster critical reading ability, once again, metacognitive reading strategies will check the errors and plan to do this task until it works.

### **Statement of problems**

In Thailand, it is a compulsory requirement for sixth graders, ninth graders, and twelfth graders to take an Ordinary National Educational Test (ONET). Especially, for twelfth grade students, ONET scores are used to apply for undergraduate studies. English is one of the eight subjects set in the ONET exam. In addition to ONET, the General Aptitude Test (GAT) is mandatory for twelfth graders who want to study in college or university. According to the National Institute of Educational Testing Service (NIETS), the results of English in GAT (year 2/2012) reveal that the maximum is 150 out of 150, the minimum is 0, and the mean is 52. For ONET (year 2011), the maximum is 98 out of 100, the minimum is 0, and the mean is 21. Based on these results, it is significantly noted that the overall test scores are quite poor. Rojsaranrom (2012) notes that the main causes that contribute to poor results are learning style of the students which involves memorizing books rather than employing critical reading skills.

This critical situation leads Thai teachers to find effective ways to enhance their students' critical reading ability to match their levels (Adunyarittigun, 1998; and Yoosabai, 2008). However, in Thai context, the research on the teaching of reciprocal teaching with metacognitive reading strategy to enhance critical reading is rare. Consequently, the researcher intends to develop instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students. The researcher hopes that the developed critical reading instructional model would help students read critically. Moreover, the developed model would be valuable for teachers to set up the learning activity, prepare





the learning course, design the curriculum, and acquire the suitable teaching material for fostering students' critical reading ability.

### **Purposes of the study**

The purposes of the study are as follows:

1. To develop an instructional model based on reciprocal teaching with metacognitive reading strategy for enhancing critical reading ability.
2. To evaluate the effectiveness of the developed instructional model to enhance students' critical reading ability.
3. To investigate students' attitudes towards the developed model.

### **Research questions**

This study seeks to answer the following questions:

1. What are the components of the developed instructional model.
2. Does the instructional model under investigation help students enhance critical reading ability? If so, how?
3. What are the students' attitudes towards the developed critical reading model?

### **Hypotheses of the research**

To evaluate the effectiveness of the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students, and to investigate students' attitudes towards the developed model, the hypotheses are proposed as follows:

1. The students' English reading ability scores obtained from the post-test are significantly higher than the scores gained from the pre-test at 0.01 level.
2. The students express positive opinions towards the developed model.



## Scope of the research

Scope of the study is based on the following aspects.

1. The population for this study is higher secondary school students of the Office of the Basic Education Commission of the Ministry of Education. Samples are from purposive sampling method.

2. The variables in this study are as follows:

2.1 Independent variable is an instructional model based on reciprocal teaching with metacognitive reading strategy.

2.2 Dependent variables are critical reading ability and student's attitude.

## Operational definition of terms

1. Metacognitive reading strategies: An instructional strategy composes of three activities: planning, monitoring, and evaluating aimed at encouraging students to be critical readers (Flavell, 1979). These strategies are used to control the use of reciprocal teaching strategies and to examine whether reciprocal teaching can complete the desired goal.

1.1 Planning: Before reading, planning is employed for setting goal, helping predict the content of the text, selecting appropriate strategies and allocating of the resources that effectively impact the desired goal.

1.2 Monitoring: While reading, making a preview, monitoring refers to strategy used to control the state of reading, and examine the desired goal.

1.3 Evaluating: While reading, evaluating is continually used to control reading process and to find out whether the information, the knowledge or the order of comprehension is acquired. After reading, evaluating is utilized to check the effectiveness of strategy use and the achievement of the demanded goal.

2. Reciprocal teaching: Reciprocal teaching refers to a collaborative learning instructional method which consists of a set of four strategies: predicting, clarifying, questioning, and summarizing used to foster, and monitor critical reading ability



(Palincsar & Brown, 1984). These strategies are employed to enhance critical reading ability.

2.1 Predicting: Through the use of prior knowledge, predicting strategy is used to guess what will occur in the text before, during, and after reading. Predicting is utilized to follow the text, understand text deeper, and increase level of comprehension.

2.2 Questioning: Across the stage of reading process, questioning is employed to draw concentration to the context, to check the current state of understanding, to bolster summarizing effects, to ask and answer the questions to check deeper understanding. Moreover, questioning strategy is employed and to check the level of reading ability of the text including core part of the information, supporting details, and specific information. In addition, questioning strategy represents higher order thinking skill.

2.3 Clarifying: Clarifying refers to strategies used by students to find the answers or to make clear about “questions of questioning strategy” through the assistance of teacher, pairs, peers, groups, or experts. Clarifying used by teacher is valuable for checking understanding, and encourage students to increase critical reading ability.

2.4 Summarizing: Across the process of using questioning, predicting, and clarifying, summarizing is developed through the construction of new information from the analysis, and synthesis of the context. Summarizing represents the deeper comprehension and critical reading ability.

3. Critical reading: Theoretically, critical reading is the ability to think carefully, intentionally, and thoughtfully on the process to analyze, synthesize, and evaluate information of what is read. (Bloom, 1956, Anibai, 1981, Scriven, & Paul, 1987, Huijie, 2010 and Shihab, 2011)

Operationally, critical reading refers to the ability to read the text of students for analysis (distinguishing and classifying), synthesis (combining and predicting), and evaluation (prioritizing, and concluding) . Critical reading ability can be measured by the scores obtained from critical reading achievement test developed by the researcher.

4. Critical thinking: Critical thinking goes along the same line with critical reading (Ferris, 1771, Anibai, 1981 and Paul, 1990).



5. Instructional model: An instructional model refers to critical reading instructional model developed by the researcher to specifically combine the use of four reciprocal teaching strategies with three metacognitive reading strategies to enhance three main skills of higher secondary school students' critical reading ability. The elements of the developed model consists of rationales, objectives, contents, instructional processes, and evaluation. The model was constructed based on the theoretical framework of Vygotsky (1978), Piaget (1970), Bloom (1956), Palinscar and Blown (1984), and Flavell (1979).

6. Attitude: Attitude refers to students' feelings and opinions to reflect to an instructional model through attitude questionnaire, students' journals, teacher's journals.

### **Significance of the study**

Theoretically, the current study presents an instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students which the developed model can be valuable for teachers and course developers to apply the construction processes and the results of the study instead of using the traditional teaching method.

Practically, the developed model can be:

1. advantageous for teachers as a ready-made instructional model for teaching critical reading.
2. valuable for teachers to apply it to teach a variety of English skills and other levels of critical reading.
3. some guidelines for other researchers to conduct instructional model for enhancing reading ability.

The current study comprises five major chapters. Chapter 1 mainly focuses on expressing major components related to the present study. The issues discussed in this introductory chapter consists of eight topics including the background of the study, statement of the problems, purposes of the study, research questions, hypotheses of the study, scope of the study, operational definition of terms, and significance of the study.



Chapter 2 presents related reviews of fundamental theories, and key words of the study. The literature review comprises introduction, theories of learning, model of the learning process, metacognition, reciprocal teaching, and critical reading. Chapter 3 points out the detailed data concerning the research design and methodology. The chapter focuses on the procedures of the model construction. This instructional model based on reciprocal teaching with metacognitive reading strategy for fostering critical reading ability consists of two phases: the development of the model and the evaluation of the effectiveness of the developed model. The research findings are presented in chapter 4, while chapter 5 discusses the summary, discussions, and recommendations.



## CHAPTER II

### REVIEW OF LITERATURE

In order to provide background information on reciprocal teaching, metacognitive reading strategy and critical reading, this chapter presents the literature review and discusses the following topics: (1) reciprocal teaching, (2) metacognitive reading strategy, (3) critical reading, (4) theories of learning and (5) models of the reading process.

#### **Reciprocal teaching**

This review addresses seven issues including (1) overview; (2) concept of reciprocal teaching; (3) four study activities; (4) theoretical framework; (5) processes; (6) benefits; and (7) studies related to reciprocal teaching. The following are details.

##### 1. Overview of reciprocal teaching

Reciprocal teaching is considered a collaborative instructional method. Several scholars assert that collaborative learning is an effective learning strategy to develop higher order reading skills, to increase social interaction skills, to foster diversity understanding and to facilitate reading ability. Like collaborative learning, reciprocal teaching can help improve critical reading skills and develop reading ability at all levels.

##### 2. Concept of reciprocal teaching

Palincsar and Brown (1984) describes the concept of reciprocal teaching as a set of four study activities including summarizing, questioning, clarifying and predicting used for comprehension-fostering and comprehension-monitoring. In Brown & Palincsar (1985: 2), reciprocal teaching is defined as an instructional strategy which occurs in the form of conversation between teachers and students pertaining to information in the text. The assigned teacher takes turn the roles of teacher leading the conversation using the four strategies: questioning, predicting, clarifying and summarizing. This helps improve students' critical reading ability.



According to Cooper, Timothy and Greive, Cedric (2009: 1), reciprocal teaching is “a process involving four distinct activities (questioning, clarifying, summarizing and predicting) employed in student-led, team approach to develop reading comprehension skills.” Tan Ooi Leng Choo, & Tan Kok Eng and Norlida Ahmad (2011: 1) indicate that reciprocal teaching is “an instructional activity that utilizes four comprehension strategies in the form of a dialogue between teachers and students regarding segments of a text.” Moreover, Foster & Rotoloni (2012) conclude that reciprocal teaching is “a cooperative learning instructional method in which natural dialogue models reveal learners thinking processes about a shared learning experience.”

Doolittle, et. al. (2006) and Armbrister (2010) believe that explicit teaching of reading comprehension is the effective method to improve poor readers, thus they employed reciprocal teaching as a tool for explicit teaching to foster deeper understanding of texts. According to Al Qatawneh (2007), as reading is something more than literal decoding and demand pedagogical method to evoke cognitive processes of comprehension, reciprocal teaching is utilized to enhance critical reading skills of Jordanian secondary school students. Seyyed Ali Ostovar-Namaghi & Mohammad-Reza Shahhosseini (2011) hypothesize that reciprocal teaching is an efficient strategy to increase reading proficiency. Hence, they conduct the research to explore the effect of reciprocal teaching strategy on EFL learners’ reading proficiency of Shahrood university of technology, Iran.

In conclusion, reciprocal teaching is an instructional activity involving expert modeling of strategies: questioning, predicting, clarifying and summarizing. The teacher and students take turns leading the conversation practicing the four strategies pertaining to the segments in the texts. The teacher constructs the reciprocal teaching intervention and encourages students to practice in small group with the help of teacher. When the students master the desired skills in the texts, the teacher removes the assistance to let them learn by their own.

### 3. Four study activities of reciprocal teaching

Reciprocal teaching involves employing four cognitive instructional activities to enhance critical reading ability regarding questioning, predicting, clarifying and summarizing which take place in the form of conversation between students



themselves or students and teacher. They exchange the role assuming teacher leading the dialogue concerning the designed tasks within the small group. Together, the students drill the reciprocal teaching strategies through questioning strategy to improve higher thinking skills, through predicting to make use of the previous knowledge of the topic, through clarifying to handle the difficulty in complicated information and through summarizing to find out the main idea of the texts. The details of each strategy are as follows:

3.1 Predicting: Duke & Pearson (2002: 3) defines that predicting “is making guess what will come next in the text you are reading”. According to Omari & Weshah (2010), predicting provides students with opportunities to utilize title, subtitle and questions to predict the content before and while reading the texts. They make use of the prior knowledge to understand and criticize the text. Critical thinking skills are required for predicting to testify and confute the assumptions and expectations about the texts of the students. Based on Cooper, Timothy and Greive, Cedric (2009), on the process of reading critical points, students have to make a reference to foretell the future of the content. Aloqaili (2010) defines predicting as making use of previous knowledge and text content to guess what will happen next. In the definition of Li-En (2011), predicting is concerned with previewing the content and make a prediction of the whole text. Magnuson (2009) describes predicting as the study activity that can happen before, during and after reading. The strategy assists students to follow the text and think more about what will occur next. Palincsar and Brown (1984), the father of reciprocal teaching, argue that predicting concerns future content, making references and making use of background knowledge.

In conclusion, predicting strategy is the ability to hypothesize what will happen in the text before, during and after reading; is related to accepting and rejecting the assumptions and expectations; and is concerned with making references to foretell the future of the content. Students make use of prior knowledge to foster this skill. Predicting helps students follow the text, understand text deeper and increase critical reading skills.





3.2 Questioning: Palincsar and Brown (1984: 120) explain that “In requesting that students compose questions on the content, one is also asking for a concentration on main ideas and a check of the current state of understanding.” Asking questions can happen before, during and after reading (Sun, 2011). Questioning bolsters the summarizing skill to the extent to which it involves critical thinking skills (Armbrister, 2010) According to Magnuson (2009), questioning is the strategy to cope with the thoughts occurring while and after reading and helps students understand the text. In order to get more engage in the text, students have to stop to ask the questions and find the answers. Based on Omari & Weshah (2010), questioning ability is the higher order thinking skill. To require this ability, teacher needs to model the question to help students find the most important part of the text. Cooper, Timothy and Greive, Cedric (2009) describe question as a tool to check the students’ level of understanding.

In conclusion, composing questions can happen before, during, and after reading and this questioning strategy is employed to check the level of understanding of the text including core part of the information. In addition, questioning strategy represents higher order thinking skill and activates critical reading.

3.3 Clarifying: Palincsar and Brown (1984: 120) describe the characteristics of clarifying as follows: “Asking students to clarify requires that they engage in critical evaluation of content for internal consistency and compatibility with prior knowledge and common sense.” According to Cooper, Timothy and Greive, Cedric (2009), clarifying means finding main point and themes of the text and making it clear that students understand difficult words and complicated phrases. In the definition of Omari & Weshah (2010), teacher uses clarifying strategy to examine the text understanding of students and encourage them to use questioning and predicting strategy including group interaction to handle difficult situation found in the texts such as word meaning, phrase interpretation, complicated concepts, or idioms. In addition, Al-Qatawneh (2007) states that clarifying strategy concerns difficulty and unfamiliar concepts in the text. Magnuson (2009) indicates that clarifying strategy helps students deal with new and unknown words or phrases or concepts. Moreover, Li-En (2011) concludes that clarifying is vital for students having difficulty understanding the



unknown or unclear words, phrases, or sentences to the extent to which students use some device to make it clear.

To summarize, students having difficulty understanding new, unknown, unfamiliar and unclear words, phrases, sentences or concepts employ clarifying strategy to deal with the problem through the using of dictionary, internet, peers, pairs, groups, or the help of teacher. This helps them level up their critical reading ability.

3.4 Summarizing: Sun, Li-En, (2011: 58) states that “summarizing is a skill that is critical for improving students’ overall comprehension. To acquire summarizing skill, teachers have to instruct students summarization skills. Students have to analyze and synthesize the content to construct new information of the text. Armbrister (2010) suggests that summarizing strategy fosters students to recognize main idea of the texts. In the study of Al-Qatawneh (2007), it is found that summarizing involves ability to synthesize information to construct main idea of the text and delete unwanted chunks. In addition, Omari & Weshah (2010) point out that summarizing activity provides opportunity to get main ideas of the text and construct the core parts by their own words. Reference to Cooper, Timothy and Greive, Cedric (2009), summarizing is the ability to sum up the essence of the text with students’ own words to prove that they gain deeper understanding about the content. The work of Palincsar and Brown (1984: 120) indicates that “by asking students to summarize a section of text, one is simultaneously requesting that they allocate attention to the major content and that they check to see if they have understood it.”

Summarizing strategy requires students to analyze, synthesize information to find main ideas of the text and change the words of the text into their words. Summarizing strategy is used to examine the critical reading ability and higher thinking skills of students.

#### 4. Reciprocal teaching and its theoretical framework

Based on Palincsar and Brown (1984), reciprocal teaching is modeled to help poor comprehenders who are able for decoding to improve reading ability. Later, researchers in L1 and L2 study the reciprocal teaching at all reading ability levels and apply to use in a variety of language skills.



According to Palincsar and Brown (1984), its theoretical framework is concerned with three related theories of guided learning: expert scaffolding, proleptic teaching and zone of proximal development

#### 4.1 Zone of proximal development

Vygotsky (1978), a Russian psychologist, develops the concept of a zone of proximal development which social interaction plays a fundamental role in the development of cognition. The mental development is classified into two developmental levels: actual and the potential levels of development. Actual development level refers to the development level which students can solve the problem unaided. For development level, the end product of the development is independent problem solving that means students have already matured. The potential level refers to the level that students can do the task with the assistance of others. Zone of proximal development is “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978: 85). Vygotsky notes that “what is in the zone of proximal development today will be the actual developmental level tomorrow-that is, what a child can do with assistance today she will be able to do by herself tomorrow” (p.86).

The role of imitation in learning is essential for zone of proximal development. Students are able to imitate a lot of tasks under the assistance of experts. Hence, the concept of zone of proximal development is valuable for teachers to propound a new formula, plan course, evaluate and support the development. Vygotsky (1978) concludes that based on the notion of zone of proximal development, the students’ development level cannot be improved only one formula, but the diversity of tasks is necessary.

In conclusion, the zone of proximal development is an area where the teacher and the students work together to learn and achieve the task. The application of Vygotsky’ zone of proximal development in language learning is “reciprocal teaching” which is employed to develop learning ability through social interaction called conversation or group discussion. The teacher’s role is to model the process and



gradually removes help over time. Across its procedure, the students are taught by the strategy to support reading ability and become independent critical readers.

#### 4.2 Proleptic teaching

According to Palincsar & Brown (1984: 123), proleptic means “anticipation of competence and refers to situations where a novice is encouraged to participate in a group activity before she is able to perform unaided, the social context supporting the individual’s efforts.” In the instructional setting, the teacher guides students to activate simple task activity and gradually moves to the more complex. When the students can carry out the task by themselves, the teacher removes the help. At this level, students will be able to conduct the learning process.

#### 4.3 Expert scaffolding

In 1950s, a cognitive psychologist, Jerome Bruner, introduced scaffolding theory to support the concept that social interaction has a vital role in cognitive development. For handling a difficult task, it is too difficult for students to do it alone, so the collaborative learning is essential to cope with this problem. The notion of the scaffolding is that the experts help the novice to achieve desired goal. Palincsar and Brown (1984) indicate that expert scaffolding involves, firstly, the guidance of the experts. The students imitate the process, until they become more experienced and can carry on the difficult task freely. Then, the experts cedes the guidance to allow students to carry out the task by themselves. To sum up, firstly, experts are to introduce a new concept, then, provide assistance, instruction and materials. Later, the experts acting as facilitators examine the progress of the students. When students master the lesson, the experts remove the support. For the next activity, the experts assign a new task and students work at all process independently.

In conclusion, reciprocal teaching is related to three theoretical foundations: zone of proximal development, expert scaffolding and proleptic teaching. The notions of these theories of guided learning are based on the role of the teacher to assist students at the beginning of the learning, students learn under the aid of the teachers. When students are able to conduct freely by themselves, the teacher withdraws the assistance. This leads students to acquire higher level of learning ability and become critical readers.



## 5. Processes of reciprocal teaching

Reciprocal teaching strategy fosters and monitors to ensure that students fully comprehend the text (Palincsar & Brown, 1984). Acquiring reading proficiency through reciprocal teaching strategy requires the adoption of series of processing stages to drill four study activities: questioning, predicting, clarifying and summarizing. Reciprocal teaching strategy intervention is not a hierarchical system. Each strategy can be independently or integratedly introduced. In addition, reciprocal teaching can be taught to all levels of students and the intervention can be instructed in a whole group or small group setting (Magnuson, 2009).

Reciprocal teaching process is constructed to transfer the assigned role to students: firstly, teacher introduces the strategy model to students and then students in small groups design to move a process with the help of teachers (Armbrister, 2010). Generally, each group has a leader assigned to be responsible for the discussion about the four strategies. This cooperative learning helps foster students' critical reading ability (Li-en, 2011). The process of reciprocal teaching is presented by many scholars as follows:

In the study of Seyyed Ali Ostovar-Namaghi & Mohammad-Reza Shahhosseini (2011: 124), teacher has to conduct the reciprocal teaching process step-by-step:

1. Encourage the students to read a section of the text in small group;
2. Lead a discussion of the text;
3. Model appropriate reading comprehension strategies;
4. Encourage students to ask questions of both the text and strategies;
5. Use this dialogue to foster both reading comprehension and students awareness of the strategies;
6. Continue the process of reading, dialoguing and clarifying throughout the length of the text;
7. Begin to have students take the role of instructor or dialogue leader as they became more facile with the dialogue process and the reading comprehension strategies; and
8. Assume the role of guide or facilitator, rather than a leader.



According to Doolittle, et. al. (2006: 107), the aim of reciprocal teaching is to facilitate students to be self-regulated. Consequently, to process the reciprocal teaching activity, teacher and students are involved in the intervention as the following:

1. The instructor leads a discussion of the text, while modeling appropriate reading comprehension strategies.
2. During this dialogue and modeling process, the instructor encourages students to ask questions of both the text and strategies.
3. The instructor uses this dialogue to foster both reading comprehension and strategic cognition.
4. This general process of reading, dialoguing and clarifying, continues throughout the length of the text.
5. However, as students become more facile with the dialogue process and the reading comprehension strategies, the instructor begins to have students take the role of instructor or dialogue leader.
6. As students begin to lead the dialogue process, the instructor takes the role of guide, mentor or facilitator.

Based on Lubliner (Lubliner, 2001 citing Li-en, 2011: 60-61), pedagogically processes of reciprocal teaching can be mainly segmented into five states:

1. Pedagogical stage
2. The teacher-led stage
3. The cooperative stage
4. The reciprocal teaching stage and
5. The metacognitive stage.

“In the first stage, the teacher demonstrates the use of predicting, questioning, clarifying and summarizing for students to support reading activities. Then, the teacher leads students to practice strategy use by modeling, role-playing and (or) thinking aloud. While students are practicing, the teacher provides assistance and feedback. In the collaborative stage, the teacher and students use strategies together to work on the text but the responsibility gradually transfers to students. The fourth stage requires students to work in groups. Each student in the group takes the role of strategy



initiator for one type to process the text. Generally, the students in the group will be assigned to the discussion director, predictor, question generator, clarifier and summarizer roles, respectively. The discussion director is responsible for initiating group discussion; the predictor needs to make predictions about the text or paragraph; the question generator raises questions about the text; the clarifier points of the text and creates a summary. The last stage is the awareness of metacognition. When students are able to use these strategies easily, they can be independent readers and use them to enhance reading comprehension. By this fifth stage, student awareness of their metacognition will be developed, enabling them to monitor the reading process and increase their competence in strategy use.”

The procedures demonstrated above are likely to be hierarchically instructional method, however, teacher can employ four reciprocal teaching strategies concurrently. Effective readers do not always comprehend in a linear manner. Instead, they are metacognitively going back and forth, checking their understanding. This back-and-forth process integrates the four strategies. Thus, reciprocal teaching provides the objectives of training students to acquire metacognitive awareness and to be actively involved in using strategies flexibly and precisely to promote comprehension. In short, “the explicit instruction of four strategies is central to reciprocal teaching; however, there is no rule in determining the order of strategies. The teacher is free to make the sequence of strategy instruction according to the teaching material and students’ level so long as the teacher adopts a consistent approach in instruction” (Li-En, 2011: 61).

#### 6. The Benefits of reciprocal teaching

Palinscar and Brown (1984) give precedence to four strategies and procedure. Thus, the success of reciprocal teaching is regarded as the combination of four strategies training and reciprocal teaching procedure. The reciprocal teaching intervention equipped in the instructional sessions involves extensive reciprocal teaching modeling and reciprocal teaching procedure to foster and monitor reading comprehension ability. They found that reciprocal teaching method is practicable to increase cognitive skills and metacognitive strategies of reading comprehension to poor readers. Magnuson (2009) studied the impact of reciprocal teaching on first grade students and found that reciprocal teaching intervention increasingly impacts the



discussion ability and improves critical reading skills. In addition, students with the practice of reciprocal teaching enhance reading comprehension, interaction skills and reading attitude. Reciprocal teaching is believed as social interaction skills that students have to process four specific reciprocal teaching strategies suitable prepared and scaffolded by the teacher (Armbrister, 2010). This benefits students to the extent in which they have opportunities to join, lead and exchange ideas in the conversation to improve reading comprehension, social interaction and critical reading skills.

Armbrister (2010: 137) concludes that “reciprocal teaching as a cooperative learning instructional approach has an effect on increasing reading comprehension through scaffolded instruction of comprehension-fostering and comprehension-monitoring strategies”

Moreover, according to Li-En (2011: 124) the teacher “needs to take extra time and effort in preparing, processing and monitoring the teaching”. In the study of Al-Qatawneh (2007), the reciprocal teaching instruction efficiently increases reading comprehension, vocabulary learning, decoding and critical reading. The findings are resulted from reciprocal teaching procedures which the teacher used for instruction and from procedures students employed to link the previous knowledge to the content in the texts. Furthermore, the result is attributed to metacognitive awareness of the students’ roles to understand the texts.

As mentioned above about the benefits of reciprocal teaching, it can be concluded that reciprocal teaching is considered as the instructional method to improve reading comprehension, vocabulary acquisition, speaking ability, the discussion ability, critical reading skills.

## 7. Studies related to reciprocal teaching

### 7.1 Palincsar and Brown’ s Study

Palincsar and Brown (1984) conducted two instructional studies using four study activities (predicting, questioning, clarifying and summarizing) to help seventh grade poor readers to enhance reading comprehension. The training method was reciprocal teaching which is related to a conversation between students and teacher, each taking a turn in the role of dialogue leader.





In study 1, “a comparison between the reciprocal teaching method and a second intervention modeled on typical classroom practice resulted in greater gains and maintenance over time for the reciprocal procedure. Reciprocal teaching, with an adult model guiding the student to interact with the text in more sophisticated ways, led to a significant improvement in the quality of the summaries and questions. It also led to sizable gains on criterion tests of comprehension, reliable maintenance over time, generalization to classroom comprehension tests, transfer to novel tasks that tapped the trained skills of summarizing, questioning and clarifying and improvement in standardized comprehension scores” (p. 117). This signifies that study one was a comparison between reciprocal teaching and a traditional teaching method. The outcomes revealed that reciprocal teaching showed greater gains than the traditional teaching method.

In study 2, the model created in study 1 was implemented by a real teacher in classroom setting, not researcher. The results were similar to study 1.

Palinscar and Brown concluded that the studies were successful because of the following reasons: (1) the improvement in the students’ conversation, (2) better reading comprehension, (3) durable effects, (4) generalized effects, (5) reliable transfer, (6) considerable improvement in comprehension scores, (7) similar results of the two studies and (8) enthusiastic teacher.

## 7.2 Other studies related to reciprocal teaching

Several studies have focused on using reciprocal teaching to increase students’ reading ability. Naranunn (1996) investigated whether reciprocal teaching including four strategies assists adult readers (skilled and less skilled readers) improve reading comprehension and helps monitor reading process. The thirteen students from a Western New York public university were randomly chosen as the subjects and were taught reciprocal teaching activities directly. They were Chinese, Thai, Japanese, Puerto Rican, Colombian, Iranian, Korean and Indonesian. They were divided into two groups: reciprocal teaching class and skilled-based class. The achievement test (reading passages) was developed by the researcher. Quantitative and qualitative data was gathered. The results showed that reciprocal teaching helped students enhance reading comprehension and all students were able to monitor reading comprehension process.



Naranunn provided suggestions pertaining to the study that the teacher's role should be flexible, attentive and supportive.

Some researchers concentrated on the issue of the effects of reciprocal teaching strategies on reading comprehension. Tan Ooi Leng Choo, et al. (2011) reported how "reciprocal teaching strategies" could help low-proficiency Sixth-Form students increase their reading comprehension. Purposive sampling was employed to select 68 low-proficiency level students from Sixth Form in Malaysia as a sample to be studied. A pre-test, a post-test, nine reading lessons (using reciprocal teaching strategies) and five open-ended questions were used as research instruments. The training session focused on using activities to cultivate reciprocal teaching strategies in group and individual through eight reading lessons using expository texts. Quantitative and qualitative method were used to collect and analyse data. The results showed the effectiveness of reciprocal teaching strategies which helped students improve their reading comprehension. Tan, et al. suggested to extend the study in different levels of school setting.

Al Makhzoomi (2012) conducted a study to investigate the effects of the reciprocal teaching procedure on enhancing 50 EFL students' reading comprehension behavior in a university setting. The Nelson Denny Reading Test (NDRT), forms G and H was used to assess subjects' reading comprehension behavior of pretest and posttest. It was found that students increasingly used reciprocal teaching strategies and accepted reciprocal teaching procedure was valuable for them to acquire reading comprehension.

Al Qatawneh (2007) explored the effect of using the reciprocal teaching method on enhancing critical reading to skills of Jordanian secondary school student. 88 male first secondary grade students participated in the study and were equally divided into two groups, experimental and control. The experimental group was taught by reciprocal teaching while the control group was taught by traditional method. The findings of the study showed the statistically significant differences between the experimental group and the control group on reading comprehension in favor of the experimental group.

This means that reciprocal teaching method is able to enhance critical reading. Al Qatawneh noted that additional knowledge besides critical reading should



be researched. Studies within other different levels of students in schooling were recommended.

Magnuson (2009) investigated the influences of reciprocal teaching towards the reading comprehension, attitude towards reading and time on task of six first grade students from a southwest Minnesota school for one semester. The results indicated that there was not a statistically significant difference in reading comprehension and attitude in reading. However, students were able to debate the text over a prolonged period of time. The suggestions recommended by Magnuson were as follows: (1) time for carrying out reciprocal teaching activities should be increased; (2) before running reciprocal teaching, allowing all the students in class expose to reciprocal teaching strategies over an extensive period of time would be beneficial; (3) employing reciprocal teaching processes in the entire class for longer would allow students to cultivate the strategies and activate the activities without difficulty; and (4) on the first stage of reciprocal teaching, more teacher' assistance, more scaffolding and instant feedback were essential for modeling the processes.

To conclude these literature reviews, it was revealed that reciprocal teaching can be used to enhance reading comprehension and critical reading ability. To achieve these skills, many factors need to be considered such as longer time, teacher's assistance and students' practice.

### **Metacognitive reading strategies**

#### 1. Concept of metacognitive reading strategies

“One way of promoting early development of reading comprehension and critical thinking skills is to teach primary students a metacognitive approach to reading.” (Timothy & Cedric, 2009: 46). Metacognitive readers are readers who read with purpose, are aware of their own ability, obtain data only related to their purposes and take note information concerning to their purposes (Timothy & Cedric, 2009: 46). A successful reader “is likely to use metacognitive strategy to clarify the goal of reading, recognize the information, monitor reading process, evaluate the results and



avoid reading failure” Sun (2011: 8). Metacognitive readers plan for reading, monitor the process and judge the results of reading. (Krause, Bochner & Duchesne, 2003).

According to several researchers (Bradford, 1991, Fisher, 1998, Schraw, 1998, Krause, Bochner & Duchesne, 2003, Israel, 2007, Feryal, 2008, Kelly and Irene, 2010, Philip & Hua, 2010, Iwai, 2011 and Wernke et. al., 2011) conducting studies in using metacognition to foster reading ability, metacognitive reading strategies involve three components of metacognition: planning, monitoring and evaluating strategies.

1. Planning: Planning “involves the selection of appropriate strategies and the allocation of resources that affect performance” (Schraw & Moshman, 1995: 354). Planning is employed before reading to activate prior knowledge to manipulate the reading content (Iwai, 2011). Students start learning process through using planning strategy to set goals and planning strategy use helps predict the content of the text (Philip & Hua, 2010). Thoughtful planning to manipulate reading strategies is essential for successful readers (Bradford, 1991). According to (Bentahar, 2012: 24), the core aspects of planning involve predicting, surveying and making guesses including time budgeting. Further, “while engaged in planning, readers activate their existing knowledge and become ready to start the reading passage”

To sum up, good readers plan before reading. The first step of reading is setting goal followed by using background knowledge to predict and use reading strategies to achieve goal. For example, to acquire reading comprehension, essential strategies are thinking about the text’s topic, text structure and graphic organizers, reading title, table of contents and graphics as well as using skimming, scanning and text attack skills.

2. Monitoring: Spivey (1994: 1) noted that “skilled readers require the ability to evaluate one’s own comprehension to tell whether or not one has understood. Students who do not monitor their understanding effectively are at a disadvantage in any learning situation.” During reading, monitoring strategies including questioning, summarizing and inferring are used to examine whether the comprehension has been met (Israel, 2007). To be successful in reading, the reader monitor the state of reading (Bradford, 1991). “While making a preview, the learner may also engage in a comprehension monitoring strategy – attending selectively to



specialized terms to aid prediction of content” (Philip & Hua, 2010: 7). Monitoring ability which is defined as comprehension awareness and task execution improves with training and practice (Schraw & Moshman, 1995). Successful readers are different from the poor ones by their ability to monitor cognitive strategy (Bentahar, 2012).

In conclusion, monitoring which is taught directly to students mainly focuses on checking the degree of understanding through questioning and summarizing. The strategies used in monitoring involve making prediction, connections and inferences; and also using context clues, text structures and graphic organizers. Moreover, think-aloud, self-questioning and self-regulating are used as well.

3. Evaluating: Evaluating strategies is utilized after reading to check effectiveness of strategy use (Iwai, 2011). In the process of metacognitive reading strategy, planning, monitoring and other essential strategies are intentionally employed to complete the goal of reading. In order to investigate to see whether the goals have been reached, evaluating needs to be used at the end of the process (Rasekh & Ranjbary, 2003). According to the study of Feryal, (2008) about “how to enhance reading comprehension through metacognitive strategies”, evaluating is used while reading to find out whether the knowledge or comprehension is acquired. Moreover, while reading, a successful reader continuously evaluate the order of comprehension (Bradford, 1991). Philip & Hua (2010) explain evaluating as a strategy to determine the effects of the learning process and to examine whether the demanded goals of the reading are met. Moreover, evaluation is considered as the appraising of the outcomes and the control of learning processes (Schraw & Moshman, 1995).

Schraw (1998: 114) reveals that “metacognitive regulation (planning, monitoring and evaluating) improves performance in a number of ways, including better use of intentional resources, better use of existing strategies and a greater awareness of comprehension breakdowns.” The improvement of one strategy (planning) may increase the others (monitoring and evaluating). Kelly and Irene (2010: 252) conclude that “the regulation component refers to the actual strategies one applies to control cognitive processes, such as planning how to approach a task, monitoring understanding and comprehension and evaluating progress and performance.



In summary, good readers employ evaluation to reflect the reading strategy use, determine whether the strategy used works and finish the task. In this study, metacognitive strategy instruction provides students how to plan their reciprocal teaching activities, monitor strategy use and evaluate the reading process which contributed to improve and expand critical reading ability.

## 2. Metacognitive reading strategy instruction

Specifically, metacognitive reading strategy refers to three aspects of metacognition: planning, monitoring and evaluating (Bradford, 1991, Fisher, 1998, Schraw, 1998, Israel, 2007, Feryal, 2008, Kelly and Irene, 2010, Philip & Hua, 2010, Iwai, 2011 and Wernke et. al., 2011) Teachers employ these three aspects to facilitate reciprocal teaching and encourage students to be critical readers.

As metacognition is universally meant “thinking about thinking”, “cognition about cognition” and “knowing about knowing”, the instruction to encourage students to be critical learners is needed. For the use of metacognitive reading strategy to foster students as critical readers in teaching English as a foreign language, Iwai (2011) provides three suggestions: (1) teaching step-by-step (explicit teaching); (2) using a variety of techniques such as picture walk, prompt questions and semantic mapping; (3) utilizing graphic organizers. Equally important, giving aids at the first hand of the instruction to facilitate students to become critical readers is initially vital. Hong-Nam & Leavell (2011) reveal that in order to enhance students’ cognitive knowledge, metacognitive knowledge and awareness of strategy use, teachers need to employ explicit strategy teaching. The strategies used by Hong-Nam & Leavell to develop reading ability are as follows: (1) finding out vocabulary meaning (2) getting core part of the reading text (3) recognizing main purpose of the text (4) analyzing graphic organizer and applying other strategies. These strategies can help improve students’ critical reading ability. According to “How To Enhance Reading Comprehension Through Metacognitive Strategies” by Feryal (2008), the explicit metacognitive reading strategy instruction is modeled for five steps: (1) preparation: goal setting; (2) presentation: modeling the strategy; (3) practice: drilling with help of teacher; (4) evaluation: examine the success; (5) expansion: applying knowledge to the new context.



Generally, metacognitive reading strategy involves the knowledge to combine and employ what, when, how and why to effectively use strategies to acquire the goal of reading. Philip & Hua (2010) explains that in metacognitive reading strategy pedagogy, students should be trained both how and when, why to use metacognitive strategy integratedly in each given context. By using planning, monitoring and evaluating in metacognitive reading strategy, students have increasingly opportunities to reach the desired goals. Hence, students need to be explicitly instructed to gain strategy selecting skills, to use specific strategy in certain goal, to examine the effectiveness of the strategy and finally, to see whether the demanded goal has been achieved. Philip & Hua (2010: 10) conclude that, “knowing how to use a combination of strategies in an orchestrated fashion is an important metacognitive skill.”

To sum up, metacognitive reading strategy take an important role on critical reading since while reading, students need to think about what they read, monitor the process and examine whether the task has been achieved.

### 3. The relationship between metacognitive reading strategy and reciprocal teaching

In the study of Bradford (1991: 22), reciprocal teaching is used as a subcategory of metacognitive strategy to investigate reading comprehension. Metacognition is defined as strategies (self-regulation, self-control and self-awareness) employed to use and control processes of learning activities (reciprocal teaching) in order to perceive, encode and store information while reading. Bradford emphasizes that “metacognitive strategy use is prevalent in the reading process. Readers monitor their state of comprehension, plan strategies, adjust effort when necessary and continually evaluate their state of comprehension while reading”. In addition, Bradford concludes that metacognitive strategy refers to the method to plan, monitor and evaluate the learning activities which are considered as the major aspects of reciprocal teaching strategies: questioning, predicting, clarifying and summarizing. In short, metacognitive strategy is utilized to plan, monitor and evaluate reciprocal teaching activities: questioning, predicting, clarifying and summarizing.



In order to utilize metacognitive reading strategy instruction to improve reading comprehension, Galloway (2003) intentionally considers reciprocal teaching strategy as metacognitive activity. The difference between metacognitive strategy and reciprocal teaching is that metacognitive aspects are independent, while reciprocal teaching is a set of four strategies. The aim of this study is to integrate four activities of reciprocal teaching instead of a single component. According to Walters (1989), metacognitive strategy refers to the ability to adjust reciprocal teaching activity in order for reaching the goal of reading of skillful readers. Skilled readers make use of reciprocal teaching strategy to obtain a desired goal in reading and employ metacognitive strategy to control and examine whether the goal has been met.

Based on the study of Yoosabai (2008), she examines the effects of reciprocal teaching on reading comprehension and finds that reciprocal teaching has significantly impact on reading comprehension and has influence over metacognitive strategy use. For the relationship between reciprocal teaching and metacognitive strategy, Yoosabai notes that metacognitive strategy (planning) is used before reading to predict, question, clarify and summarize consecutively to get main idea of the context. In short, metacognitive reading strategies (planning, monitoring and evaluating) are used on the process of reading to achieve goals and to investigate if the demanded goal has be obtained.

Philip & Hua (2010) set out a model called metacognitive strategy instruction to encourage students to become autonomous readers. Metacognivite reading strategy components such as planning, monitoring, problem-solving and evaluating were taught students explicitly to get insight into strategy use. For planning, students analyze goals, make preview, predict and clarify the answer of the goals. At monitoring phase, students check the appropriate strategy use, use prior knowledge and recheck the answer concerning the desired goals. In evaluating, students assess the strategy effectiveness, appropriate activity and indentify the success. These strategies assisted students to improve in activating reciprocal teaching activity.

In summary, according to the relationship among metacognitive reading strategies, reciprocal teaching activities and critical thinking abilities, metacognitive reading strategy is used to better the use of reciprocal teaching activity through





planning, controlling and checking the cognitive process (reciprocal teaching) to achieve cognitive goal (Flavell, 1979).

#### 4. Related studies of metacognitive reading strategy

Several studies investigate the effects of metacognitive reading strategy on reciprocal teaching and on reading ability in ESL and EFL. The following are the results of these studies.

Aegpongpaow (2008) conducts a qualitative investigation of metacognitive strategies in Thai students' English academic reading to see what and how metacognitive strategies are used in academic reading in university level. Twenty participants from Thai university are divided into two group: high and low English reading proficiency. Interviews, observations and journal logs are used as tools to collect data. For data collection, the researcher uses one face-to-face interview, observations through think aloud sessions and writing journal logs of the students. The researcher finds that metacognitive reading strategies including scanning the text, focusing on the key words, using background knowledge, guessing meaning from contextual clues, consulting the dictionary, rereading, summarizing, questioning and asking are used to plan, monitor and remedy reading comprehension. This assures that metacognitive reading strategies are vital for English academic reading.

Li-En (2011: 8) conducts a study to investigate the effects of reciprocal teaching on metacognitive awareness which involves awareness of strategies and awareness of evaluation. "A successful reader is likely to use metacognitive strategy to clarify the goal of reading, recognize the information, monitor reading process, evaluate the results and avoid reading failure". For the relationship between reciprocal teaching and metacognitive strategy, metacognitive strategy can be developed through reciprocal teaching. Both metacognitive strategy and reciprocal teaching significantly increase reading skills. Sun concludes that explicit metacognitive reading strategy instruction helps students improve their ability to monitor and evaluate reciprocal teaching activity.

The findings of the study by Magno (2010) about the role of metacognitive skills in developing critical thinking reveals that metacognitive reading strategies (planning, monitoring and evaluating) are used in the practicing task process. The students employ planning to plan for information management and to make argument,



monitoring to check the level of understanding and evaluating to examine the success of the assigned tasks.

Iwai (2011: 157) explores the effects of metacognitive reading strategies for ESL/EFL learners. The metacognitive reading strategies used in the study are planning (pre-reading), monitoring (during reading) and evaluating (post-reading). The process of the study is to provide explicit instruction including metacognitive reading strategies to foster students to be independent readers. The study needs to answer the question “How can teachers support learners whose first language is not English?” The answers are as follows: (1) the vital component for success is to teach explicitly metacognitive reading strategy as it facilitates reading ability and motivates positive attitude; (2) during teaching process, teachers should use a variety of metacognitive reading strategies such as a picture walk, graphic organizers and text structure; (3) the application of Vygotsky’s zone of proximal development is recommended; and finally, (4) the key role for improving reading comprehension is metacognition. Iwai concludes that “for EFL/ESL teachers, it is essential to teach metacognitive reading strategies explicitly, provide diverse methods and facilitate students’ learning to help them become independent practitioners”.

Fung, Wilkinson and Moore (2003) investigate to see if L1-assisted reciprocal teaching helps improve reading comprehension in twelve year 7 and year 8 (grades 6 and 7) ESL students in Auckland, New Zealand. The instruction consists of the alternate use of L1 (mandarin) and L2 (English) in activating reciprocal teaching activities. For the intervention, the L1 is used to introduce explicitly task, strategies and activities; then, reciprocal teaching conversation was activated through the same language. In the next period, L2 was used to review and activate the assigned activities. Alternately, L1 is used to model and activate the activity and strategy, while L2 is for revisiting the same intervention day by day and so on. According to reciprocal teaching instruction, one of the four strategies is selected and taught in L1 and revisited through L2. When the students can activate the activity on their own, the explicit strategy instruction is withdrawn. At the end of the practice, students will be more independent reader with metacognitive reading strategies. The instruments are the standardized test, the researcher-developed comprehension tests, think-aloud tasks and the transfer test.



The finding of the study shows that English reading competence can be improved through metacognitive reading strategies in the L1 and L2. The explanations claimed to be the success of the study are that : (1) the L1-assisted reciprocal teaching is beneficial for ESL students as L1 helps students learn the higher-order cognitive and metacognitive strategies. Because of clear conceptual metacognitive reading strategies and reciprocal teaching activating through L1, students can deal with the reciprocal teaching practicing in English meaningfully; (2) the application of explicit-teaching-before-reciprocal teaching format instead of the reciprocal-teaching-only format assists students get insight into the learning process effectively; and (3) the alternate use of L1 and L2 reciprocal teaching fosters students to develop the ability of metacognitive reading strategies.

Feryal (2008) conducted how to enhance reading comprehension through metacognitive strategies. The participants were third year teacher trainees. The instruments were multiple-choice test of vocabulary and TOEFL test. The 130 university students were taught explicitly with metacognition within 5 weeks (45 minutes a week). The training model included five steps: preparation, presentation, practice, evaluation and expansion. The finding of the study noted that students with metacognitive strategies compared with traditional teaching achieved significantly better results than the control group. The model of instruction provided students to apply metacognitive reading strategies to know what, how, when ,and why to employ metacognitive. The model helped them not only to think about thinking, but also to become better readers and autonomous readers.

Philip & Hua (2010) modeled metacognitive strategy instruction to foster autonomous readers in using metacognitive reading strategy. The qualitative approach was used to gain how learners were able to reflect on metacognition through retrospective written recall protocol (RWP). The participants consisted of 45 undergraduate students at UiTM Sarawak Campus which were divided into high proficient and low proficient learners. Metacognitive strategy instruction involved three phases: pre-instruction phase, instruction phase and post-instruction phase. According to pre-instruction phase, the teacher provided explicit instruction about metacognitive knowledge and regulation. In the second phase, the teacher acted as facilitator and



motivator to guide students' learning to complete the assigned tasks. At the post-instruction phase, the learners were expected to become self-regulated, self-efficacious and self-confident. The teacher was supposed to provide feedback and encourage students to use appropriate and effective strategies to become independent readers. The data was collected through immediate written recall and analysed by literal indexing. Literal indexing was developed regarding metacognitive reading strategy aspects such as planning strategies, comprehension monitoring strategies and evaluation strategies. The researcher concluded that the strategies helped students know 'what', 'when' and 'how' about metacognition and the both groups became more autonomous readers through the assistance of metacognitive strategy instruction.

The study to determine whether metacognitive reading strategies (planning, monitoring and evaluating) increase reading comprehension by Bentahar (2012) reveals that planning, monitoring and evaluating strategies do not improve reading comprehension ability because of the lack of motivation, well researched design, duration of training and sample size. The non-native speaker participants involved in this study consists of eight international students who receive three hours a week of instruction and 6 weeks overall. The researcher uses direct teaching of the three strategies and use scaffolding to activate the learning processes. For research tools, metacognitive strategies are measured by Metacognitive Awareness of Reading Strategy Inventory (MARS) Mokhtari & Reichard, (2002) and reading achievement tests are used to examine reading comprehension. The researcher suggests that to conduct the research effectively, a large number of sample should be cared for. Additionally, L1-assisted learning should be considered to add in the learning activity.

To summarize the studies concerning metacognitive reading strategies, it was found that reading comprehension and critical reading can be improved through using metacognitive reading strategies. Moreover, other expected characters of readers can be gained as well such as independent readers, self-activated readers, self-regulated readers and more confident readers.



## Critical reading

With regard to critical reading discussion, seven topics are presented:

(1) overview; (2) definition; (3) critical thinking; (4) relationship between critical reading and critical thinking; (5) factors influencing critical reading; (6) critical reading instruction; and (7) reading assessment. The following are its details.

### 1. Overview of critical reading

In the Internet world, a variety of materials come in different forms such as advertisement, news, science, technology, health, arts, entertainment, business, economy, education, sport, travel, weather and so on. The writers use these information in numerous purposes: to persuade, to suggest, to recommend, to entertain, to inform, to express, to inspire, to experience, to communicate, to describe, to explore, to explain and to evaluate. Students are easily influenced to absorb other people's opinion, if they consume information without thinking critically. As the readers, they need to cope with tons of data, to assess to choose materials, to handle more complicated tasks, to solve problems and to make decision. In order for doing this effectively, suitably and efficiently, they must be able to acquire critical reading skills and critical thinking skills. Because critical reading and critical thinking can help them assess critically what they read, select appropriately what they need and decide what to accept or reject reasonably. In short, strong critical reading and critical thinking are indispensable.

Paul (1990) argues that the characteristics of critical reading associate with the relationships between reader and writer in a variety of aspects as follows: (1) the critical readers silently has a conversation with the author while reading; (2) the critical readers rearrange the information they acquire from what they read; (3) the critical readers need to analyze, apply, comprehend, interpret, classify, assess, question, revise and refine the context to make use of the data and to decide to accept or reject.

Paul (1990) concludes that critical reading is a higher mental process in which the reader talks and interacts with the writer (requiring the reader firstly to have knowledge and comprehend what he/she reads), experiences what to know (requiring the reader to apply a learned concept to a new situation); reorganize and digest what he/she read (requiring the reader to analyze the materials); interprets and rearranges the



interpretation (requiring the reader to put things together: synthesis); and accepts or rejects (requiring the reader to evaluate ideas from the texts). Thus, based on this point of view, critical reading is an intellectual process which includes knowledge, comprehension, application, analysis, synthesis and evaluation.

## 2. Definition of critical reading

Since critical reading has been defined extensively and has no unanimous agreement about what exactly critical reading is, there are a number of definitions of critical reading depending on the field it is studied. (Magno, 2010; Shihab, (2011). In the present study, the definitions are related to the language learning.

Some definitions of critical thinking refer primarily to comprehending, analyzing and evaluating. Ryan (2011: 1) claims that “critical reading within English studies requires much more than simple comprehension”. According to Fahim, et al. (2012), critical reading is the strategy used for considering and evaluating new materials. Halim, (2010: 337) characterizes the critical reading as “the ability to evaluate the credibility of a piece of writing”. While Nelson (2007: 16) states that critical thinking is “a set of skills necessary for processing complex information that is both personally and socially significant. The abilities to deduce, induce, analyze, infer and evaluate aid in conceptual synthesis across any life domain.” Huijie (2010: 1) also concludes that critical reading is “a high-level reading process which entails the ability to read with analysis and judgment.” In addition, Pordel, (2011) indicates that critical reading is “a technique for discovering and evaluating information with texts. In short, critical reading is a higher thinking skill which includes analysis, synthesis and evaluation.

Other definitions of critical thinking refer to social interaction and cognitive skills. Based on Yen (2011), critical reading is the basic knowledge for social interaction and it is essential for non-native speakers to develop reading and writing ability. Fahim & Sa’ Eepour (2011) also indicate that critical reading and comprehension are related to cognitive skills which the improvement of critical reading can improve the comprehension skills at a time. Nation (2009) reveals that the integration of critical reading with other reading strategies such as previewing, setting a



purpose, predicting, posing questions, etc. is the valuable reading method to train and help students practice reading strategies.

In conclusion, critical reading requires learners to go through every level of thinking: knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom, 1956 and Paul, 1991). Critical reading refers to reading ability to gain knowledge, understand the text, apply the old knowledge to the new ones, analyze information, synthesize what is read and evaluate the text (Paul, 1990).

In the present study, critical reading is the ability to read with analysis, synthesis and evaluation (Bloom, 1956, Anibai, 1981, Scriven & Paul, 1987, Paul, 1990)

### 3. Critical thinking

As mentioned previously, critical thinking has been defined in numerous ways and there is no consensus regarding the definition of critical thinking. Aloqaili (2010) notes that many studies on critical thinking suggest aspects in relation to Bloom's Taxonomy. Bloom (1956) claims that critical thinking is the ability to acquire knowledge activated from six categories of cognitive domain which there are two levels of thinking: lower thinking skills (knowledge and comprehension) and higher order thinking skills (application, analysis, synthesis and evaluation). Scriven & Paul (1987: 3) defines critical thinking as "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and /or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action." Paul (2008: 2) defines that critical thinking is the "art of analyzing and evaluating thinking with a view to improving it" and is "self-directed, self-disciplined, self-monitored and self-corrective thinking" which it fosters productive problem solution and communication. Qatipi (2011) shows that critical thinking involves analyzing and evaluating skills, helps students construct the concept of material and assists students to evaluate the results and summary. Horning (2004) stated that critical literacy consisted of analysis, synthesis and evaluation. Serrat (2011: 1) reveals that critical thinking consists of analyzing and evaluating information obtained from experience, observation, reasoning and conversation.



Other definitions of critical thinking are concerned with disposition which refers to careful decision making, reasoning and problem solving. Ennis (1991: 6) observes that critical thinking “means reasonable reflective thinking that is focused on deciding what to believe or do” which “emphasizes reflection, reasonableness (interpreted roughly as rationality) and decision-making (about belief and action).” Kelly and Irene (2010: 1) states that critical thinking demands strategic use of cognitive skills that best suit a particular situation, as well as an active control of one’s own thinking processes for well-justified conclusions.” Aloqaili (2010: 37) summarizes the critical thinking as “reasonable reflective thinking that is focused on deciding what to believe or do.” According to Haase (2010: 3) critical thinking is “habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit.”

#### 4. Relationship between critical reading and critical thinking

“Reading is thinking and furthermore that critical reading is an application of critical thinking in a reading situation” (Ferris, 1971: 44). There are a number of critical reading and critical thinking definitions. Unfortunately, there is no consensus and there is no one universal definition of critical reading and critical thinking (Aloqaili, 2010, Kelly and Irene, 2010, Magno, 2010, Ryan, 2011, Ghanizadeh, 2011 and Hashemi, 2012). Several conceptualizations of critical thinking are defined depending on the field in which it is conducted (Magno, 2010). However, many researchers who define the definition of critical reading and critical thinking confirm the close relationship between the two. Allen, (1972: 17) concludes that reading is a thinking process and critical reading relates to critical thinking:

“Reading seems to be a thinking process for it involves a cognitive interaction between the reader and information presented through printed symbols. Logically, then, it follows that critical reading is a process which consists of critical thinking because the same skills are required for both. One can





think critically without reading critically, but one cannot read critically without thinking critically.”

As a result, educators around the world employ this concept to integrate critical thinking aspects in critical reading instruction to help students read efficiently. Moreover, several researchers have tried to explain critical reading, critical thinking and the relationship between the two of them.

Based on the relationship between critical reading and critical thinking, a review of related research confirms the very close relationship between the two of them. Critical reading and critical thinking are essential skills in modern education (Tabrizi, 2011). Some literature reviews reveal that their definitions and relationship are not homogeneous. The lack of unity in definitions is the eminent reason for the lack of clarity. The lack of consensus of definitions marks out different concepts of critical reading and critical thinking in particular (Richard, 1973). In this present study, the researcher desires to demonstrate the points that the two of them are merged together.

Several researchers reveal that critical reading and critical thinking are closely related to each other in many ways. According to Anibai (1981), critical reading is critical thinking. While Corbin (1975) states that critical reading is interchanged in critical thinking. Reading is subcategory of thinking (Thorndike (1917). Allen (1972: 17) points out that critical thinking importantly influences critical reading to the extent to which “one can think critically without reading critically, but one cannot read critically without thinking critically.” Other researchers support the idea that critical reading involves critical thinking during reading (Lamb, 1975).

Based on Bloom’s Taxonomy, a number of researchers reveal that critical reading and critical thinking have the same skills. Scriven & Paul (1987) presents the aspects of critical thinking including applying, analyzing, synthesizing and evaluation. Horning (2004) notes that analyzing, synthesizing and evaluation are the features of critical thinking. Paul (2008) and Serrat (2011) defines critical thinking as the art of analyzing and evaluating. Paul (1990) proposes that critical reading is related to critical thinking skills as they are higher levels of thinking skills such as analysis, synthesis



and evaluation. Qatipi (2011) confirms that analyzing and evaluating are the important aspects of critical thinking.

Critical reading, according to Bloom's Taxonomy, is a higher level thinking skill consists of applying, analyzing, synthesizing and evaluation (Huijie, 2010, Shihab, 2011). Some scholars argue that critical reading involves evaluating (Nelson, 2007, Halim, 2010, Pordel, 2010 and Fahim et al., 2012). Others (Ryan, 2011, Fahim & Sa'eepour, 2011) claim that "critical reading within English studies requires much more than simple comprehension.

Regarding Bloom's Taxonomy, critical reading and critical thinking have the same perspective skills including analysis, synthesis and evaluation.

In addition to Bloom's Taxonomy, critical reading and critical thinking are associated in other aspects. According to Ennis (1991); Aloqaili (2010); Kelly (2010); and Haase (2010), critical thinking involves reasoning, reflecting and decision-making, while critical reading (Halim, 2010, Horning, 2004 and Paul and Elder, 2008) helps students cope with information being read.

Several educators have explained the priority of critical reading and critical thinking in order to make use of them in a teaching curriculum. Allen (1972) and Shihab (2011) argue that critical thinking fosters critical reading to the degree to which students cannot read critically without thinking critically. Whilst Tabrizi (2011) and Lamb (1975) perceptively state that critical reading precedes critical thinking since students cannot think critically unless they extract thoughtfully information or ideas from the text.

In summary, critical reading and critical thinking are closely associated to each other in many components including comprehension, application, analysis, synthesis, evaluation, reasoning, solving and reflecting. Moreover, in some cases, critical reading follows critical thinking and sometimes critical thinking comes after critical reading depending on which one is set up to be the main factor of influence on the other.

##### 5. Factors influencing critical reading



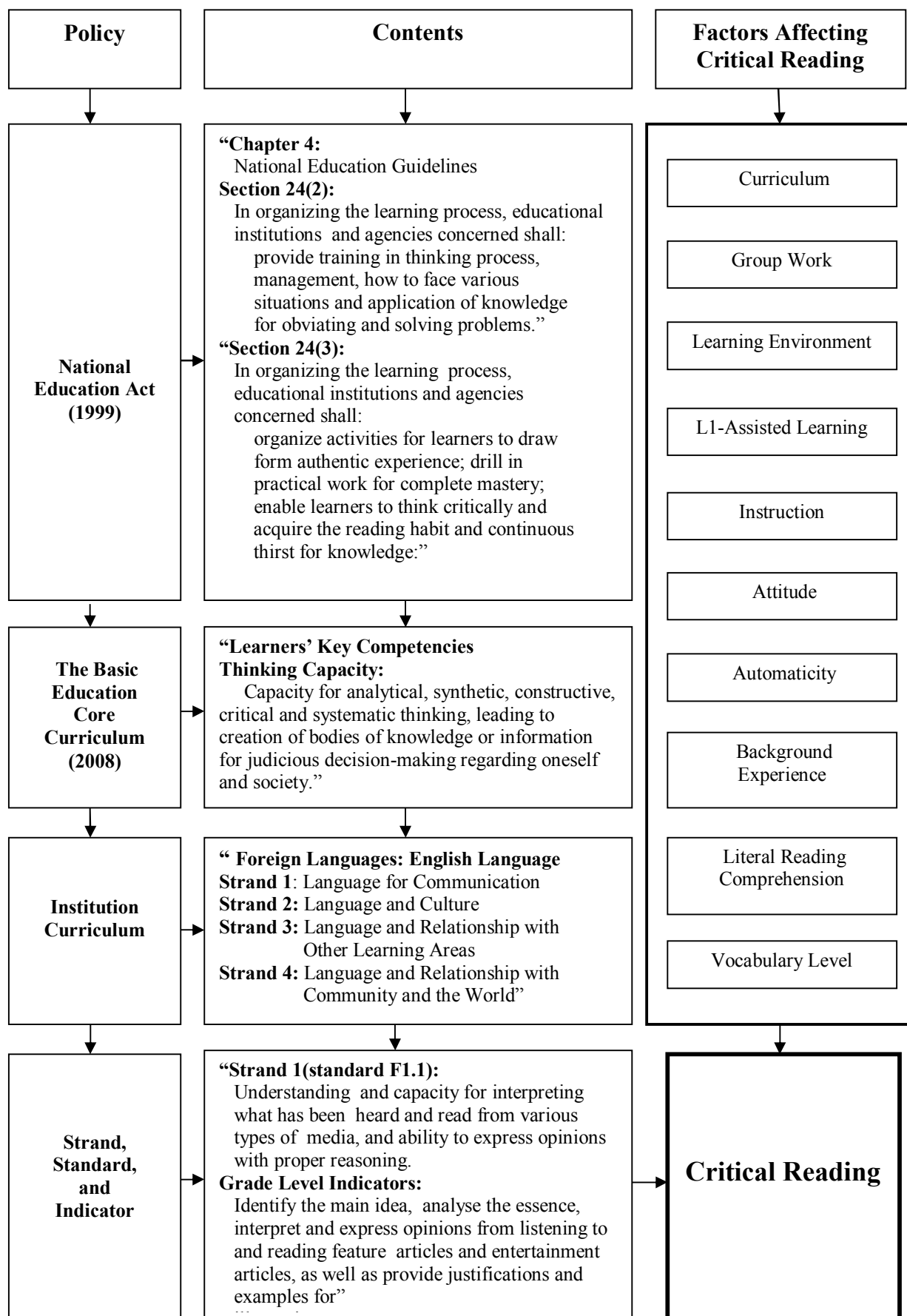


Figure 2: Background of critical reading and factors influencing critical reading



The National Education Act (1999) together with The Basic Education Core Curriculum (2008) has proclaimed that in organizing the learning process, educational institutions and agencies concerned shall provide training, practice, activity and a learning environment to promote critical thinking and critical reading.

Critical reading is like literal decoding. Thus, the readers are required to pay attention on thinking effectively in order to analyse, synthesise and evaluate to accept or reject what they read without bias. To foster and increase growth of critical reading, the teacher needs to clearly understand the factors which facilitate and hinder the development of critical reading. Knowing this helps the teacher plan the suitable learning activity to gear up students' reading ability. On the other hand, the lack of this acquisition causes negative effects on students' perspectives. Several studies have investigated conditions considered to have significant influence on critical reading ability.

Based on a review of the literature, critical reading is influenced by lots of aspects: attitude, instruction, vocabulary level, background experience, literal reading comprehension, automaticity, learning environment, group work, L1-assisted learning, curriculum, intelligence, traditional type of examination, class size, age, gender, culture, learning style, time and family. A brief discussion of information pertaining to these factors is presented in the present study.

### 5.1 Attitude

Attitude refers to “speakers of different languages or language varieties have towards each other’s languages or to their own language. Expressions of positive or negative feelings towards a language may reflect impressions of linguistic difficulty or simplicity, ease or difficulty of learning, degree of importance, elegance, social status, etc.” (Richards et al., 1992: 192). Students’ attitude towards reading affects the growth of reading and intention to participate to attend the learning activity (Black, 2006). Reading is vitally important for daily life and students need to acquire reading ability. Students with low positive attitude read only for the classroom purposes which hinders the development of reading ability. “The motivation of needing to read is powerful. However, you can also motivate students by making their foreign language reading interesting in itself. The language is alive-its users have the same variety of



purposes for reading as anybody has when reading their mother tongue-and this fact can be used by teachers to increase motivation” (Nuttall, 2000: 3). To support positive attitude and motivation in reading, students should be promoted to access the appropriate materials which match their need, level and interest. In addition, joy, pleasure and challenge are vital for critical reading, since these aspects foster students to employ a variety of reading strategies (Wan-a-rom, 2011).

In brief, language attitude is related to feelings that students experience to some information through reading. Attitude is important for learning achievement. Teachers must motivate and stimulate students to cultivate positive attitude through interested materials which provide them entertaining, challenging and reading skills. “Access to a variety of interesting materials is essential for learners to gradually become competent readers and develop a healthy reading habit” (Wan-a-rom, 2011: 54).

## 5.2 Learning instruction

Critical reading skill is defined as the higher order thinking. To access critical reading level, students have to cultivate a lot of reading strategies by themselves and with the assistance of teacher. For setting learning materials and instruction activity to foster motivation and critical reading ability, Wan-a-rom (2011) notes that a teacher should be aware of the difficulty level of materials and training students with effective reading strategy is also important. Moreover, Nation (2009) proposes the effective methods to teach reading as follows: (1) The reading course should mix listening, speaking and writing in the reading activity (2) Students should be trained to acquire essential reading strategy and reading subskills (3) Reading instruction should allow students to gradually move from low level to higher level of reading and (4) Interaction or conversation is benefits for improving reading, so reading course should provide opportunity for students to have discussion with each other. Based on the instructional strategy, Palincsar and Brown (1984) confirm that reading strategy which allows students to exchange ideas through dialogue can help students enhance reading ability. Through the integration of numerous metacognitive reading strategies, students become self-awareness, self-regulation and autonomous critical readers (Flavell, 1979).



To sum up, scholars suggest main aspects to be considered as the factors affecting reading ability. They are effective materials, level of difficulty, the four strands, the integration of metacognitive strategy, reciprocal teaching and suitable course design.

### 5.3 Vocabulary level

Vocabulary acquisition plays a significant role in reading at all levels. Good perception of this point provides teacher to prepare suitable materials for fostering students' reading ability. Oppositely, if the teacher has low understanding of this insight, it may create difficulty and hinder reading ability. "There are two reasons for control of ability levels. Firstly, if there are too many unknown words and participants lack motivation, then they will not make many gains" (Wan-a-rom, 2011: 5). One of the most intelligent scholar in reading, Nation (2009: 51), explains vocabulary level and its action in reading as follows: (1) where 90 or 95 percent of the words were known, a few learners gained adequate comprehension but the majority did not; (2) extensive reading can only occur if 95 to 98 percent of the running words in a text are already familiar to the learner or are no burden to the learner; (3) The degree of comprehension was predictable from the density of unknown words and the optimum density was 98 percent. That is, no more than two words in every 100 running words should be unfamiliar to the reader; (4) a density of 99 percent is preferable for meaning-focused input.

In short, reading material with suitable level of vocabulary supports reading habits, motivation and reading achievement. To examine the appropriateness of the perfect levels of the reading, the teacher can apply the RANGE program developed by Paul Nation and Alex Heatley of Victoria University, Wellington, New Zealand which is a free download program from <http://www.vuw.ac.nz/lals/staff/paul-nation/nation.aspx> (Wan-a-rom, 2011).

### 5.4 Background experience

Background experience or prior knowledge plays a major role in critical reading. It determines how much critical readers can complete the reading purposes as the familiarity of some contents is essential for higher order reading skills. Nuttall (2000: 7) notes about the importance of prior knowledge that "the kinds of



assumption we make about the world depend on what we have experienced and how our minds have organized the knowledge we have got from our experiences”. According to Wan-a-rom (2011), authentic experience in reading is not only beneficial for cultivating motivation, but also helps increase reading levels. To prepare learning material and learning activity to encourage students’ reading experience, Nation (2009) proposes two kinds of reading: intensive reading and extensive reading. Intensive reading is used to facilitate language features and the use of reading strategy. Moreover, the teacher can work together with students and the teacher can use first language-assisted teaching to help students comprehend the text. Extensive reading provides reading improvement and critical reading development as it encourages students to read large amount of reading, read interesting texts and read with a graded reader. The quantity of input through extensive reading gradually change students to become automaticity of reading which is vital to critical reading (Grabe, 2009).

To sum up, students perceive information they read via back ground experience, thus experience is important for them to go through all levels of critical reading. The teacher can prepare them to gain appropriate experience based on authentic experience, teaching scaffolding, L1-assisted method, intensive reading and extensive reading.

### 5.5 Literal reading comprehension

Literal comprehension refers to the ability to identify, grasp and understand information which is directly stated in the text. A number of researchers suggest that one of the reasons for poor reading comprehension is the lack of a basic decoding skill. Students with good reading comprehension can step forward to higher level of reading. Grabe (2009) explains the importance of low-level process toward higher-order process that literal reading comprehension which is referred to lower skill is vital for forming a group of reading skills that facilitate students to become strong critical reading. Grabe exemplify the central themes of reading comprehension which work together with higher order reading skills as follows: word recognition, orthographic processing, phonological processing, semantic and syntactic processing, lexical access and morphological processing.



In conclusion, as reading comprehension is associated with the skill to extract the meaning, interpret and understand the text, Nuttall (2000) proposes that in order to help students in improving reading comprehension, teacher needs to teach students to: (1) know the purposes of reading; (2) select the right source to achieve the purposes; (3) use the selected sources efficiently; and (3) increase reading levels.

### 5.6 Automaticity

One of the critical reading components stated in the present study is to think automatically on the process to read the text, ask and answer the questions of analysis, synthesis and evaluation. William Grabe (2009: 28) illustrates the characteristics and the significance of automaticity that “Automaticity is important to fluent reading abilities and to most contemporary models of reading”. The automaticity in reading refers to the reading performance with speed and automatized interpretation of the text. The main aspects of automaticity regarding to reading are rapid reading and thinking about what is read automatically. Furthermore, Grabe intensively notes that automaticity “is seen as a critical way for readers to engage in multiple processes more or less simultaneously (or in parallel). Automaticity is at the heart of the notion of parallel processing and, by extension, fluent reading ability”. Additionally, Grabe suggests how to increase automaticity as follows: (1) automaticity arises through continual practice of a routine procedure (such as driving a car or typing) to the point where the individual no longer needs to attend to the task itself” and (2) automatic processes in reading are the outcome of thousands of hours of meaningful input”.

It can be concluded that its key characteristics is to think swiftly, accurately and automatically. It is important for improving reading ability and, moreover, it is the result of a long time continual practice.

### 5.7 Learning environment

A number of educators raise a question “Is teaching an art or a science?” Brown (2000) points out that teaching is an art and a science in which the teacher needs to find the powerful combination points of both. This shows that for planning intervention, teacher needs to mingle the art and science aspects in the learning environment. Learning environment refers to the physical environment of the classroom and teaching styles, but in this study, the researcher would focus only on physical





environment. As Brown (2000: 193-194) perceptively states, the physical environment is classified into four categories: (1) sight, sound and comfort; (2) seating arrangements; (3) chalkboard use; and (4) equipment. More information is as follows: The first category, sight, sound and comfort have influenced on learning impression and motivation through what students see, hear and feel when they are in the classroom. So the classroom should be “neat, clean and orderly” and “should be free from external noises. The second category, sitting in group is important for learning English because students can talk, can see, can debate, can exchange and help each other which is essential for teaching English skills. The third category, chalkboard use is beneficial for students and the teacher as it “gives students added visual input along with auditory”. It allows teacher to “illustrate with words and pictures and graphs and charts”. The crucial consideration about using chalkboard is to try to make it neat and clean. For the last category to use learning equipment effectively, the teacher should know how to use it and let every student hear and see it.

To summarize, the physical environment of the classroom provides many benefits to students and teacher if it is manipulated valuably. A high efficient lesson plan can be worthless if the learning environment does not well enough support the learning activity.

### 5.8 Group work

Group work refers to pair work and small group work. Group work plays a chief role in learning language in many dimensions. According to Velliaris (2009: 1), group work “enables students to connect with each other personally and intellectually, reducing the sense of isolation felt by many students and building a community of learners. Groups can gather more ideas than individuals, pool resources, share the workload and promote collaboration across members.” Brown (2000) has expressed a similar view that group work produces interactive language, provides an affective climate and fosters students accountability and independence. For making use of group work in learning language, a teacher needs to choose suitable tasks for students and learning purposes such as role play, interview, brainstorming, problem solving and decision making. Additionally, to implement the group work, the teacher needs to set



clear learning purposes, choose the suitable activity, make introduction, model the learning process, provide explicit teaching, divide students groups and start motion task.

To conclude, group work allows students to sit in group talk with each other, share ideas, cooperate in complete the task and scaffold the group members. In order to make use of group work, a teacher needs to plan the activity, design the task, monitor the learning processes, assess and assist the students.

### 5.9 L1-assisted learning

A new language is strongly affected by the native language. Most of the language beginners assume that “target language operates like the native” (Brown (2000: 65). Nation (2009: 18) reveals that the first language knowledge has powerful influence on the second language. “Where there are similarities between languages, second language learning will be easier. Where there are differences, second language learning will be more difficult”. The work of Grabe (2009: 129) asserts that “L1 reading is an ability that combines L2 and L1 reading resources into a dual-language processing system.” To apply this for instruction, Grabe suggests teacher to employ explicit L2 reading instruction, to consider the quantity of L2 input, to seek the convergent point of L1 and L2 for reading improvement and to be aware of cultural difference. Moore et al. (2003) studied to find the effects of using L1-assisted reciprocal teaching to improve reading comprehension and the result of the study found that reading comprehension was increased through the use of reciprocal teaching: questioning, predicting, clarifying and summarizing.

Thus, it could be concluded that L1 has high value on L2 learning. It is one of the most powerful tools in helping students improve reading competence.

### 5.10 Curriculum

Curriculum refers to “an educational program which states: (a) the educational purpose of the program; (b) the content, teaching procedures and learning experiences which will be necessary to achieve this purpose; (c) some means for assessing whether or not the educational ends have been achieved”, based on Richard; Platt & Platt (1992: 94). It is a challenging issue for teacher or curriculum planners to design the valuable syllabus for reading development to achieve the desired goal through integrating reading skills with knowledge into the reading curriculum. Grabe



(2009) proposes the principles for developing reading curriculum as follows: (1) requiring to consider students' need, materials, goals and objectives; (2) determining the interesting reading resources; (3) selecting reading skills to be taught and (4) providing opportunities to achieve reading goals which include promoting reading skills, fostering discourse structure, supporting motivation and encouraging cooperative strategic reading.

On this evidence, it can be concluded that curriculum is the learning program which generally includes contents, purposes, materials, teaching processes and learning experiences. For designing curriculum, the developer needs to consider key components of the curriculum.

## 6. Critical Reading Instruction

In planning language course reading, Nation (2009) proposes four strands (meaning-focused input, meaning-focused output, language-focused learning and fluency development) to be used to foster understanding of the text. Nuttall (2000: 140) has expressed a similar view that “teaching reading does not mean excluding speaking, listening and writing”. which means that in teaching a reading program, the other language skills should be integrated. Additionally, Brown (2000: 298) supports this argument that “reading ability will be developed best in association with writing, listening and speaking activities”. Moreover, Nation notes that English native speakers learn to read through interaction that assists them to acquire language ability naturally, entertain and instruct them. For learning to read in the second language, learners need to be trained to prepare for reading and pre-teaching before reading is essential. Principles used to design reading program suggested by Nation are the application of four strands which the four categories are able to foster not only reading in general, but also support reading in higher levels.

In designing a language course to develop critical reading skills, Tomlinson (2003) suggests teaching approaches for undertaking reading problems and boosting reading ability such as reading comprehension-based approaches, the language-based approach, the skill/strategy-based approach and the schema-based approach. Supported by Brown (2000), he proposes to apply the research findings for reading approach. These are bottom-up and top-down processing, schema theory and background



knowledge, the role of affect and culture, the power of extensive reading and adult literacy training. Brown (2000) adds that when to teach, it is essential to consider the following basic foundations for developing valuable teaching approach: types of written language (letter, signs, recipes, bills); characteristics of written language (permanence, processing time, distance, orthography, complexity, vocabulary and formality); microskills for reading (chunks of language, cohesive devices, inference, links and connections and word interpretation); reading strategy (identifying reading purposes, using graphemic rules, skimming, scanning, mapping and clustering and guessing). Thus it can be concluded that for designing language program, a variety of teaching approaches should be considered to shape up the program effectiveness.

To apply each approach of teaching reading effectively, Nuttall (2000: 154-167) suggests that teachers guide students at each of the reading stages: before reading, while reading and after reading. Guidance before reading is helpful before starting the tasks as the guidance's purposes are to make students feel eager to read, to give the right strategy and the right mood. The principles to support students before reading are to "provide a reason for reading, introduce the text, set a top-down task, break up the text, deal with new language and ask signpost questions". Guidance while reading is activated according to class organization such as the individual mode, the teacher-centered class and groupwork. Guidance after reading is to evaluate the reading and personal response. The activities used in this stage include some of the following: "eliciting a personal response from the readers; linking the content with the readers' experience/knowledge; considering the significance of the text in the book from which it is taken; establishing the connection with other work in the same field; and suggesting practical applications of theories or principle". In short, Nuttall points out that, before reading, guiding is used to pave the way to effective reading; while reading, guiding is employed to monitor, foster, scaffold and cultivate valuable reading strategies; and after reading, guiding is manipulated in order to evaluate to examine if the goal of reading has been met. So more support is significant for helping students to achieve reading across all levels of thinking.

Concerned with assistance to help students to go across every level of reading, Brown (2000) states that as we are in the literate society, the text affects us in



many aspects including the following: confusing/enlightening; depressing/amusing; and sickening/healing. Teaching reading should be mingled with listening, speaking and writing skills. Pertaining to reading skill integration, interactive reading has value in improving reading skills. It is the view of Brown (2000) that the old version of teaching English like conducting in Thailand does not work on promoting critical thinking and then it is changed to group-assisted learning.

“The quiet buzz of voices from the classroom echoes down the hallway. The thirty-some-odd students in an intermediate English class in a Bangkok high school are telling stories, joking, gossiping and talking about the latest popular songs. As the teacher walks in, the students fall silent, face forward and open their textbooks in anticipation of another English lesson, another day of reciting, repeating, copying, reading aloud, translating sentences and answering multiple-choice questions. But today their usual teacher is absent and a substitute teacher sits down at the front of the class and asks the students to rearrange their desks into concentric semicircles. Surprised, the students comply. Then the teacher speaks”

Based on the statement mentioned above, it demonstrates that the teaching style in Thailand prefers rote memorizing rather than collaborative learning which the old one retards critical reading skills. Furthermore, Brown (2000: 165) attempts to impress the advantages of interactive learning toward reading by demonstrating that interaction is the core of communication. Interaction is “the collaborative exchange of thoughts, feelings, or ideas between two or more people, resulting in a reciprocal effect on each other”. In interactive learning class, the roles of teacher to move the activity and drive the reading development are the followings: teacher as controller, director, manager, facilitator and resources.

Based on the notion of Brown it can be summarized that in the literate age, students face different kinds of text which impact positive and negative effects. The goal of learning to shape students to become robotic through a recitation fashion must be changed to reciprocal teaching which facilitate students to be autonomous learners with critical thinking.

In short, the conclusion of critical reading instruction includes the following: (1) four strands and four skills should be integrated; (2) a numerous learning



approaches are needed; (3) guidance is important through three stages of reading; (4) and interactive learning based on reciprocal teaching is vital to critical reading skills.

### 7. Reading assessment

According to Richard et al. (1992: 23), assessment means “the measurement of the ability of a person or the quality or success of a teaching course, etc.” Likewise, Cohen (1994) notes that assessment is a method for teacher to measure students’ language abilities. In addition, used in educational setting, assessment refers to judgment of students’ work (Taras (2005). The good characteristics of assessment revealed by Cohen (1994: 1) are “nonthreatening and are developmental in nature, allowing the learners ample opportunities to demonstrate what they know and do not know and providing useful feedback both for the learners and for their teachers”. Assessment based on Richards & Renandya (2002) was divided into two paradigms: an old paradigm and a new paradigm. The characteristics of the both forms are shown in table 1.

Table 1: A comparison of the new and old paradigm

Old Paradigm	New Paradigm
1. Focus on language	1. Focus on communication
2. Teacher-centered	2. Learner-centered
3. Isolated skills	3. Integrated skills
4. Emphasis on product	4. Emphasis on process
5. One answer, one-way correctness	5. Open-ended, multiple solutions
6. Test that test	6. Test that also teach

Richards & Renandya (2002: 335)

The main purpose of assessment is to reflect true ability. Richards and Renandya notes that the traditional form of assessment has high validity in measuring, but fails to measure the whole learning processes of the program. Cohen (1994) similarly views that traditional assessment seems unpopular in language learning and teaching since students consider this assessment as unfair measurement and they are



concerned that they would fail testing. They take a test with cheating, with using poor strategies, without monitoring, without planning and not checking answers. Sometimes, teachers have been suspicious of the test results. On the contrary, the alternative assessment or authentic assessment or informal assessment has been raised to replace the old for supporting the needs to measure reading processes rather than products. “This new form of assessment focuses more on measuring learners’ ability to use language holistically in real-life situations and is typically carried out continuously over a period of time. In this way, a more accurate picture of students’ language profile can be obtained” (Richards & Renandya, 2002: 336). A new paradigm focuses on authentic assessment procedures such as self-or peer assessment, journals, portfolios, project work and interviews.

According to the influence of reading assessment on language learning and teaching, this assessment can support learning or cause big harm, thus, when conducting assessment, great care, respect and attention are needed to be considered (Grabe, 2009: 353). The purpose of reading assessment based on Grabe mainly focus on giving feedback on reading skills, reading strategies and information that exhibit the reading ability or quality. The assessment is classified by Grabe into 4 categories in terms of: “(1) norm-reference and criterion-reference testing; (2) formative and summative assessment; (3) formal and informal (or alternative) assessment; and (4) proficiency, achievement, placement and diagnostic assessment”. Additionally, Grabe (p.353) systemizes reading assessment based on assessment purposes as follows: “(1) reading-proficiency assessment (standardized testing); (2) Assessment of classroom learning; (3) Assessment for learning (supporting student learning is the purpose); (4) assessment of curricular effectiveness; and (5) assessment for research purposes”. The further information of assessment based on its purpose includes the following:

#### 7.1 Reading-proficiency assessment

Grabe (2009: 353) notes that ‘reading-proficiency assessment’ is synonymous with ‘standardized testing’. “Commonly, this type of assessment is referred to as standardized testing, although local groups and researchers also develop proficiency tests of different types”. This kind of assessment is called ‘high-stakes testing’ since it impacts students’ opportunities for further study. The purpose of



reading assessment proficiency is to measure reading ability and to plan for next learning activity. The result of the assessment is applied for policy setting, placement, curriculum planning and institutional evaluations.

### 7.2 Assessment of classroom learning

According to Grabe (2009), assessment of classroom learning is mentioned in a variety of terms such as assessment of reading improvement, summative or achievement testing and informal and alternative assessment. Assessment of reading improvement in classroom settings aims to measure students' skills and knowledge during a particular period of time through the use of various of strategies: quizzes, end-of-unit tests, postreading questions, etc.. Sometime, alternative assessment is used such as interviews, progress charts, self-reporting measures, engagement and group work and observations.

### 7.3 Assessment of learning

The opinion of Grabe (2009) is that this assessment aims at fostering and encouraging students learning for reading abilities based on the feedback on task and interaction between teacher and students. The value of the assessment of learning is that teacher can equip supportive feedback and scaffold students in learning.

### 7.4 Assessment for research purposes

It is the view of Grabe (2009) that assessment for research purposes is significant for reading research findings and for the application for the reading teaching. The important characteristics of this assessment include validity, reliability, relevance and trustworthy.

According to the aspects of assessment, Cohen (1994) proposes that when the teacher proceeds the assessment, the prominent questions needed to be considered are the followings: what?, why?, how?, when?, where?, who?, through what processes? and for whom?.

Question 'what?', this refers to what purposes and what language abilities?.

Question 'why?', this refers to why these purposes and these abilities are chosen to assess?





Question ‘how?’, this requires teacher to consider how to create assessment instruments.

Question ‘when?’, this is related to how many times of the test would be occurred?.

Question ‘where?’, this is concerned with the environment or place in which the assessment would happen.

Question ‘who?’, this refers to who are the test takers.

And the last question, for whom?

For whom refers to who will employ the findings?

With regard to the purposes of assessment, Cohen (1994: 23) classified three main different purposes as follows: (1) Administrative purpose includes “ general assessment, placement, exemption, certification and promotion”; (2) Instructional assessment consists of “diagnosis, evidence of progress, feedback to the respondent, evaluation of teaching or curriculum”; and (3) Research assessment comprises evaluation, experimentation, knowledge about language learning and language use”.

Regarding what to assess, Cohen (1994) points out that the teacher needs to apply a quiz and a test to assess what students know and what the teacher has taught them. In order for assessments to be sound, they must be reliable, valid and practical (Nation, 2009). In accordance with the benefits of the assessment, the assessment has advantages for both teacher and students. For students, assessment can activate students’ involvement and cultivate motivation through quiz or test and other forms of assessment. For teacher, the results of the assessment inform teacher students’ level abilities, strength and weakness which are valuable for teacher to design what activity would be going on next in the course.

To sum up the reading assessment, the definition of assessment refers to the process to measure students’ ability and quality. The purpose of assessment is based on administrative purpose, instructional assessment and research assessment. The productive instruments for assessment require validity, reliability and practicality. Likewise, the benefit of assessment is valuable for both students and teachers.



## 8. Testing of reading

A test refers to “any procedure for measuring ability, knowledge, or performance” (Richard et al., 1992: 377). Brown (2000) supports Richard’s argument that a test is a method or an instrument or procedure designed to measure ability or knowledge.

Based on the definition of test mentioned above, important aspects viewed as the parts of the test include the following. Firstly, a test, intuitive and informal, refers to a method which is a group of items, procedures and techniques that forms tools to extract performance of the test-takers. Secondly, a test has the purpose of measuring proficiency, diagnostic, placement and so on. In general, a test aims to explore students’ ability or knowledge. Next, a test measures ability or knowledge which a test “samples performance but infers certain competence” (p.385). In this case, the components needed to be cared for include the following questions: who are the test-takers?; what is their prior knowledge?; does the test match their level?; and how does the teacher give feedback to individuals?. Lastly, a test measures a given domain. This means that each test needs specific skills to be measured such as pronunciation skills, comprehension skills, vocabulary skills and so on.

To consider whether a test is good or not, three criteria for testing a test are required: practicality, reliability and validity (Brown, 2000, Nation, 2009).

### 8.1 Practicality

A number of scholars note that a good test should be practical. Brown (2000) reveals that in order to create a practical test, the following serious considerations must be considered: cost, time, proctor, examiner and scoring. In contrast, Brown has explained the examples of impractical testing including the following: an expensive test, too much long-time test, big group test-takers with a few proctors, test with short time limit but long time scoring and computer-based test. Moreover, practicality is based on norm-referenced test and criterion-referenced test. According to norm-referenced test, the interpretation of score is related to descriptive statistics such as frequency, percentage, mean, median, range and standard deviation. The example of this test is standardized test which practicality is major issue. Criterion-



referenced test such as classroom test is created to give feedback on the course or curriculum and deliver effective feedback to students. Practicality is minor issue.

## 8.2 Reliability

Brown (2000: 386) has expressed the definition and elaborated concepts of reliability as the following:

“A reliable test is consistent and dependable. Sources of unreliability may lie in the test itself or in the scoring of the test, known respectively as test reliability and rater (or scorer) reliability. If you give the same test to the same subject or matched subjects on two different occasions, the test itself should yield similar results; it should have test reliability.”

It could be noted that reliability referred to the consistency of the scores obtained by the same subjects doing the same test at different time. Test reliability is affected by scoring, sampling and trait measurement. Brown added that the cause of unreliability is from many factors such as sickness, awful day and sleepless night before.

## 8.3 Validity

According to Brown, test validity refers to “the test which actually measures what it is intended to measure” (2000: 387). Test validity is complicated to be established but a standard method to create validity is through statistical correlation. In classroom setting, there are three types of validity including content validity, face validity and construct validity.

### 1) Content Validity

Reference to Brown (2000: 387), it reveals that content validity is related to the subject matter and the test-takers’ performance. Content validity is based on the operational definition of the achievement to be measured which the definition needs to be concerned with the subject matter. On the other hand, if the test is not formed on main skills of the test-takers’ performance, it lacks content validity. For example, “a test of tennis competency that asks someone to run a 100-yard dash lacks content validity”. This test is deficient in content validity, because it is not formulated through major subject matter of playing tennis and it cannot sample the performance of the tennis player. In this situation, if the test is leaned on authentic context, it has



content validity. The sample of test which has poor content validity is standardized tests.

#### 2) Face Validity

Brown (2000) claims that face validity is more firmly connected to content validity which the test with face validity focuses on what students have learned, what students know and what achievement is expected.

#### 3) Construct Validity

The opinion of Brown (2000) is that construct validity is closely related with theoretical construct. The examples of construct validity are proficiency, communicative competence and self-esteem. For instance, the theoretical construct of scoring interview factors which include fluency, vocabulary, pronunciation and sociolinguistic appropriateness. These five components determine construct validity. The example of the test which has high construct validity is standardized tests.

#### 4) Internal Validity

Based on Bordens & Abbott, “internal validity is the ability of your design to test the hypothesis that it was designed to test ... the variation in the independent variable and only the independent variable, caused the observed variation in the dependent variable” (2011: 114). This shows that the results of independent variable are only from the treatment of dependent variable, not from extraneous variables. Internal validity is threatened through various factors such as history, maturation, testing, instrumentation, statistical regression, biased selection of subjects and experimental mortality.

#### 5) External Validity

According to Bordens & Abbott (2011: 118), “a study has external validity to the degree that its results can be extended (generalized) beyond the limited research setting and sample in which they were obtained”. This indicates that if other studies are conducted in the same way, the findings found would be the same which it is generalized to real-world situations and to larger populations.



#### 8.4 Kinds of Tests

There are many test types and in this study, the researcher would present the tests pertaining to language curricula as the following: proficiency tests, diagnostic tests, placement tests, achievement tests and aptitude tests.

##### 1) Proficiency tests

Brown (2000) states that proficiency test does not focus on one language course or one skill, but it is the combination of various skills such as vocabulary, reading, grammar and writing. This test has poor content validity. A typical sample of a standardized proficiency test is the Test of English as a Foreign Language (TOEFL) which it comprises listening, grammar, reading, vocabulary and writing.

##### 2) Diagnostic tests

Brown (2000) argues that diagnostic test is formed to predict the difficult perspectives of a language which then would be activated as a part of language course.

##### 3) Placement tests

Brown (2000) claims that the purpose of placement tests is to place a student into a suitable section of a language course or school or university. A placement test selects the subject matters from the language course. Thus, this test has content validity and the teacher is able to use the test results to place students in a position which is not too easy or not too difficult, but stimulates them. The teacher can employ proficiency tests and diagnostic tests to perform in the role of placement tests.

##### 4) Achievement tests

As Brown (2000: 391) states “an achievement test is related directly to classroom lessons, units, or even a total curriculum and the primary role of an achievement test is to determine acquisition of course objectives at the end of a period of instruction”.

##### 5) Aptitude tests

According to Brown (2000: 391), “a language aptitude test is designed to measure a person’s capacity or general ability to learn a foreign language and to be successful in that undertaking”.



In conclusion, testing of reading refers to the procedure for measuring ability, knowledge, or performance. The test is a method, has the purposes, aims to measure ability or knowledge or performance and assesses a given domain. In order to justify if a test is good or not, three factors including practicality, reliability and validity need to be seriously considered.

### **Theories of learning**

Understanding how students learn language is a considerable matter. Knowing this issue helps teachers design what to teach and how it should be taught. Thus, reviewing theories of learning provides understanding how language learning happens and contributes to the creation of effective language instructional models.

#### 1. Constructivist views regarding the learning/teaching of language

##### Vygotsky's theories

Vygotsky's theory is one of the foundations of constructivism. Vygotsky (1978) noted that learners develop their knowledge and can be directed via demonstration and explanation to gain a higher levels of thinking skills. Vygotsky claimed as the following. Firstly, social interaction is a critical factor in the process of cognitive development. Social learning supervises development. Cultural development appears twice: social and interpersonal. In the process of social interaction, learners experience a new body of knowledge, get insight into it and internalize it. Thus, social interaction plays an important role in encouraging cognitive development. Vygotsky's second claim was that learners employ tools to plan activities, solve problems and to mediate social environment. The examples of these tools are speech and writing which getting insight into these tools contributes higher order thinking skills. This implies that language plays an important role in helping learners conduct communication. Vygotsky originally developed the significant concept called Zone of Proximal Development (ZPD) which is defined as the area of the distinction between learners' performance by their own and ability to perform under the assistance of guidance.

Zone of Proximal Development's themes are as follows. ZPD refers to the distance between what is known (actual development) and what is unknown



(potential development). Social interaction plays a vital role in ZPD. The assistance of adults narrows or bridges gap between the two levels of ZPD. The purpose of learning development is to move from lower to higher order thinking skills. To apply this concept, firstly, teacher recognizes what students know and then adds on something new through teaching, guiding, or demonstrating. Later, the teacher links this to the prior knowledge in order to facilitate students to learn with the assistance. Students gradually make a progress, while the teacher continually remove aids. Finally the students become autonomous learners.

Zone of Proximal Development is synonymous with the term scaffolding introduced by Wood et al. (1976). Scaffolding refers to a method in which the teacher designs the demanded strategy for the students to exhibit, then gradually withdraws guidance and lets the students perform the task by themselves. To process this effectively, the teacher needs to challenge students to apply their prior knowledge to new situation to achieve a desired goal. The area of scaffolding will fall into the zone of proximal development, if the progress happens. If the guiding is out of the students' zone of proximal development, no development will occur. Under the supervising of the teacher, students imitate how to complete the task. When the growth continually occurs, the teacher recedes help and eventually, students become skilled learners and are in the higher area of learning.

## 2. Bloom's taxonomy

As a result of the 1948 American Psychological Association Conference, Bloom et al. recognized that the test questions largely were formulated based on knowledge, which is the lowest order thinking. Later, in 1956, Bloom, Englehart, Furst, Hill and Krathwohl proposed an intellectual behaviors which comprised three domains: the cognitive domain, psychomotor domain and affective domain. The cognitive domain – knowledge-based domain – consists of six levels: knowledge, comprehension, application, analysis, synthesis and evaluation. The affective domain, attitudinal based domain, comprises five levels: receiving, responding, valuing, organizing and conceptualizing and characterizing. The psychomotor – skills based domain – has six levels: reflex movement, basic fundamental movement, perceptual, psychical activities, skills movement and non-discourse communication.



According to Bloom (1956), the taxonomy or the cognitive domain is a classification of six thinking skills which are divided into lower order thinking skills: knowledge, comprehension and application and higher order thinking skills: analysis, synthesis and evaluation. Knowledge refers to recalling or remembering learned knowledge. Key words represents knowledge aspects such as list, identify, define, name, tell, examine, operate, locate, recall, show, spell, match, relate and select. Comprehension refers to understanding the text. The key words indicate comprehension such as explain, create, discuss, describe, restate, translate, paraphrase, summarize, show, classify, relate, extend, infer, outline, interpret, demonstrate, compare and contrast. Application refers to using old knowledge in new situation. Key words illustrating the application are the following: apply, practice, illustrate, demonstrate, sketch, model, draw, solve, collect, select, identify, plan, organize, build, choose and construct. Analysis refers to the breaking down of information into parts in order to understand it. Key words identify the aspects of analysis such as classify, break down, differentiate, distinguish, infer, outline, prioritize, separate, recognize, subdivide, appraise, compare, contrast, criticize, discriminate, examine, question, test and diagram. Synthesis refers to combining elements of information or ideas into a new body of knowledge. Key words include arrange, collect, construct, create, compose, develop, design, organize, plan, set up, propose, categorize, generalize, reconstruct, contrast, devise, formulate, generate, model, structure, revise and rearrange. Evaluation refers to making judgment about the value of information. Key words represent the evaluation category such as appraise, compare, contrast, decide, defend, interpret, judge, support, evaluate, assess, select, argue, choose, define, predict, rate, estimate and justify.

Based on the value of taxonomy in education, Bloom noted that:

... it is to be regarded as a useful and effective tool. It should stimulate thought about educational problems. If the taxonomy is to prove a useful tool for educational research workers, it must aid them in formulating hypotheses about the learning process and changes in students. If it is to be useful for teachers and testers, it should provide a basis for suggestions as to methods for developing curricula, instructional techniques and testing techniques. As a highly organized and presumably comprehensive plan for classifying educational behaviors, it should form the basis for





easily determining the availability of relevant evaluation instruments, techniques and methods so that each worker can determine their appropriateness for his own work. Properly used, a taxonomy should provide a very suggestive source of ideas and materials for each worker and should result in many economies in effort.

The above quotation shows that taxonomy is useful for researchers to activate research issues and is valuable for teachers and testers in the construction of curricula, instructional techniques, testing techniques and effective assessment methods. Bloom added that taxonomy is beneficial for formulating learning objectives and for classifying test materials. According to the advantages of the taxonomy, Bloom concluded that the construction of taxonomy was not completely finished or perfect. Bloom (1956: 24) intended to refine this book for more improvement and needed suggestions from interested partners. "We solicit your help in its further development by asking that you send us the suggestions which occur to you as you attempt to understand it and as you develop a body of experience through its use".

### **Models of the reading process**

According to Nuttall (2000), reading is the transfer of meaning from writer to reader. The purpose of reader for reading is to gain message from the text. The reading process comprises a writer, a reader and meaning. There exist major models of information processing as follows: the top-down approach, the bottom-up approach and the interactive approach.

#### 1. Top-down approach

Nuttall (2000: 16) claims that "in top-down processing, we draw on our own intelligence and experience - the predictions we can make, based on the schemata we have acquired - to understand the text ... this kind of processing is used when we interpret assumptions and draw inferences". Likewise, the reader consciously uses this process by viewing the information as a whole and linking it to prior knowledge to interpret, predict, infer and assume the writer's ideas. Nuttall compares top-down approach with the bird's-eye view that the reader evaluate the text from the above. On this basis it may be inferred that the reader firstly, overviews the text and gets insight



into the message and understands the meaning of the text by using background (prior) knowledge or textual schemata.

## 2. Bottom-up approach

While the top-down processing focuses on the whole picture and narrows down to the small point and uses prior knowledge to understand the text, the bottom-up processing starts with reading a smaller part like letters, words, phrases, clauses and sentences and then gradually goes to the bigger point of view to get insight into the meaning of the text. Nuttall (2000: 17) notes that “in bottom-up processing, the reader builds up a meaning from the black marks on the page: recognizing letters and words, working out sentence structure”. Nuttall illustrates this with the magnifying glass examining which this focuses the tiny details. The reader uses bottom-up processing method, when he/she wants to comprehend the plain sense correctly.

To conclude the concepts of top-down and bottom-up processing originally proposed by Goodman (1970), it was noted that “they are both used whenever we read; sometimes one predominates, sometimes the other, but both are needed” (Nuttall, 2000: 16). This means that both of them are employed to supplement each other. The most effective approach is the combination of bottom-up and top-down approach which this is called interactive approach.

## 3. Interactive approach

The interactive approach is formed by the integration of top-down and bottom-down approach. In 1950s, many specialists have claimed that bottom-up method is the best way for teaching language: comprehension derived from teaching letters, words, phrases, clauses and sentences consecutively. But in the present, more studies have shown that the combination of top-down and bottom-down approach is more successful than only one approach (Brown, 2000). This is supported by Nuttall that “...in practice a reader continually shifts from one focus to another, now adopting a top-down approach to predict the probable meaning, then moving to the bottom-up approach to check whether that is really what the writer says” (2000: 17). In interactive classroom setting based on (Brown, 2000), teacher acts as different roles to cultivate the combination of a number of teaching approach as follows: the teacher as a controller,



the teacher as a director, teacher as a manager, teacher as a facilitator and the teacher as a resource.

Thus, it could be summarized that there are three approaches to teaching reading: bottom-up approach, top-down approach and interactive approach. The interactive approach which combines bottom-up approach (decoding letters, words, phrases and clauses to gain the meaning of the text) and top-down approach (using prior knowledge to comprehend text) is considered as the most effective in the reading process. This means that the best reader needs to combine bottom-up and top-down approach. The best reader reads quickly to get the rough information (top-down approach), but when he/she encounters the problem, he/she shifts to a small unit to interpret meaning (bottom-up approach) which this combination is called interactive approach.

Reciprocal teaching consists of a set of four strategies namely questioning, predicting, clarifying and summarizing. Metacognitive reading strategy comprises planning, monitoring and evaluating. To understand more about both of them, their perspectives would be discussed.

### **Chapter summary**

Chapter 2 focuses on reviewing related literatures. The main issues mentioned in this chapter are introduction, theories of learning, models of the reading process, metacognition, reciprocal teaching and critical reading. Theories of learning are composed of Vygotsky's, Piaget's and Bloom's theory. Models of the reading process include top-down method, bottom-up method and interactive method. Metacognition mainly focuses on metacognitive reading strategies which consists of planning, monitoring and evaluating. Reciprocal teaching refers to a collaborative instructional method which consists of four strategies: questioning, clarifying, predicting and summarizing. The last issue discussed in this chapter is critical reading. Critical reading, based on Bloom's Taxonomy, comprises analysis, synthesis and evaluation. The purpose of reviewing related literatures is to get information concerning the present study "An instructional model based on reciprocal teaching with metacognitive reading



strategy to enhance critical reading ability for higher secondary school students”. The information gained from this literature review is designed to use metacognitive reading strategy to control the use of reciprocal teaching to foster critical reading and to examine whether reciprocal teaching can foster critical reading. Moreover, The obtained data would be applied to construct critical reading instructional model which composes of two phases. These processes would be mentioned in chapter 3: research methodology.



## CHAPTER III

### METHODOLOGY

The purposes of this study were: (1) to construct the instructional model, (2) to evaluate the effectiveness of the developed model and (3) to examine the students' attitudes towards the developed model.

This chapter presents the detailed information regarding the methodology of the model construction. Research design and research procedures are detailed.

#### Research design

For the research design, two issues including one-group pretest-posttest design and population and sample are discussed as in the details below.

##### 1. One-group pretest-posttest design

This study was designed to use one-group pretest-posttest research method to evaluate the different results of critical reading ability. The procedures of the study based on Issac and Michael (1981) are presented below.

Table 2: One-group pretest-posttest research design

pretest	treatment	posttest
T <sub>1</sub>	X	T <sub>2</sub>

According to the table, T<sub>1</sub> refers to the pretest, X represents the treatment and T<sub>2</sub> stands for the posttest. The research procedures contain conducting the pretest, implementing the treatment and conducting the posttest, consecutively. In this case, the T<sub>1</sub> (the pretest) was the conducting of critical reading achievement test, the X (the treatment) was contributing of the developed instructional model and the T<sub>2</sub> (the posttest) was the carrying out of critical reading achievement test and students' attitude questionnaire.



To provide more details, before the conducting of the treatment, the pretest was carried out at the beginning of the study using critical reading achievement test developed by the researcher. Then, the treatment was administered for 11 weeks using lesson plans, teacher's journals and students' journals. Finally, the posttest was conducted using critical reading achievement test. The students' attitude questionnaire developed by the researcher was distributed at this stage as well.

The scores obtained from the pretest and the posttest were analyzed by means of dependent sample t-test and gained score analysis. The difference between the posttest and the pretest score was considered to claim the effectiveness of the model. The qualitative data gained from the questionnaire, the teacher's journals and the students' journals were analyzed by means of content analysis to support the results from the pretest and posttest and to examine the students' attitudes towards the developed model. In conclusion, the difference between the pretest and posttest scores and the qualitative data were used to consider the effectiveness of the model.

## 2. Population and sample

The student populations were higher secondary school students of the Office of the Basic Education Commission of the Ministry of Education. Kalasinpittayasan school was conveniently selected as the research site since this school has provided English reading courses for 11st- grade students. The researcher asked for permission from the school director to conduct the study through formal letter that included the proposal of the research. The school director officially approved this permission and allowed the researcher to conduct the study for semesters of the academic year 2013.

The samples of the study were fifty eleventh graders and all of them were native Thai speakers. They were chosen through purposive sampling.

### Confidentiality of the Participants and of their Responses

The participants were asked to use code numbers instead of their real names to identify themselves on the experiment. After the completion of the study, the personal information were demolished immediately.



## Research procedures

The research procedures were classified into two phases: the development of the instructional model and the evaluation of the effectiveness of the instructional model. The main purpose of the first phase was to construct the instructional model. To accomplish this task, the documentary study involving learning theories and language theories was analyzed and synthesized to gain the theoretical and conceptual framework. Then the development of the model was created based on these analyzed and synthesized frameworks. The second phase of the research procedure was the evaluation of the effectiveness of the instructional model. This phase was divided into two stages. Stage 1(model experiment) was designed to experiment the developed instructional model in order to investigate its effectiveness which was carried out by the researcher. Stage 2 (model implementation) was formulated to confirm the effectiveness of the developed instructional model conducted by the other teacher.

In conclusion, the research procedures contained two phases. The major purposes were to develop the model, examine the effectiveness, investigate the students' attitudes and confirm the effectiveness of the developed model. The brief information was shown as follows.

### Phase 1: The development of the instructional model

#### Stage 1: Documentary study

1. Learning theories
2. Language theories

#### Stage 2: Model development

1. Designing conceptual framework
2. Determining the elements of the model
3. Validating the model and the manual
4. Developing instruments
5. Validating the instruments



Phase 2: The evaluation of the effectiveness of the instructional model

Stage 1: Model experiment

1. Conducting main study
2. Analyzing the effectiveness of the study
3. Analyzing students' attitudes

Stage 2: Model implementation

1. Preparing for the implementation
2. Conducting the implementation
3. Analyzing the effectiveness of the model

A summary of the research procedures was presented in figure 3.





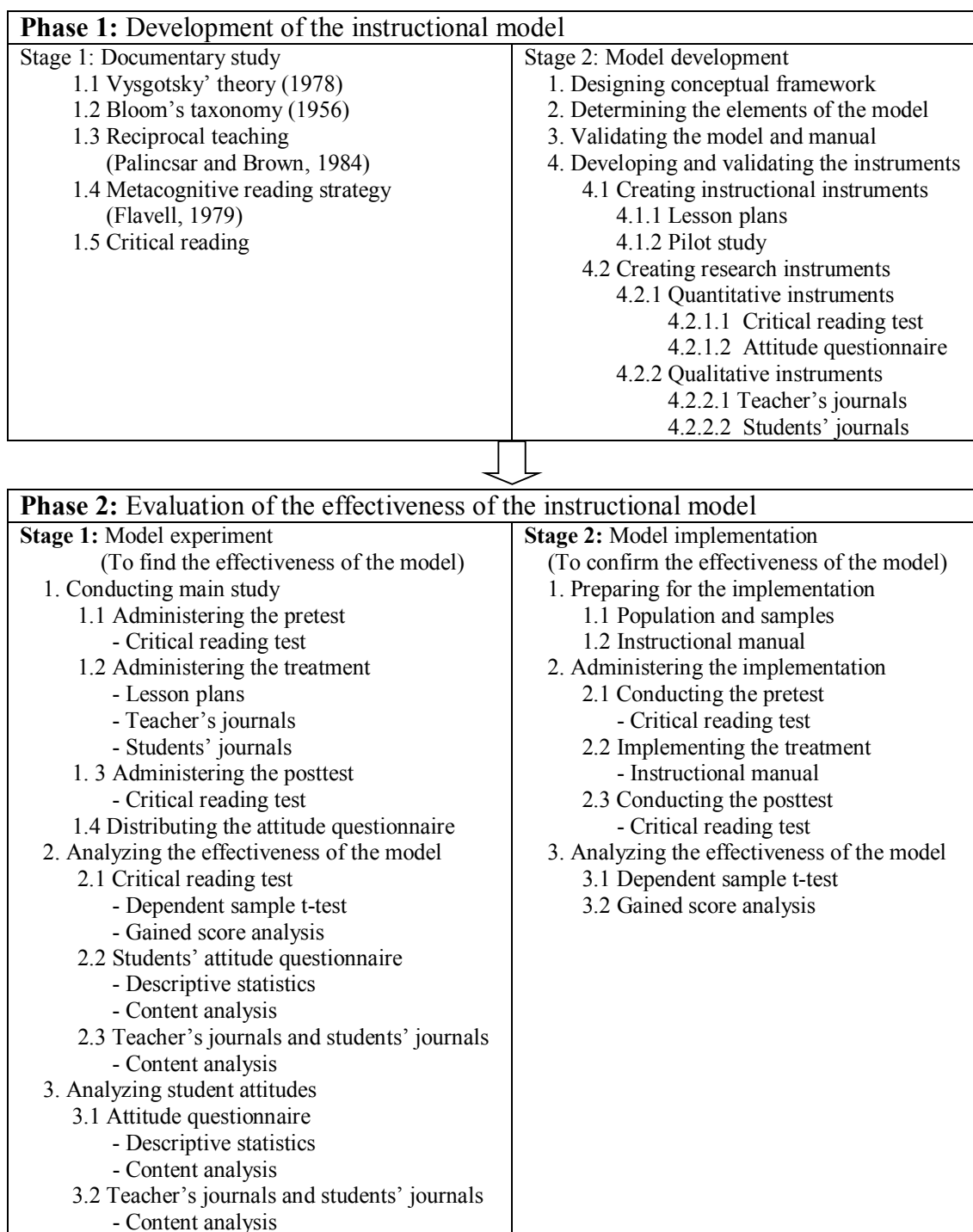


Figure 3: A summary of research procedures



As mentioned previously, there were three objectives of this study. Hence, the two phases of the research procedures were designed to complete these three objectives. Detailed information of each phase was discussed phase by phase as the following.

### **Phase 1: The development of the instructional model**

In order to accomplish the first objective of the study (to develop the instructional model), the researcher followed two main stages: stage 1 (documentary study) and stage 2 (model development). The outcomes from these stages were applied to achieve the objectives of phase 2 (to investigate the effectiveness of the developed model and to confirm the effectiveness of the developed model). The details were contributed as follows:

#### Stage 1: Documentary study

In order to construct an instructional model, one of the most important parts to be studied to fulfill the model was to conduct documentary study which focused on two aspects: learning and language theories. Learning theories to be analyzed and synthesized comprised Vygotsky's theories (Vygotsky, 1978), Piaget's theories (Piaget, 1970), Bloom's taxonomy (Bloom, 1956). Moreover, the general aspects of model construction were reviewed. For language theories, reciprocal teaching (Palinscar and Brown, 1984), metacognitive reading strategy (Flavell, 1979), interactive approach (Nuttal, 2000) and critical reading (Bloom, 1956) were studied to gain a main point to design instructional process embedded in the instructional model. Following aforementioned concepts, the major points of the documentary study were specifically formed to develop instructional model as displayed in stage 2.

#### Stage 2: Model development

The procedures of the model construction involved three steps: designing conceptual framework, determining the elements of the model and developing the instruments. These steps were formulated based on the theoretical and conceptual framework gained from reviewing literature. The following were the details to be discussed.



### 1. Designing conceptual framework

The purpose of the designing conceptual framework was to demonstrate the experimental procedures, teacher's roles and students' roles. According to the literature review of theories concerned, the final objective of the model was to enhance students to become critical readers. Following the research design, the roles of teacher and students were planned. The teacher had to help students at the beginning of the study and gradually decreased assistance. When found that the students mastered the learning processes, the teacher removed help and let the students freely practice in a group by themselves. The whole picture of conceptual framework was exhibited in the following figure.

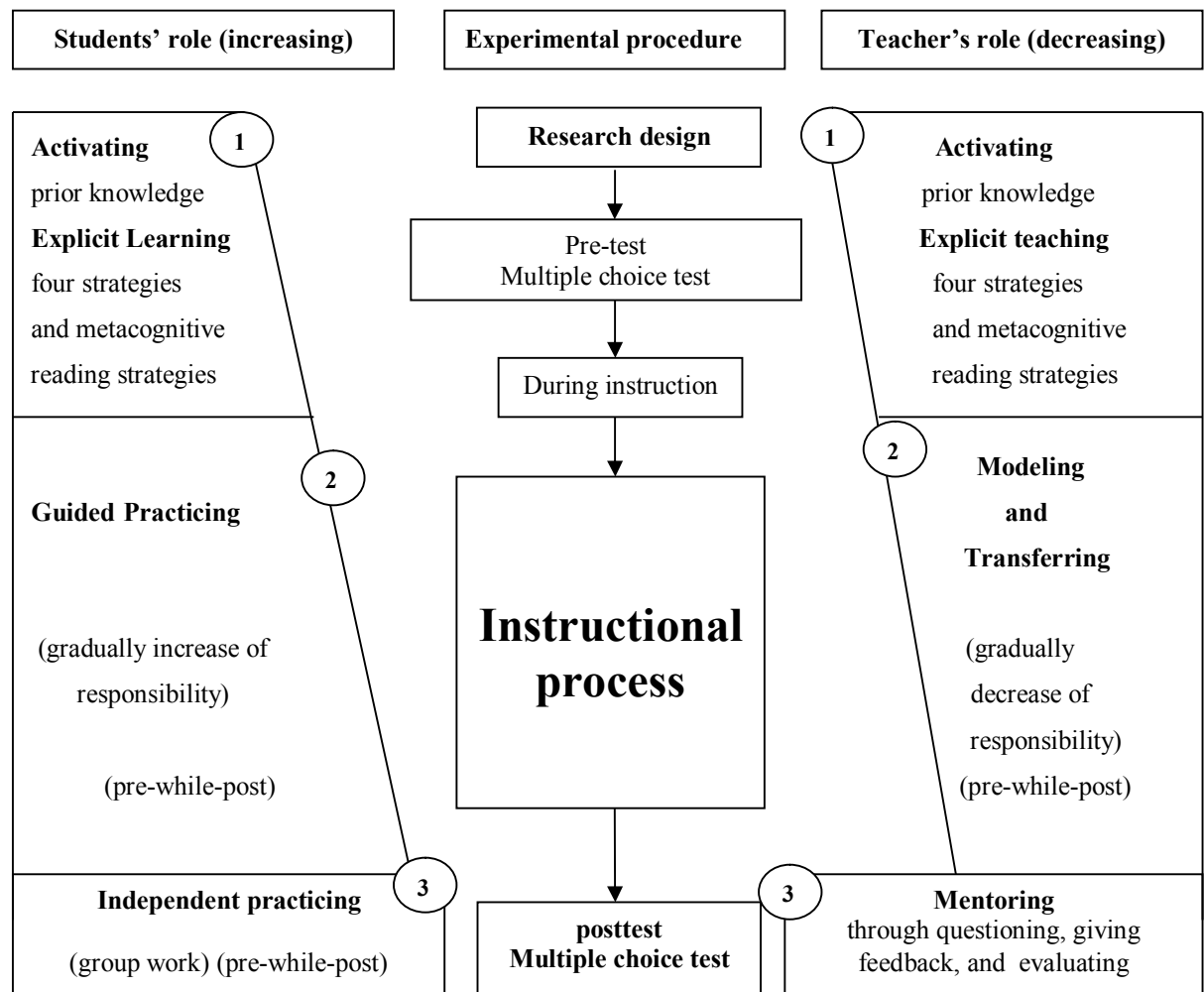


Figure 4: Conceptual framework of instructional model development



From the figure, the research design was one-group pretest-posttest design. The roles of the teacher were to give explicit teaching and activate students' prior knowledge. Later, guided teaching, modeling and transferring were implemented to level up students' critical reading learning processes. Finally, the teacher acted as a mentor when the students were advanced enough to process the learning activities by themselves. On the other hand, at the beginning of the study, the students had to learn explicitly from the teacher and gradually learned in a group to master learning activities. At the end, the students got advanced and were able to practice independently by themselves. Finally, they become autonomous critical readers.

## 2. Determining the elements of the model

After designing conceptual framework, five elements were determined to form the instructional model. Details were demonstrated in chapter 4.

## 3. Validating the instructional model and the manual

To ensure the quality of the instructional model and the instructional manual, the researcher created the evaluation form for the instructional model and the manual. The following were the processes of validating model and manual.

### 3.1 Validating the instructional model

The procedure to validate the instructional model was mentioned step by step as follows.

1) The instructional model was developed (See Appendix A).

2) The quality evaluation form for the instructional model which consisted of two parts (See Appendix H) was created. The first part contained the main topics including theoretical framework and elements of the model. The researcher employed the three rating scales: appropriate (+), not sure (0) and not appropriate (-) to calculate Item-Objective Congruence Index (IOC) (Turner & Carlson, 2003).

$$IOC = \frac{R}{N}$$

IOC = The index of congruence

R = Total score from the opinion of the specialists

N = Numbers of the specialists



To interpret the data, it is acceptable if the IOC value is higher than 0.5. On the other hand, if the IOC value is less than 0.5, it is unacceptable which means that the item must be revised. This approach indicates the content validity of the instructional model developed by the researcher. The second part was open-ended question which aimed to elicit additional information and suggestions for the improvement of the tool from the experts.

3) The instructional model and the evaluation form were submitted to the adviser and revised according to the suggestions of the adviser.

4) The instructional model was validated by the panel of the experts.

5) The IOC value (Turner & Carson, 2003) was calculated based on the information gained from the experts.

6) The findings of IOC calculation revealed that the grand mean score of IOC value is 0.97 (See Appendix O, table 1). This meant that the instructional model was considered acceptable. So, the instructional model was utilized without any modification.

### 3.2 Validating the instructional manual

The procedure to investigate the quality of the instructional manual was stated orderly as the following.

1) The instructional manual was developed (See Appendix B).

2) The quality evaluation form for the instructional manual was constructed. Seven topics mentioned were (1) theoretical framework, (2) objectives, (3) instructional procedures, (4) roles of teacher and students, (5) assessment, (6) guidelines of the instructional manual and (7) general aspects (See Appendix I).

3) Consulted the adviser and revised according to the suggestions of the adviser.

4) Validated by the panel of the experts.

5) The IOC value (Turner & Carlson, 2003) was calculated based on the information obtained from the experts.

6) The findings of IOC calculation noted that the grand mean score of IOC value is 0.96 (See Appendix O, table 2). This showed that the instructional



manual was considered effective. Hence, the instructional manual was employed without any amendment.

#### 4. Developing and validating the instruments

The instruments used in this study were composed of the instructional instrument and the research instruments. The instructional instrument was lesson plan. The research instruments were quantitative instruments (critical reading achievement test and students' attitude questionnaire) and qualitative instruments (teacher's journals and students' journals). A summary of developing and examining the quality of the instruments was exhibited in table 3.

Table 3: A summary of developing and examining the quality of the instruments

No.	Instruments	Examining the quality
1	Instructional model	Validity: IOC = 0.97
2	Instructional manual	Validity: IOC = 0.96
3	Lesson plan	1. Validity: IOC = 0.96 2. Piloting
4	Critical reading achievement test	1. Validity: IOC = 1.00 2. Try out (1) 1. (P)value (KR-20) = 0.36 - 0.78 2. (R)value (KR-20) = 0.23 - 0.88 3. Try out (2) 1. Reliability (KR-20) = 0.83
5	Students' attitude questionnaire	1. Validity: IOC = 1.00 2. Try out (1) 1. (R)value (KR-20) = 0.32 - 0.74 2. Reliability = 0.80 (Cronbach's alpha coefficient)
6	Teacher's journal	1. Validity: IOC = 1.00 2. Piloting
7	Students' journal	1. Validity: IOC = 0.96 2. Piloting



This table demonstrates the developed instruments and how to verify their quality. In order to investigate the quality of the developed instruments, piloting, validity and reliability were administered. The IOC value which ranged between 0.50-1.00 was acceptable (Turner & Carlson, 2003). The qualifiable value of the degree of difficulty (Pvalue) ranged between 0.20-0.80 and the agreeable discrimination power ranged between 0.20 -1.00 (Kuder & Richardson, 1937). For reliability, the acceptable score was 0.70-1.00 (Cronbach, 1951) The details in developing each of the instruments were presented as follows.

#### 4.1 Creating and validating instructional instruments

After developing the instructional model and validating the developed model and the instructional manual, the instructional instrument (lesson plan) was created as a roadmap to accomplish the objectives of the study.

##### 4.1.1 Lesson plans

Lesson plans were constructed as a teacher's plan, a framework, a roadmap and a teacher's guide for teaching a particular lesson and for guiding class instruction. The lesson plans provided the teacher planning and constituting the lessons plans helped students practice and master the progress of the specific lesson. The components of lesson plan included topic, time, objectives, evaluation, materials, contents and instructional procedures. In this study, lesson plans were consistent with the developed model which covered three instructional processes. The total 11 lesson plans took 39 periods (50 minutes for one period). The procedures in developing the lesson plans were mentioned in the following.

- 1) Related literature was reviewed.
- 2) The lesson plans were developed based on the objectives of the instructional model (See Appendix C).
- 3) The evaluation form for the lesson plans was developed (See Appendix J).
- 4) The lesson plans and the evaluation form were submitted to the adviser and revised according the suggestions of the adviser.
- 5) The lesson plans were validated by the panel of the experts.



6) The IOC value (Turner & Carlson, 2003) was calculated based on the information gained from the experts.

7) The results of IOC calculation indicated that the grand mean score of IOC value is 0.96 (See Appendix O, table 3) which meant that the developed lesson plans were considered effective in contributing the critical reading instruction. Therefore, the lesson plans were applied without any revision.

#### 4.1.2 Pilot study

The purposes of piloting were to verify the developed model and to examine the flaws, the future problems and the feasibility of the developed model especially focused on the lesson plans, the teacher's journal and the students' journal. The samples in the pilot study were equivalent qualifications as the subjects in the main experiment which the samples comprised fifty grade-eleven students at Kalasinpittayasan school.

The participants were divided into eleven groups; the first five groups consisted of four members and the other six groups comprised five members which each group consisted of skilled readers and poor skilled readers. The researcher wanted to see which groups between group of four and group of five members would be more effective in running reciprocal teaching strategies through collaborative group roles. These samples received the instruction of one lesson plan for six periods. The materials and the instruments used in piloting were one lesson plan, students' journal and teacher's journal. The lesson plan was designed according to the developed instructional model.

After piloting, the results were as follows:

1) The major problem was timing.

The students required more time to activate prior knowledge and to discuss to complete the assigned tasks.

2) Students did not know exactly how to run activities.

Without enough help from the teacher, students had no confidence to perform the tasks, thus, more supports from teacher was essential.





3) The lesson plans had too much activities.

The researcher rearranged, changed and adjusted some activities to be matched with the contents and objectives of the learning.

4) The instructional procedures were not clear.

5) The activities running through the group of five members were more smooth than the group of four because all the five members had to be responsible for four reciprocal teaching strategies. The other one had the role of group leader.

6) Students were not familiar with working in a group. The resolution was to extend guided teaching and allowed students to get more practices on this strategy and give students more time to get used to the instruction.

7) In terms of teaching materials, some parts were not clear.

8) Some instructions and examples are not clear enough to allow students to work independently. The resolution was to make the materials clearer and more purposive.

9) With regard to the instructional processes, students were confused about how to perform their roles. Teacher needed to explain step by step clearly and carefully.

In short, there are a lot of advantages of piloting. It helps the researcher find unexpected errors and gain valuable feedback from the participants and people involved which led to the improvement of the lesson plan, teacher's journal, students' journal, teaching materials, instruments and instructional procedures. The improved tools were prepared to use in the main study stage.

#### 4.2 Creating research instruments

Research instruments included quantitative instruments (critical reading achievement test and students' attitude questionnaire) and qualitative instruments (teacher's journals and students' journals).

##### 4.2.1 Quantitative instruments

Quantitative instruments consisted of critical reading achievement test and students' attitude questionnaire. Critical reading achievement test was developed by the researcher to investigate students' critical reading ability. Students' attitude



questionnaire developed by the researcher was employed to examine the opinions of the students towards the developed model.

#### 4.2.1.1 Critical reading achievement test

Multiple choice critical reading achievement test constructed by the researcher was utilized to assess students' critical reading ability based on Bloom's taxonomy (1956). The following steps were taken to develop the test.

- 1) The objectives of the test was determined based on the developed model.
- 2) The literature concerning the critical reading test and research were studied.
- 3) The critical reading achievement test using multiple choice test as an appraisal method (See Appendix E) was developed.
- 4) The evaluation form for the critical reading achievement test to check the quality of the developed test (See Appendix L) was developed.
- 5) The test and the evaluation form were submitted to the adviser and revised according to the adviser's suggestions.
- 6) The critical reading achievement test and the evaluation form were validated by the panel of experts.
- 7) The IOC value (Turner & Carlson, 2003) based on the data received from the panel of the experts was calculated.
- 8) The findings of calculation revealed that the grand mean score of IOC value was 1.00 (See Appendix O, table 5) which indicated that the critical reading achievement test was found effective. So, the critical reading achievement test was used without any adjustment.
- 9) The first trying out of 36 test items was administered with 50 students who participated in the pilot study. The data were analyzed by using computer program. For the degree of difficulty, the value which is less than 0.20 and more than 0.80 is deleted. For the discrimination power, the value which is less than 0.20 is deleted. The final result noted that the 24 test items were collected with the degree of difficulty ranged between 0.36-0.78 and the discrimination power value ranged between



0.23-0.88 (Kuder Richardson 20). Based on the appropriate value of the degree of the difficulty and the discrimination power, the 24-test items were selected.

10) The second trying out of the 24 test items was administered with 50 students who participated in the pilot study. The data were analyzed by using computer program. The reliability value was 0.83 (Kuder Richardson 20).

11) Based on this analysis, it was shown that the developed critical reading achievement test was qualifiable in assessing critical reading ability. Hence, the ready-to-use critical reading test was obtained.

Following are the details of the critical reading achievement test construction. Based on its natural of multiple choice question, it provides validity, reliability, efficacy and other benefits to the test. Because of this, multiple choice test was selected to be the critical reading achievement test of the current study.

Multiple choice test questions developed by the researcher were used to investigate critical reading which were categorized into three main skills and six subskills. The distribution of 24 items measuring three main skills with six subskills was shown in table 4.

Table 4: Distribution of items in the total three skills with six subskills

Main Skills	Subskills	Number of Items
Analysis	- distinguishing facts and opinions	4
	- making classifications	4
Synthesis	- making combinations	4
	- making predictions	4
Evaluation	- making priorities	4
	- making conclusion	4
Total		24

The construction of critical reading subskill test was developed through multiple choice questions to evaluate six subskills of critical reading. The



pretest and posttest were created to examine the achievement of students' critical reading ability as shown in table 5.

Table 5: Distribution of Items in the Critical Reading Subskills

Subskills	Pre-test	Post-test
1. Distinguishing		4
2. Classifying		4
3. Combining		4
4. Predicting		4
5. Prioritizing		4
6. Concluding		4
Total	24	24 Items

In conclusion, the achievement test of critical reading ability developed by the researcher consisted of three reading passages, three main skills, six subskills and twenty four multiple choice test items. This test was used for pretest and posttest. Two hours was used for the test.

#### 4.2.1.2 Students' attitude questionnaire

In order to elicit students' opinions towards the developed model, the researcher constructed questionnaire which was classified into two parts. The first part was concerned with students' information and the other part was about the information related to students' opinions towards the developed model which contained of a five-level Likert scale question (Likert, 1932) and open-ended questions.

The five levels were:

- 5 = strongly agree
- 4 = agree
- 3 = undecided
- 2 = disagree
- 1 = strongly disagree



The interpretation of the data:

4.21-5.00 = strongly agree

3.41-4.20 = agree

2.61-3.40 = undecided

1.81-2.60 = disagree

1.00-1.80 = strongly disagree

The following steps were employed to create the students' attitude questionnaire for eliciting students' opinions towards the developed model.

1. The objectives of the test based on the developed model were determined
2. The literature concerning the attitude questionnaire and research was studied.
3. The students' attitude questionnaire using a five-scale level question (Likert, 1932) (See Appendix D) was developed.
4. Evaluation form to examine the quality of the students' attitude questionnaire (See Appendix K) was developed.
5. The questionnaire and the evaluation form were submitted to the adviser and revised according to the adviser's suggestions.
6. The questionnaire and the evaluation form were provided to the panel of the experts for validating.
7. The questionnaire and the evaluation form were validated by the panel of the experts.
8. The IOC value (Turner & Carlson, 2003) was calculated using computer program based on the data received from the panel of the experts.
9. The findings of calculation revealed that the grand mean score of IOC value was 1.00 (See Appendix O, table 4) which indicated that the critical reading achievement test was acceptable. So, the students' attitude questionnaire was used without any change.
10. The questionnaire was administered with the 50 subjects who participated in the pilot study to find the reliability value using Cronbach' alpha coefficient (Cronbach, 1951) and the degree of discrimination power value using



Kuder-Richardson 20 (Kuder and Richardson, 1937). The data were analyzed by using computer program. The gained reliability value was 0.80 and the discrimination power ranged between 0.32-0.74. Hence, No item was revised or deleted. Based on this evidence, it could be claimed that the students' attitude questionnaire was acceptable and effective to be used in the real study.

#### 4.2.2 Qualitative instruments

The researcher created qualitative instruments which comprised teacher's journals and students' journals. The following were detailed information of qualitative instruments construction.

##### 4.2.2.1 Teacher's journals

The purpose of the teacher's journals was to record authentic learning situations which the journals were subdivided into two parts. The first was intended to record students' behaviors in the teaching stages (pre-while-post reading). The other part was designed to record students' ability in analysis, synthesis and evaluation. The information obtained through the two parts was used to support the data gained from other instruments to check the attitudes towards the instruction and to examine the effectiveness of the developed model. The processes to develop the teacher's journals and to examine its quality were taken step by step as follows.

1) The teacher's journal was developed based on the objectives of the developed model (See Appendix F).

2) The quality evaluation form for the teacher's journal which was consistent with the teacher's journal (See Appendix M) was created.

3) The teacher's journal and the quality evaluation form were submitted to the adviser and revised according to the suggestions of the adviser.

4) The teacher's journal and the quality evaluation form were validated by the panel of the experts.

5) The IOC value (Turner & Carlson, 2003) based on the information obtained from the experts was calculated using computer program.

6) The findings of IOC value indicated that the grand mean score of IOC value was 1.00 (See Appendix O, table 6). This could be claimed that the



developed teacher's journal was qualifiable. So, the teacher's journal was applied without any correction.

#### 4.2.2.2 Students' journals

To allow students to present their opinions and to review what they have learned from the instruction, the students' journal form was created to complete this goal. Students needed to write something to express what they had learned in each learning step (pre-while-post reading): activating, explicit learning, guided practicing, turn taking and independent practicing. Moreover, the journals allowed students to express their opinions towards what they learnt in each period and in overall situation. The processes to construct the students' journals and to investigate the quality of the students' journal were taken step by step as the following.

1) The students' journal was developed based on the objectives of the model (See Appendix G).

2) The quality evaluation form for the students' journal which was consistent with the students' journal (See Appendix N) was created.

3) The students' journal and the quality evaluation form were submitted to the adviser and revised according to the suggestions of the adviser.

4) The students' journal and the quality evaluation form were validated by the panel of the experts.

5) The IOC value (Turner & Carlson, 2003) based on the information obtained from the experts was calculated using computer program.

6) The findings of IOC value showed that the grand mean score of IOC value was 0.96 (See Appendix O, table 7). This could be reflected that the developed students' journal was acceptable. Therefore, the students' journal was employed without any amendment.

To conclude phase 1 of the research procedure, two stages were discussed. Stage 1 (documentary study) contained leaning theories and language theories. Stage two presented four main topics: (1) designing conceptual framework, (2) determining the elements of the model, (3) validating the model and manual, (4) developing and validating the instruments. The major purpose of this phase was to create instructional



model, instructional manual and instruments. The next step was to employ these instruments in phase 2 to evaluate the effectiveness of the developed model.

### **Phase 2: Evaluation of the effectiveness of the instructional model**

In this phase, there were two stages for evaluating the effectiveness of the model. The first stage (model experiment) was designed to investigate the effectiveness of the developed model conducted by the researcher. The second stage (model implementation) was administered to confirm the effectiveness of the developed model which was received from stage 1. This was conducted by another teacher. The following steps discussed their details.

#### Stage 1: Model experiment

The purpose of the model experiment aimed to find the effectiveness of the developed instructional model. Three major points were presented such as (1) conducting main study, (2) analyzing the effectiveness of the model and (3) analyzing students' attitudes. The effectiveness of the developed instructional model was proved through the triangulation of the critical reading achievement test, the students' attitude questionnaire, the teacher's journals and the students' journals. Details were presented in order as follows:

##### 1. Conducting main study

This study was carried out with an intact group of 50 students in the first semester of the academic year 2013 at Kalasinpittayasan school, Kalasin province, Thailand. The main study was conducted three times a week for 13 weeks (39 hours). The procedures in conducting the main study were composed of three steps: the pretest, the treatment and the posttest. The experimental procedures were shown in figure 5.





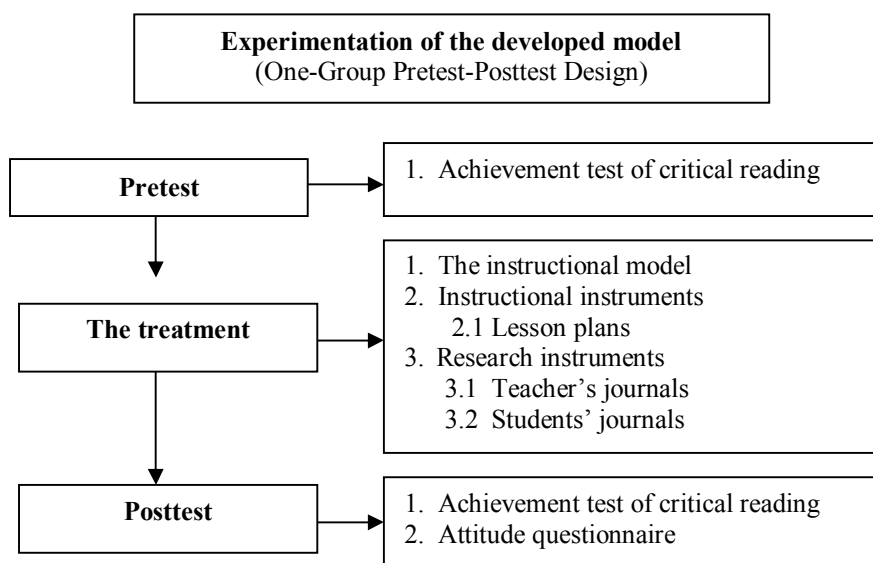


Figure 5: The experimental procedures

The figure showed that conducting main study involved three steps and the following discussed the details.

#### 1.1 Administering the pretest

At the beginning of the course, the pretest was conducted using multiple choice critical reading achievement test developed by the researcher to investigate the students' state of knowledge. It provided two hours for the students to complete the 24-test items focusing on assessing the ability in analysis, synthesis and evaluation. The gained quantitative data were analyzed to compare with the posttest score.

#### 1.2 Administering the treatment

The purpose of the treatment was to cultivate students how to use reciprocal teaching with metacognitive reading strategy to increase critical reading skills. The instructional processes contained three stages: (1) activating and explicit teaching; (2) guided teaching, modeling and transferring; and (3) independent practicing and mentoring. The learning activities were created based on the instructional processes. The instruction took 11 weeks (33 hours) with 11 lesson plans. To explore the productiveness of the instruction, the pretest-posttest method was employed.



### 1.3 Administering the posttest

At the end of the course, the posttest was administered using multiple choice critical reading achievement test developed by the researcher to examine the students' critical reading progress. It took two hours to complete the 24-test items focusing on assessing the ability in analysis, synthesis and evaluation. The obtained quantitative data were analyzed to compare with the pretest score to indicate the effectiveness of the developed instructional model.

### 1.4 Distributing the attitude questionnaire

At the end of the course, the students' attitude questionnaire was administered to examine students' opinions towards the model. The data were analyzed through quantitative and qualitative method.

In conclusion, the main study was administered in three steps: the pretest, the treatment and the posttest. The procedures of the treatment were presented as the following.

### 1.5 Procedures of the treatment

The procedures of the treatment were administered based on the instructional processes. In terms of the grouping of the students, the finding from the pilot study found that students preferred to arbitrarily form the group by themselves. They favored to stay with a group member who they were familiar with, because this made them feel more confident to share ideas. However, based on the researcher's observation, the students formed a group with a mixed ability. There were two or three more fluent students in each group to lead the conversation. Hence the contribution of running learning activities based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability was appropriate.

With regard to the time allotment, the students were asked to write the students' journals at the end of the class for five minutes to echo what they feel about the learning activities and review what they learnt . Also, the researcher recorded the teacher's journal to reflect the problem, the feasibility, students' progress, students' attitudes and classroom atmosphere.



To brief the main points of conducting main study, it was a kind of one-group pretest-posttest design. Pretest was executed using multiple choice critical reading achievement test. Later, the treatment was administered employing lesson plans, teacher's journals and students' journals to cultivate the critical reading ability. Finally, the posttest was carried out using multiple choice critical reading achievement test. In order to inspect the students' attitudes towards the developed model, the students' attitude questionnaire was conducted. The roadmap of conducting main study was in table 6.

Table 6: A summary of the overall processes of conducting main study

<b>Time</b>	<b>Topics to be conducted</b>
The first week	<ol style="list-style-type: none"> <li>1. Pretest: Critical reading achievement test</li> <li>2. Course description</li> <li>3. Concept mapping</li> <li>4. Sentence structure</li> </ol>
<b>Week 2-3</b> Stage 1: Activating, and explicit teaching	<ol style="list-style-type: none"> <li>1. Reciprocal teaching</li> <li>2. Metacognitive reading strategy</li> <li>3. Critical reading</li> </ol>
<b>Week 4-6</b> Stage 2: Guided teaching, modeling and transferring.	<ol style="list-style-type: none"> <li>1. Analysis: distinguishing and classifying</li> <li>2. Synthesis: combining and predicting</li> <li>3. Evaluation: prioritizing and concluding</li> </ol>
<b>Week 7</b>	A summary of stage 2 of analysis, synthesis and evaluation.
<b>Week 8</b>	Midterm examination
<b>Week 9-11</b> Stage 3: Independent practicing and mentoring	<ol style="list-style-type: none"> <li>1. Analysis: distinguishing and classifying</li> <li>2. Synthesis: combining and predicting</li> <li>3. Evaluation: prioritizing and concluding</li> </ol>
<b>Week 12</b>	A summary of stage 3 of analysis, synthesis and evaluation.
<b>Week 13</b>	<ol style="list-style-type: none"> <li>1. Posttest: Critical reading achievement test</li> <li>2. Attitude questionnaire</li> </ol>



The table shows that the pretest and course description were executed in the first week. In week 8, the midterm examination was carried out to check students' progress and problems. The last implementation was the posttest which occurred in week 13. The details of conducting main study were presented as the following.

### **Week 1: Lesson plan 1**

The main purposes of week 1 were to take a pretest, to introduce course description, to roughly teach concept mapping and sentence structure. The following were the details.

**In the first week (lesson plan 1)**, the introduction, the pretest, concept mapping and sentence structure were presented. The introduction of the course was presented using course description. The pretest was administered using multiple choice critical reading achievement test. The sentence structure was taught roughly to activate the students' schema about how to read sentences. Moreover, the concept mapping was directly discussed to prepare students for reading critically. Hence, in this section, there were four topics to be discussed: pretest, course description, concept mapping and sentence structure.

#### **1. Pretest**

As this study was of the one-group pretest-posttest design, the pretest was administered at the first stage of the study to gain quantitative data. The pretest was conducted using multiple choice critical reading achievement test developed by the researcher which consisted of 3 reading passages and 24 items. These items focused to examine six subskills of critical reading.

#### **2. Course description: Critical Reading Course**

This course (Critical reading) is designed for higher secondary school students. Its goals are to help students enhance critical reading abilities (analysis, synthesis and evaluation). The teacher will use several methods to accomplish the goals of this course. First, via activating and explicit teaching, The teacher shall teach new knowledge and helps students link old knowledge with the new ones. Additionally, guided teaching, modeling and transferring will be employed to exhibit students how to obtain critical reading skills. Finally, students will be allowed to practice freely in a



group of five about the learning activities to gain higher critical reading skills. By actively participating in a group discussions, students will sharpen your own insights and master the learning strategies to become critical autonomous readers. The course provides 11 lesson plans with 14 reading passages to shape up students' critical reading skills: distinguish fact or opinion, classifying, combining, predicting, prioritizing and concluding. The details of each passage are presented:

Passage 1: Floodwaters

For studying distinguishing facts or opinions and classifying (in class).

Passage 2: TV and Video

For studying distinguishing facts or opinions and classifying skill(homework).

Passage 3: Egypt :

For studying combining and predicting skill (in class)

Passage 4: Music :

For studying combining and predicting skill (homework).

Passage 5: Iwao

For studying prioritizing and concluding skill (in class).

Passage 6: Sparrows

For studying prioritizing and concluding skill (homework).

Passage 7: Warmer weather

For reviewing distinguishing, classifying, combining, predicting, prioritizing and concluding skill (in class).

Passage 8: Grazing

For independent studying distinguishing and classifying skill (in class).

Passage 9: Piranhas

For independent studying distinguishing and classifying skill (homework).

Passage 10:Transportation

For independent studying combining and predicting skill (in class).

Passage 11: Children

For independent studying combining and predicting skill (homework).

Passage 12: Mediterranean

For independent studying prioritizing and concluding skill (in class).



Passage 13: Chinese statue

For independent studying prioritizing and concluding skill (homework).

Passage 14: DDT

For reviewing independent studying distinguishing, classifying, combining, predicting, prioritizing and concluding skill (in class).

**Please note:** All students are required to read all passages and do all activities in the lesson plans.

### **3. Concept mapping**

#### **What, why and how concept mapping?**

##### **What concept mapping?**

A concept mapping is a diagram that explains relationships between concepts used to organize and structure knowledge from what being read. A concept map typically represents ideas and information. A concept map is a way of representing relationships between ideas, or words in the same way that a sentence diagram represents the grammar of a sentence, or a road map represents the locations of highways and towns. In a concept map, each word or phrase connects to another and links back to the original idea, word, or phrase. Concept maps are a way to develop logical thinking and study skills by revealing connections and helping students see how individual ideas form a larger whole. Concept maps are applied to enhance meaningful learning in the language learning.

##### **Why concept mapping?**

Concept maps are used to stimulate the generation of ideas and are believed to aid critical reading. Concept mapping is also sometimes used for brain-storming and reading. Concept maps are widely used in education to:

1. Take note and summarize key concepts, their relationships and hierarchy from documents and source materials.
2. Create new knowledge: e.g., transforming tacit knowledge into an organizational resource, mapping team knowledge.
3. Design instruction: concept maps used as "advance organizers" that provide an initial conceptual frame for subsequent information and learning.
7. Increase meaningful learning for example through writing activities where concept maps automatically generated from an essay are shown to the writer.



8. Communicate complex ideas and arguments.

9. Detail the entire structure of an idea, train of thought, or line of argument (with the specific goal of exposing faults, errors, or gaps in one's own reasoning) for the scrutiny of others.

10. Enhance metacognition (learning to learn and thinking about knowledge)

11. Improve language ability.

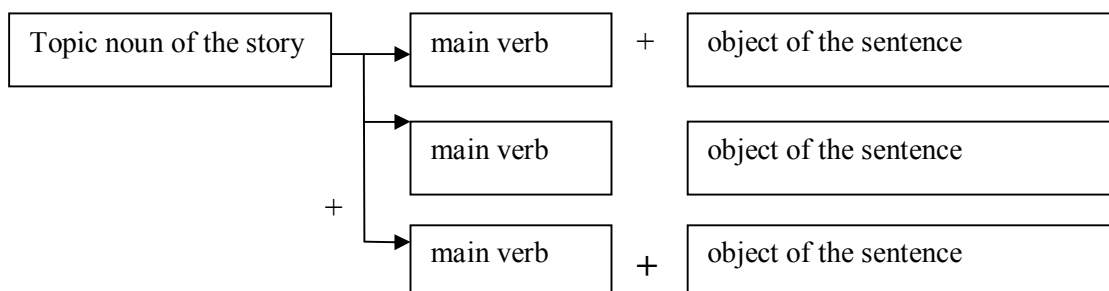
### How to use concept mapping.

As the concept mapping is not a sentence used to organize, summarize, create and link knowledge from what being read. When making concept mapping, students are to follow these ways:

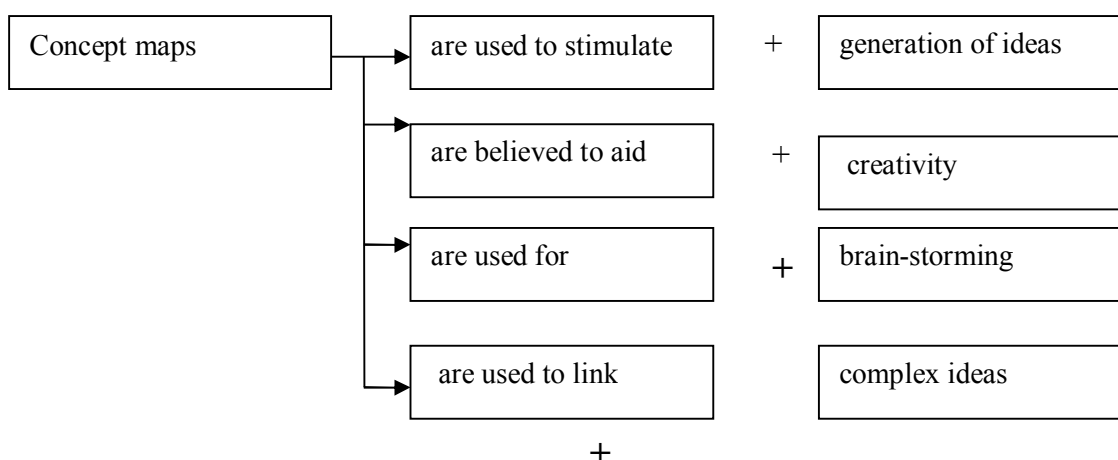
1. Find the topic nouns of the passage and write it at the left side of the paper.

2. Find the main verbs and objects of each sentence, then write them after the topic noun written before.

3. The diagram of making concept mapping would be like this:



### For example



#### 4. Sentence structure

Sentence structure were depicted in the textbook of sentence structure developed by the researcher. The main purpose of studying sentence structure is to classify main part and modifiers of the sentence and to find main idea and supporting details of the reading passage.

Sentence structure is explained roughly in the following.

1. Normally, sentence consists of Subject +Verb+Object.
2. So, the main idea of the sentence is composed of Subject +Verb+Object.
3. The sentence is longer because it has modifiers.
4. There are two kinds of modifiers: phrases and clauses.
5. There are 4 kinds of phrases:
  1. Present participial phrase
  2. Past participial phrase
  3. Prepositional phrase
  4. Appositive phrase
6. They are 2 kinds of clauses:
  1. General form of clause
  2. Appositive clause
7. The elements of general form of clause consist of :  
Clause marker + Subject +Verb+Object.
8. Form of appositive clause is:
  - ....., ...appositive clause..... ,.....
  - .....: ...appositive clause..... : .....
  - .....; ...appositive clause..... ; .....
  - .....- ...appositive clause..... - .....

**Please note:** All students are required to study sentence roughly in the textbook of sentence structure before studying critical reading in details.

To summarize the first week activities, the introduction of the course was presented and the pretest was conducted using the multiple choice critical reading achievement test to get scores identifying students' critical reading ability for





comparing with posttest to show the effectiveness of the developed model. Moreover, how to analyze sentence structure and concept mapping were introduced as well.

### **Week 2-3: Lesson plan 2-3**

The purposes of week 2-3 activities were to carry out the stage 1 of the instructional processes: activating and explicit teaching. This stage was designed based on the instructional processes of the developed model which consisted of three stages: (1) activating and explicit teaching, (2) guided teaching, modeling and transferring and (3) independent practicing and mentoring. The key concept of stage 1 was to activate the prior knowledge of the students and directly teach them new ones. The designed activities were as follows:

#### **Stage 1: Activating and explicit teaching**

The main purpose of this stage was to encourage students to activate or connect prior knowledge in order to prepare them for learning new knowledge which related to using reciprocal teaching strategies with metacognitive reading strategies to increase critical reading ability. In addition, this stage aimed at teaching explicitly about the reading strategies. The teacher separately and holistically demonstrated the use of four reciprocal teaching activities and three metacongitive reading strategies, explaining what they were and how to use them increasing desired critical reading aspects. Besides, critical reading skills based on analysis, synthesis and evaluation skills were directly taught.

In terms of activating prior knowledge, the connection was made before, while and after reading. Before reading, the teacher told the students about what would be going on next in the study to help students think in advance of the study. During reading, teacher encouraged students to link the background to the current lessons and foster students to connect the knowledge themselves. After reading, the discussion, summarization and writing journal were used to gain deeper understanding and to internalize the learned knowledge.

During two weeks with six periods for activating and explicit teaching, the teacher stimulated students' background knowledge and explicitly taught what is reciprocal teaching strategies and what is metacognitive reading strategies and then



modeled how to summarize the text, ask question, clarify the unclear words/ phrases and sentences and modeled how to predict the next scene of the text. Moreover, the teacher taught how to plan, monitor and evaluate to use four reciprocal teaching strategies to acquire the desired critical reading skills. The expected goal of stage 1 was that students gained essential knowledge for learning in stage 2.

#### **Week 4-6: Lesson plan 4-6**

The objective of week 4-6 was to conduct the stage 2 of the instructional processes: guided teaching, modeling and transferring. This stage was formulated concerning the instructional processes of the developed model which contained three stages: (1) activating and explicit teaching, (2) guided teaching, modeling and transferring and (3) independent practicing and mentoring. The major concept of stage 2 was that the teacher had to guide and model how to run the learning activities for students. When the students made progress, the teacher gradually transfer responsibility to students. The following were the contribution of stage 2.

#### **Stage 2: Guided teaching, modeling and transferring**

At this stage, students worked in a group of five and the teacher as the learning leader modeled the learning processes, encouraged students to practice the previously learned strategies and guided the learning procedures according to using reciprocal teaching strategies with metacognitive reading strategies to achieve critical reading skills: analysis, synthesis and evaluation. Students were asked to form a group arbitrarily. They were designated to act as a group leader, a predictor, a clarifier, a questioner and a summarizer. Each day a new role would be assigned interchangeably. They practiced how to use four strategies of reciprocal teaching and how to employ three metacognitive reading strategies to gain critical reading skills. While students were practicing, the teacher provided help and gave feedback. The teacher assessed the development of the students' progress. When students mastered the procedures, the teacher gradually removed the guidance and transferred the responsibility. On the other hand, students slowly increased the responsibility and finally, became autonomous critical readers.



To sum up, in guided teaching, modeling and transferring stage, the teacher modeled how to learn through the instructional processes and students were directed to practice the strategies under the guidance of the teacher. When students faced difficulties, teacher provided hints and assessed the development. If students were able to handle the situations freely, the teacher would withdraw aids and allow students to experience designed tasks independently. The desired goal of stage 2 was that students were able to conduct learning activities in a group under the assistance of the teacher and gained advanced to practice autonomously ready for learning in stage 3.

**Week 7: Lesson plan 7: A summary of stage 2 of analysis, synthesis and evaluation**

The purpose of this week was to help students make sure about how to use reciprocal teaching with metacognitive reading strategy to study critical reading skills: analysis (distinguishing facts or opinions and classifying); synthesis (combining and predicting); and evaluation (prioritizing and concluding). Students were designed to sit in a group of five to accomplish freely the demanded tasks. The teacher observed and assessed the students' ability. When found that they mastered the learning processes, the learning activities were moved to stage 3 of the instructional processes: independent practicing and mentoring.

**Week 8: Midterm examination**

The purposes of this week were to assess students' critical reading progress and investigate the unexpected problems.

**Week 9-11: Lesson plan 8-10**

The aims of week 9-11 were to administer the stage 3 of the instructional processes: independent practicing and mentoring. This stage was created pertaining to the instructional processes of the developed model which comprised three stages: (1) activating and explicit teaching, (2) guided teaching, modeling and transferring and (3) independent practicing and mentoring. The key concept of stage 3 was that the teacher allowed the students practice learning activities freely in a group, while the teacher observed and provided aids if necessary. Stage 3 was exhibited as the following.



### Stage 3: Independent practicing and mentoring

Students were asked to formulate a group of five arbitrarily. They worked in a group of five independently. One of the group member was assigned the teacher role to lead the reading processes. In general, the students in the group would be designated to run the role of a conversation leader, a prediction generator, a question creator, a clarifier and a summarizer, severally. The conversation leader was responsible for running group discussion; the prediction generator was to make prediction about the text; the questions of the text were raised by question creator; the clarifier tried to find the ways to answer the questions; and the summarizer made a summary about the discussion topic of the text. While the tasks were carried out, the roles of each member were switched interchangeably. The following were the specific steps of using reciprocal teaching strategies with metacognitive reading strategies to increase critical reading ability: analysis, synthesis and evaluation.

In a group of five, each student was assigned to act as a learning leader, a predictor, a questioner, a clarifier and a summarizer, consecutively.

The group leader asked the group members to **plan** for the reading by questioning what were the purposes of the reading to be discussed: the reading goals such as: analysis (distinguishing, classifying), synthesis (combining, predicting) and evaluation (prioritizing, concluding)

1. After getting the goal of the reading to be discussed such as “distinguishing facts or opinions”, the leader asked the member who acted as a **predictor** to **predict** the fact and the opinion from the content through the information available: title, subtitle, topic noun, pictures and graph. Likewise, the leader asked the members to **monitor** the correctness of the prediction.

2. The group leader asked the member who acted as the **questioner** to generate the questions concerning the purposes of the reading. Then, the leader asked the members to **monitor** the results of questioning by considering to reject or accept the questions.

3. The leader asked the member who acted as a clarifier to **clarify** the discussed question (desired reading goal) by using learning instrument such as



dictionary, internet, textbook. In addition, the leader asks the members to **monitor** the clarifying results.

4. After clarifying, the group leader asked the member who acted as a **summarizer** to summarize the results of reading whether it was accomplished according to the desired reading goals and asked the member to **monitor** the summarizing by checking the correctness of the summarization. Finally, the leader **evaluated** the summation to see whether it was the most appropriate answer to the desired reading goal. If it did not achieve the demanded reading goal, the group discussion would be back to the first stage and start discussion to find the most suitable answer of the desirable goal.

When the teacher found that the students were able to work in group autonomously, the next step was to ensure the students' learning progress and gradually withdrawn the assistance. The students took turns to perform each role interchangeably. Especially, the group leader asked one another to take a prediction, classification, questions and summarization and asked the other members of the group to confirm or reject what one said. The members actively shared experiences through the reading stages to increase critical reading skills.

#### **Week 12: A summary of stage 3 of analysis, synthesis and evaluation.**

The purpose of this week was to ensure that students achieved critical reading skills through the designed instructional processes. The learning activities throughout the course were aimed to help students enhance critical reading abilities: analysis (distinguishing facts or opinions and classifying); synthesis (combining and predicting); and evaluation (prioritizing and concluding). At this week, the teacher summarized the whole processes to students and let them ask the faced problems. Additionally, students had to practice relaxedly learning activities in a group to make sure that they gained deeper understanding and were able to level up their critical reading ability.

To brief stage 3, the demanded goal of this stage was to let students practice learning activities independently to improve critical reading ability. They worked in a group using conversation skills to complete the tasks. They exchanged taking the roles of a group leader, a predictor, a clarifier, a questioner and a summarizer. Following the



instructional processes and running learning activities were able to help them become autonomous critical reader.

**Week 13: Conducted posttest and attitude questionnaire.**

At week 13 of the study, the posttest was conducted through the multiple choice critical reading achievement test to gain scores to compare with the pretest scores. Not only the achievement test, but also the attitude questionnaire was administered. The quantitative data were analyzed by computer program and the qualitative data were analyzed by means of content analysis.

To summarize conducting main study, at the beginning, the pretest was conducted to gain the state of knowledge. Then the treatment was administered for 11 weeks to help students increase critical reading ability. Finally, the posttest was executed to investigate the students' critical reading achievement. Also, the students' attitude questionnaire was distributed to elicit students' opinions towards the developed model. The instructional procedures of the main study was based on the instructional processes which explained the roles of the teacher and the roles of the students in each instructional stage. The following table showed a summary of the instructional procedures.

Table 7: A summary of the instructional procedures based on the instructional processes

<b>Stage 1: Activating and explicit teaching</b>		
Instructional process	Teacher' roles	Students' roles
<b>Before reading</b> (The purpose of this stage is to directly teach reciprocal teaching, metacognitive reading strategy and critical reading.	1. Teach students about what would be going on next in the study: learned explicitly about reciprocal teaching, metacognitive reading strategy and critical reading ability. 2. Teach students concept mapping and sentence structure.	1. Learn directly about what the teacher taught.



Table 7 (continues)

Instructional process	Teacher' roles	Students' roles
<p><b>During reading</b></p> <p>(The purpose of this stage is to prepare students for the new lesson)</p>	<ol style="list-style-type: none"> <li>1. Encourage students to link the background knowledge to the current lessons: reciprocal teaching, metacognitive reading strategy and critical reading skills.</li> <li>2. Foster students connect the knowledge themselves.</li> <li>3. Guide how to conduct concept mapping.</li> <li>4. Guide how to find main idea of the sentence</li> </ol>	<ol style="list-style-type: none"> <li>1. Study individually what the teacher taught with attention.</li> </ol>
<p><b>After reading</b></p> <p>(The purpose of this stage was to teach how to make use of discussing, summarizing and writing journals)</p>	<ol style="list-style-type: none"> <li>1. Use discussing, summarizing and writing journal to help students gain deeper understanding about reciprocal teaching and metacognitive reading strategy and to internalize the learned knowledge.</li> <li>2. Guide how to conclude what have read.</li> </ol>	<ol style="list-style-type: none"> <li>1. Attentively follow what the teacher has lectured.</li> </ol>



Table 7 (continues)

<b>Stage 2: Guided teaching, modeling and transferring</b>		
Instructional process	Teacher' roles	Students' roles
	<ol style="list-style-type: none"> <li>1. Model</li> <li>2. Encourage</li> <li>3. Guide</li> <li>4. Provide help</li> <li>5. Give feedback</li> <li>6. Assess students' progress</li> <li>7. Remove help</li> </ol>	<ol style="list-style-type: none"> <li>1. Act as a group leader, a predictor, a clarifier, a question creator and a summarizer interchangeably.</li> <li>2. Practice according to the guidance.</li> <li>3. Exchange the roles.</li> <li>4. Gain advanced.</li> <li>5. Increase responsibility.</li> </ol>
<p><b>Before reading</b></p> <p>(The purpose of this stage is to guide the use of two reading strategies: planning and predicting.)</p>	<ol style="list-style-type: none"> <li>1. Model how to <b>plan</b> for reading by <b>questioning</b> what is the purpose of reading to be discussed such as to distinguish facts or opinions.</li> <li>2. Model how to <b>predict</b> the passage based on the reading purpose (distinguishing facts or opinions), for example: <ul style="list-style-type: none"> <li>- To predict true or false.</li> <li>- To predict topic noun of the story.</li> <li>- To predict the tone of the story</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Learn directly how to use planning to set reading goals and predicting to foretell about the story.</li> </ol>





Table 7 (continues)

<b>Stage 2: Guided teaching, modeling and transferring</b>		
Instructional process	Teacher' roles	Students' roles
<p><b>During reading</b> (After getting the purpose of the reading, the aim of this stage is to guide the use of predicting, questioning, clarifying and monitoring.)</p>	<ol style="list-style-type: none"> <li>1. Ask the predictor to predict what will be happened next in the text and ask the other members to monitor the predicting by considering to reject or accept the predicting.</li> <li>2. Ask the questioner to question the unknown words, phrases and sentences. Ask the others to monitor by considering to support or reject the questions.</li> <li>3. Ask the clarifier to answer the asked questions and ask the others to monitor by checking the correctness of the answers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Learn how to make use of predicting, clarifying, and monitoring to develop critical reading skills with attention.</li> <li>2. Practice the use of reading strategies in accordance with the teacher's guidance.</li> </ol>
<p><b>After reading</b> (The purpose of this stage is to guide the use of two reading strategies: summarizing and evaluating.)</p>	<ol style="list-style-type: none"> <li>1. Ask the summarizer to summarize the goals of reading such as distinguish facts or opinions) and ask the other to monitor the summarizing by examining whether the summarization is correct.</li> <li>2. Ask all of the members of the group to evaluate the final results of the reading purpose (distinguish facts or opinions) by inspecting if the reading goal has been successful.</li> </ol>	<ol style="list-style-type: none"> <li>1. Learn attentively how to make use of summarizing, and monitoring to develop critical reading skills.</li> <li>2. Practice the use of reading strategies in accordance with the teacher's guidance.</li> <li>3. Gradually increase responsibility.</li> </ol>



Table 7 (continues)

<b>Stage 3: Independent practicing and mentoring</b>		
Instructional process	Teacher' roles	Students' roles
	<ol style="list-style-type: none"> <li>1. Mentoring</li> <li>2. Observing the practicing.</li> <li>3. Providing help if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. Select a group leader.</li> <li>2. Act as a group leader, a predictor, a clarifier, a questioner and a summarizer interchangeably.</li> <li>3. Practice how to make use of reciprocal teaching with metacognitive reading strategy to improve critical reading skills.</li> <li>3. Exchange the roles.</li> <li>4. Gain advanced.</li> <li>5. Increase responsibility.</li> <li>6. Become autonomous critical readers.</li> </ol>
<p><b>Before reading</b></p> <p>(The purpose of this stage is to practice the use of two reading strategies: planning and predicting.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using planning and predicting.</li> <li>2. Observe the practicing</li> <li>3. Provide help if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. The group leader asks the group members to <b>plan</b> for reading by <b>questioning</b> what is the purpose of reading to be discussed such as to distinguish facts or opinions.</li> <li>2. The group leader asks the predictor to <b>predict</b> the passage based on the reading purpose (distinguishing facts or opinions), for example: <ul style="list-style-type: none"> <li>- To predict true or false.</li> <li>- To predict topic noun of the story.</li> <li>- To predict the tone of the story</li> </ul> </li> </ol>



Table 7 (continues)

<b>Stage 3: Independent practicing and mentoring</b>		
Instructional process	Teacher' roles	Students' roles
<p><b>During reading</b></p> <p>(After getting the purpose of the reading, the aim of this stage is to practice the use of predicting, questioning, clarifying and monitoring.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using predicting, questioning, clarifying, and monitoring.</li> <li>2. Observe the practicing</li> <li>3. Provide help if needed.</li> </ol>	<ol style="list-style-type: none"> <li>1. The group leader asks the <b>predictor</b> to <b>predict</b> what will be happened next in the text and asks the other members to <b>monitor</b> the predicting by considering to reject or accept the predicting.</li> <li>2. The group leader asks the <b>question creator</b> to <b>question</b> the unknown words, phrases and sentences and asks the others to <b>monitor</b> by considering to support or reject the questions.</li> <li>3. The group leader asks the <b>clarifier</b> to answer the asked questions and asks the others to <b>monitor</b> by checking the correctness of the answers.</li> </ol>
<p><b>After reading</b></p> <p>(The purpose of this stage is to practice the use of two reading strategies: summarizing and evaluating.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using summarizing, and evaluating.</li> <li>2. Observe the practicing</li> <li>3. Provide help if necessary.</li> </ol>	<p>The group leader has to:</p> <ol style="list-style-type: none"> <li>1. Ask the <b>summarizer</b> to summarize the goals of reading such as distinguishing facts or opinions and ask the others to <b>monitor</b> the summarizing by examining whether the summarization is correct.</li> <li>2. Ask all of the members of the group to <b>evaluate</b> the final results of the reading purpose (distinguishing facts or opinions) by inspecting if the reading goal has been successful.</li> </ol>



This table showed the instructional procedures about how to use reciprocal teaching strategies (predicting, questioning, clarifying and summarizing) with metacognitive reading strategies (planning, monitoring and evaluating) to enhance critical reading skills (analysis, synthesis and evaluation). The procedures consisted of three instructional processes including stage 1(activating and explicit teaching); stage 2 (guided teaching, modeling and transferring); and stage 3 (independent practicing and mentoring). The instructional procedures mainly focused on how to scaffold students at the beginning of the study and gradually transfer responsibility to students. Finally, students were able to conduct the learning strategy to enhance critical reading ability by themselves.

In order to make use of the developed model and the instructional processes, the course schedule of the teaching was developed as a roadmap for the instruction. The course takes 39 periods ( 50 minutes for one period), 13 weeks to conduct the instruction. There are 11 lesson plans and 14 reading passages used to improve critical reading skills. The course schedule of the main study was displayed in table 8.

Table 8: Course schedule of the main study

time		Activities	Instruments	Objectives
Week	hour			
1	1	<b>Introduction</b>	<b>Lesson plan 1</b> Sheets of - Course description - Concept mapping content - Sentence structure content	- Introduce instructional program. - Directly teach about sentence structure roughly. - Explicitly teach concept mapping.
	2	<b>Pretest</b>	Achievement test	To gauge students' ability at the beginning of the course.
2	3	<b>Stage 1 :</b> Activating and explicit teaching  (Pre-While-Post)	<b>Lesson plan 2</b> Sheets of : - Reciprocal teaching - Metacognitive reading strategy	- To directly teach students reciprocal teaching strategies and metacognitive reading strategies. - To guide how to administer concept map, to find main idea of the sentence and to capture main idea of the passage.



Table 8 (continues)

time		Activities	Instruments	Objectives
Week	hour			
3	3	<p><b>Stage 1 :</b> Activating and explicit teaching</p> <p>(Pre-While-Post)</p>	<p><b>Lesson plan 3</b> Sheet of critical reading</p>	<p>- To directly teach students critical reading skills: analysis; (distinguishing fact/opinion and classifying); synthesis (combining and predicting); and evaluation (prioritizing, and concluding).</p> <p>- To guide how to administer concept mapping, to find main idea of the sentence and to capture main idea of the passage.</p>
4	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring</p> <p>(Pre-While-Post)</p>	<p><b>Lesson plan 4</b> <b>In class</b> Passage 1: Floodwaters <b>Homework</b> Passage 1: TV and Video</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills: (analysis: distinguishing fact/opinion and classifying) through group working</p>
5	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring</p> <p>(Pre-While-Post)</p>	<p><b>Lesson plan 5</b> <b>In class</b> Passage 1: Floodwaters Passage 2: Egypt <b>Homework</b> Passage 1: TV and Video Passage 2: Music</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (Synthesis: combining, predicting) through group working</p>
6	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring</p> <p>(Pre-While-Post)</p>	<p><b>Lesson plan 6</b> <b>In class</b> Passage 1: Floodwaters Passage 2: Egypt Passage 3: Iwao <b>Homework</b> Passage 1: TV and Video Passage 2: Music Passage 3: Sparrows</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (Evaluation: prioritizing and concluding) through group working</p>



Table 8 (continues)

time		Activities	Instruments	Objectives
Week	hour			
7	3	<b>Stage 2 :</b> Guided teaching, modeling and transferring  (Pre-While-Post)	<b>Lesson plan 7</b> <b>In class</b> Passage 1: Floodwater Passage 2: Egypt Passage 3: Iwao Passage 4: Warmer weather	To summarize how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (analysis, synthesis and evaluation) by learning under the helps of teacher.
8	3	<b>Midterm examination</b>	<b>Formative assessment</b>	To assess the development of students
9	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 8</b> <b>In class</b> Passage 1: Grazing <b>Homework</b> Passage 1: Piranhas	To practice questioning, predicting, clarifying and summarizing with planning, monitoring and evaluating to gain critical reading skills: analysis (distinguishing fact/opinion and classifying) through group working.
10	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 9</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation <b>Homework</b> Passage 1: Piranhas Passage 2: Children	To practice questioning, predicting, clarifying and summarizing with planning, monitoring and evaluating to gain critical reading skills: synthesis (combining, predicting) through group working.
11	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 10</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation Passage 3: Mediterranean	To practice questioning, predicting, clarifying and summarizing with planning, monitoring and evaluating to gain critical reading skills: evaluation (prioritizing and concluding) through group working.
12		<b>Stage 3:</b> Independent practicing and mentoring (Pre-While-Post)	<b>Lesson plan 11</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation Passage 3: Mediterranean Passage 3: DDT	To summarize how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (analysis, synthesis and evaluation) by practicing independently in group.
13	2	Post test	Achievement test	To gauge students' ability at the end of the course.
	1		Attitude questionnaire	To investigate opinions towards the model.



### Summary of the components of the instruction

#### 1. Purpose of the instruction:

To increase critical reading ability: analysis, synthesis and evaluation.

#### 2. Text:

2.1 14 expository reading passages.

2.2 8 passages for teaching in class.

2.3 6 passages for homework.

#### 3. Time:

3.1 13 weeks: 39 periods.

3.2 3 periods for introduction and pretest.

3.3 2 periods for posttest.

3.4 2 periods for midterm examination.

3.5 32 periods for the instruction.

#### 4. Materials and instruments

4.1 Sheets of reciprocal teaching strategy-based contents.

4.2 Sheets of metacognitive reading strategy-based contents.

4.3 Sheets of critical reading skills-based contents.

4.4 Expository reading passages based on critical reading skills.

#### 5. Instructional processes:

5.1 Stage 1 : Activating and explicit teaching

5.2 Stage 2: Guided teaching, modeling and transferring.

5.3 Stage 3: Independent practicing and mentoring

These instructional stages were conducted using pre-while-post reading stages.

### 4. Data collection

The collection of quantitative and qualitative data would be based on the research questions as follows:

**Research question 1:** What are the components of instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students?



The data to answer this question are from the elements of the developed model.

**Research question 2:** Does the instructional model of reciprocal teaching with metacognitive reading strategy enhance critical reading ability? If so, how?

The data to examine if reciprocal teaching with metacognitive reading strategy enhances critical reading ability are from the outcomes of pretest and posttest of achievement critical reading test developed by the researcher and from students' attitude questionnaire, teacher's journals and students' journals.

**Research question 3:** What are the students' attitudes towards the developed critical reading model?

The attitude questionnaire for checking students' opinions or feelings towards the developed model was used to complete this task. The questionnaire was developed by the researcher. In addition, teacher's journals and students' journals were used in this task as well.

To summarize conducting main study, this section presented four topics: (1) administering the pretest; (2) administering the treatment; (3) administering the posttest; and (4) distributing the attitude questionnaire. The purpose of conducting main study was to investigate the effectiveness of the developed model. The instruments comprised multiple choice critical reading achievement test, lesson plans, teacher's journals, students' journals and students' attitude questionnaire. The analysis of the quantitative and qualitative data were discussed in the next section.

## 2. Analyzing the effectiveness of the model

In order to determine the effectiveness of the developed instructional model, the quantitative and the qualitative data collected from the conducting main study were used to complete this task. The results from critical reading test, students' attitude questionnaire, teacher's journals and students' journals were considered to reflect the effectiveness of the developed model. An analysis of the instruments was presented into three stages.





### 2.1 Critical reading test

In order to evaluate the effectiveness of the developed model, the dependent sample t-test and gained score analysis were used to analyze quantitative data from critical reading test. The dependent sample t-test was employed to compare the mean score of the pretest and posttest. The gained score analysis was utilized to reflect the level of the critical reading development. The findings from the dependent sample t-test and gained score analysis determined the effectiveness of the developed model.

### 2.2 Students' attitude questionnaire

To analyze the attitude questionnaire to echo the effectiveness of the developed model, the descriptive statistics (mean and standardize deviation) and content analysis were used to support the findings from the critical reading test.

### 2.3 Teacher's journals and students' journals

The teacher's journals and the students' journals were formed to assess the students' critical reading improvement and their opinions towards the developed model. The obtained data were analyzed to prove the effectiveness of the model using content analysis.

## 3. Analyzing students' attitudes

Students' attitudes played important roles in reading improvement (Nation, 2009). Because of this reason, the students' attitudes towards the developed model were considered to reflect the effectiveness of the model. The instruments used to capture the students' attitudes were the attitude questionnaire, the teacher's journals and the students' journals.

### 3.1 Attitude questionnaire

The students' attitude questionnaire developed by the researcher was divided into two parts. The first part was designed using a five-point Likert scale (Likert, 1932) to elicit students' opinions towards the developed model. For the second part, it was open-ended question to let students express their attitudes through writing what they thought. The data received from the first part (the quantitative data) were analyzed by means of mean and standardize deviation. For the second part (qualitative data), content analysis was employed for the open-ended part.



### 3.2 Teacher's journals and students' journals

The teacher's journals and the students' journals were provided to collect students' attitude towards the developed model. The teacher's journals were created to record students' behaviors, feelings and learning atmosphere while learning. For the students' journals, it was developed to let students express their thoughts about the learning activities. The data gained from these instruments were analyzed by means of content analysis.

To sum up stage 1 (model experiment) of the phase 2 (evaluation of the effectiveness of the instructional model), the purpose of this stage was to investigate the effectiveness of the developed model. The one-group pretest-posttest design was created to conduct main study which consisted of the pretest, the treatment and the posttest. The multiple choice critical reading achievement test developed by the researcher was utilized to conduct the pretest and the posttest. In terms of the treatment, the lesson plans, the teacher's journals and the students' journals were applied to teach students and collect data. The data gained from the main study were analyzed by means of quantitative and qualitative method. The findings from the data analysis were considered to determine the effectiveness of the model in stage 1: model experiment. In order to confirm the obtained effectiveness of the model, the stage 2 (model implementation) was carried out by the another teacher.

#### Stage 2: Model implementation

The purpose of conducting model implementation was to confirm the effectiveness of the instructional model gained from stage 1 (model experiment). The model experimental stage was carried out by the researcher to investigate the effectiveness of the developed model, while the model implementation stage was contributed by the another teacher to confirm the obtained effectiveness of the model. Three topics such as (1) preparing for the implementation; (2) administering the implementation; and (3) analyzing the effectiveness of the model were discussed at this stage.



## 1. Preparing for the implementation

In order to prepare for the readiness of the implementation, the population and samples; and the instructional manual were put in order for the researcher.

### 1.1 Population and samples

This study was conducted in Thailand. The student populations were higher secondary school students of the Office of the Basic Education Commission of the Ministry of Education. Kalasinpittayasan school was conveniently selected as the research site since this school had provided English reading courses for 11st- grade students. The researcher asked for permission from the school director to conduct the study through formal letters that included the proposal of the research. The school director officially approved this permission and allowed the researcher to conduct the study in the second term of the academic year 2013.

The samples of the study were fifty eleventh graders and all of them were native Thai speakers. They were chosen through purposive sampling.

#### Confidentiality of the Participants and of their Responses

The participants were asked to use code numbers instead of their real names to identify themselves on the experiment. After the completion of the study, the personal information were demolished immediately.

The confirmation of the effectiveness was constructed through presenting the developed model to another teacher to use it in different environment. The implementation stage of the developed model was carried out for three periods a week during 8.30 a.m. to 16.30 p.m. In total, the actual experiment hours were 39 hours.

### 1.2 Instructional manual

This instructional manual of the developed instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students was designed to provide the teacher with how to use the developed model effectively and to offer suggestions about activities that could be significantly performed within the classroom setting. Thus, the purposes of the manual were to allow teacher to bring information about enhancing critical reading to students in an interactive, effective and interesting manner. The teacher's manual comprises the following components.



- 1) Theoretical framework of the instructional model based on reciprocal teaching with metacognitive reading strategy.
- 2) Objectives of the instructional model based on reciprocal teaching with metacognitive reading strategy.
- 3) Instructional procedures and course schedule of the instructional model based on reciprocal teaching with metacognitive reading strategy.
- 4) Roles of teachers and students.
- 5) Assessment of the instructional model based on reciprocal teaching with metacognitive reading strategy.
- 6) Guidelines of the instructional model based on reciprocal teaching with metacognitive reading strategy.
- 7) General aspects of the instructional model based on reciprocal teaching with metacognitive reading strategy.

The detailed information about the instructional manual was displayed in appendix B.

## 2. Administering the implementation

The model implementation was administered with an intact group of 50 students by another teacher in the second semester of the academic year 2013 at Kalasinpittayasan school, Kalasin province, Thailand. The research method was one-group pretest-posttest design. The procedures in carrying out the model implementation comprised three steps: the pretest, the treatment and the posttest. The experimental procedures of the model implementation were exhibited in figure 6.



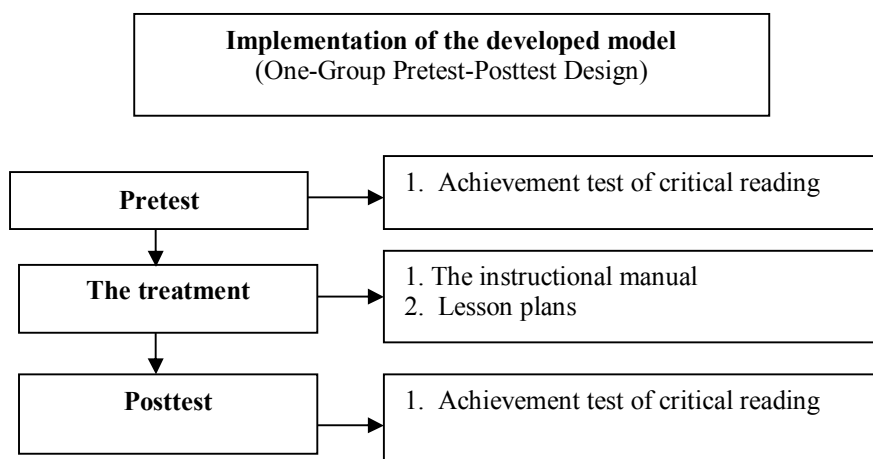


Figure 6: The implementation procedures of the model implementation

The figure noted that conducting model implementation was composed of three steps and the following discussed the details.

#### 2.1 Conducting the pretest.

At the beginning of the course, the pretest was administered using multiple choice critical reading achievement test developed by the researcher to investigate the students' state of knowledge. It provided two hours for the students to complete the 24-test items focusing on assessing the ability in analysis, synthesis and evaluation. The gained quantitative data were analyzed to compare with the posttest score.

#### 2.2 Implementing the treatment

The teacher followed the instructional procedures based on the instructional manual. The purpose of the treatment were to teach students how to use reciprocal teaching with metacognitive reading strategy to increase critical reading skills. The instructional processes contained three stages: (1) activating and explicit teaching; (2) guided teaching, modeling and transferring; and (3) independent practicing and mentoring. The learning activities were created based on the instructional processes. The instruction took 11 weeks (33 hours) with 11 lesson plans. To confirm the effectiveness of the model, the pretest-posttest method was utilized.



### 2.3 Conducting the posttest

At the end of the course, the posttest was conducted using multiple choice critical reading achievement test developed by the researcher to examine the students' critical reading progress. It took two hours to complete the 24-test items focusing on assessing the ability in analysis, synthesis and evaluation. The obtained quantitative data were analyzed to compare with the pretest score to confirm the effectiveness of the developed instructional model.

### 3. Analyzing the confirmation of the effectiveness of the model

To confirm the effectiveness of the developed model gained from stage 1 (model experiment), the data obtained from the pretest and the posttest were analyzed. The dependent sample t-test was used to compare the mean score of the pretest and posttest. The gained score analysis was employed to determine the level of the critical reading achievement. The finding from the dependent sample t-test and gained score analysis confirmed the effectiveness of the developed model.

To summarize model implementation, this stage was aimed to confirm the effectiveness of the developed instructional model. The instructional procedures were consistent with the procedures of the model experiment. Another teacher conducted the instruction based on the instructional manual. The data from the pretest and the posttest were analyzed to determine the confirmation of the effectiveness of the model.

## Chapter summary

This chapter presented the model construction which consisted of two phases. Phase 1 was aimed to develop the instructional model. Phase 2 was designed to evaluate the effectiveness of the developed model. With regard to phase 1, the model, the manual and the instruments were constructed based on the learning and language theories. For phase 2, the manual, the model and the instruments were used to investigate the effectiveness of the developed model in stage 1. After finding the effectiveness of the model, stage 2 was carried out to confirm the effectiveness of the model. The findings of phase 1 and phase 2 were presented in chapter 4.



## CHAPTER IV

### RESEARCH FINDINGS

This chapter presents the research findings in the two phases based on the steps of the model construction.

Phase 1: The development of the instructional model

Phase 2: The evaluation of the effectiveness of the instructional model

To elaborate these phases, phase 1 was conducted to review related literature and to develop instructional model. Phase 2 was administered to investigate the effectiveness of the developed instructional model and to confirm the effectiveness of the developed instructional model. The integration of each phase to shape up the instructional model and its findings were presented in table 9.

Table 9: The conclusion of the findings of each phase

Phase	Findings
Phase 1: Development of the instructional model	Stage 1: Theoretical framework to develop the model was gained. Stage 2: The developed instructional model was obtained.
Phase 2: Evaluation of the effectiveness of the instructional model	Stage 1: The effectiveness of the developed model was received. Stage 2: Students' positive attitudes towards the model were received.

**Final findings:**

The developed instructional model was found effective in enhancing critical reading as it could be perceived through the findings from phase 1 and phase 2.

The details of the findings are reported as follows:



### **Phase 1: The results of the development of the instructional model**

The development of the instructional model was developed in two stages: the documentary study and the model development. The documentary study focused on studying learning theories and language theories. For the model development, it was created based on the theoretical framework of the documentary study.

#### Stage 1: Results of documentary study

This instructional model was based on theories of metacognitive reading strategy (Flavell, 1979), reciprocal teaching (Palincsar & Brown, 1984), zone of proximal development (Vygotsky, 1978) and interactive approach (Nuttall, 2000). The following information displayed their core concepts.

#### 1. The theoretical framework of metacognitive reading strategy

Cooper, Timothy and Greive, Cedric (2009) revealed that teaching students metacognitive reading strategy helps improve critical reading ability. Metacognitive readers read with clear purposes and with effective reading strategy. A productive reader is likely to use metacognitive reading strategy to set goal, capture information, monitor the state of reading and evaluate the results of reading (Sun, 2011). Based on a number of scholars (Flavell, 1979, Bradford, 1991, Fisher, 1998, Schraw, 1998, Krause, Bochner & Duchesne, 2003, Israel, 2007, Feryal, 2008, Kelly and Irene, 2010, Philip & Hua, 2010, Iwai, 2011 and Wernke et. al., 2011), metacognitive reading strategy comprises three components such as planning, monitoring and evaluating. These strategies are used to control the use of reciprocal teaching (questioning, clarifying, predicting and summarizing) to increase critical reading ability and to examine whether the reading goals have been met. In this study, metacognitive reading strategy is employed to direct reciprocal teaching to heighten critical reading ability (analysis, synthesis and evaluation) and evaluate its results.

#### 2. The theoretical framework of reciprocal teaching

Reciprocal teaching refers to a reading strategy which occurs in the form of the conversation between teacher and students or between students and students to complete the demanded reading goal. Proposed by Palincsar and Brown in 1984, reciprocal teaching which consists of four activities (predicting, questioning, clarifying





and evaluating) was used to foster and monitor reading comprehension. In accordance with instructional procedure, reciprocal teaching begins with the explicit teaching, guiding, modeling, transferring and mentoring, consecutively. At the first stage, teacher directly teaches students. When students get advances, the teacher removes help and lets students practice independently. Reciprocal teaching is practical in improving language skills. In this study, the researcher used reciprocal teaching to enhance critical reading ability.

### 3. The theoretical framework of zone of proximal development

Zone of proximal development refers to the area in which teacher considers it as a productive zone to help students to improve their knowledge. Vygotsky (1978) divided the zones into two levels: actual and potential levels. Potential levels are called zone of proximal development. At this level, students can perform the tasks under the help of others. Students can mimic lots of tasks by making imitation. The teacher uses this notion to raise a new knowledge, plan program, evaluate, support the assistance and mentor students. At the end of the learning processes, students become autonomous learners. Based on this study, zone of proximal development was applied to merge with reciprocal teaching to help students increase critical reading ability.

### 4. The theoretical framework of interactive approach

Nuttall (2000) notes that interactive approach refers to a reading method which is the combination of two approaches: top-down approach and bottom-up approach. Interactive approach is named as the best effective reading approach since it mixes bottom-up approach (decoding letters, words, phrases and clauses to gain the meaning of the text) and top-down approach (using prior knowledge to comprehend text). The productive reader reads quickly to take a brief of information (top-down approach), but when he/she faces the problem, he/she shifts to a small unit to interpret meaning (bottom-up approach) which this combination is called interactive approach. According to this study, interactive approach was utilized to integrate with reciprocal teaching strategy to assist students to improve critical reading ability.

To sum up, three theories were analyzed and synthesized. Zone of proximal development and interactive approach were employed to create the instructional model. Metacognitive reading strategy was used to control the use of



reciprocal teaching to increase critical reading and to examine whether the demanded goal has been met. This information was utilized to develop the instructional model in stage 2.

#### Stage 2: Results of model development

With an attempt to develop the instructional model, documentary study and model components were created to construct the model. The results of the development of the model were shown in Figure 7.



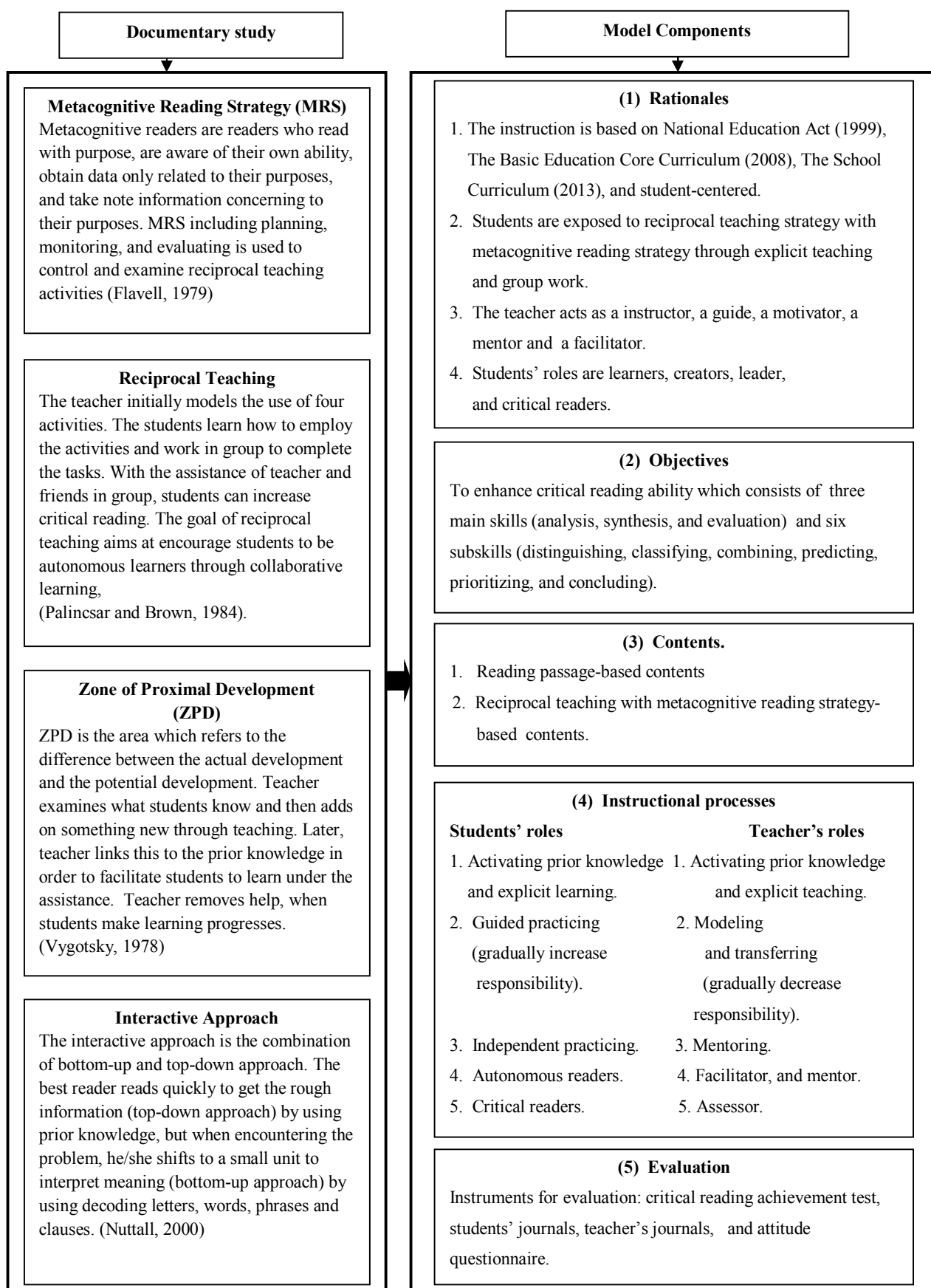


Figure 7: Instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students



Figure 7 demonstrated that the developed instructional model was composed of two parts: documentary study and model components.

Part 1: Documentary study was mentioned previously.

Part 2: Model components was the production of the documentary study. The instructional model comprised five components: rationales, objectives, contents, instructional processes and evaluation.

### 1. Rationales

The following were rationales of the model construction:

1.1 The instruction was based on National Education Act (1999), The Basic Education Core Curriculum (2008) and the School Curriculum.

1.2 Instruction was based on student-centered.

1.3 Practicing analysis, synthesis and evaluation helped students increase critical reading skills.

1.4 Practicing reciprocal teaching strategies with metacognitive reading strategies fostered students to acquire critical reading skills.

1.5 Collaborative learning through group work assisted students in gaining critical reading skills.

1.6 Students were exposed to reciprocal teaching strategy with metacognitive reading strategy through explicit teaching and group work.

1.7 The teacher acted as an instructor, a guide, a motivator, a mentor and a facilitator.

1.8 Students' roles were collaborative learners, creators, leader and critical readers.

### 2. Objective

The objective of the instructional model was to enhance critical reading ability which consisted of three main skills (analysis, synthesis and evaluating) and six sub-skills (distinguishing, classifying, combining, predicting, prioritizing and concluding) based on The School Curriculum, The Basic Education Core Curriculum (2008) and National Education Act (1999).



### 3. Contents

The contents of the instructional model included:

3.1 Reading passage-based contents. Reading passages received from the selection of the students based on the course description of the school curriculum.

3.2 Reciprocal teaching with metacognitive reading strategy-based contents. The instruction was based on the concept of reciprocal teaching strategies and metacognitive reading strategies.

### 4. Instructional processes

The instructional processes were concerned with four main aspects: teaching stages, teacher's roles, students' roles and desired goals. In terms of instructional stages, there were 3 stages including (1) activating and explicit teaching, (2) guided practicing, modeling and transferring and (3) independent practicing and mentoring. According to the teacher's roles, the teacher acted as a teacher, a facilitator, a mentor, a guide and an assessor to teach, help, encourage, lead, give feedback and assess the progress. For the students' roles, they worked individually, worked in a group of five, learned how to use strategies to develop learning process and finally to become autonomous readers with critical reading. In addition, the desired goals of the instruction were to foster students to learn how to use the reciprocal teaching strategy with metacognitive reading strategy, to handle the problems by themselves and with the help of group members and to become autonomous readers with critical reading skills.

The instructional process was considered a heart of the instructional model because it contained the roles of the teacher, the students' roles and the demanded goals. The instructional process impacted the construction of the lesson plans, the development of the instruments and the design of the instructional activities. The process was planned to foster students to become autonomous critical readers. To achieve this purpose, the teacher had to directly teach students how to use reciprocal teaching with metacognitive reading strategy to enhance critical reading ability and tried to transfer responsibility to students. When students got advanced in conducting learning activities, the teacher removed assistance. Finally, the students became independent critical readers. A summary of the instructional process was shown in figure 8.



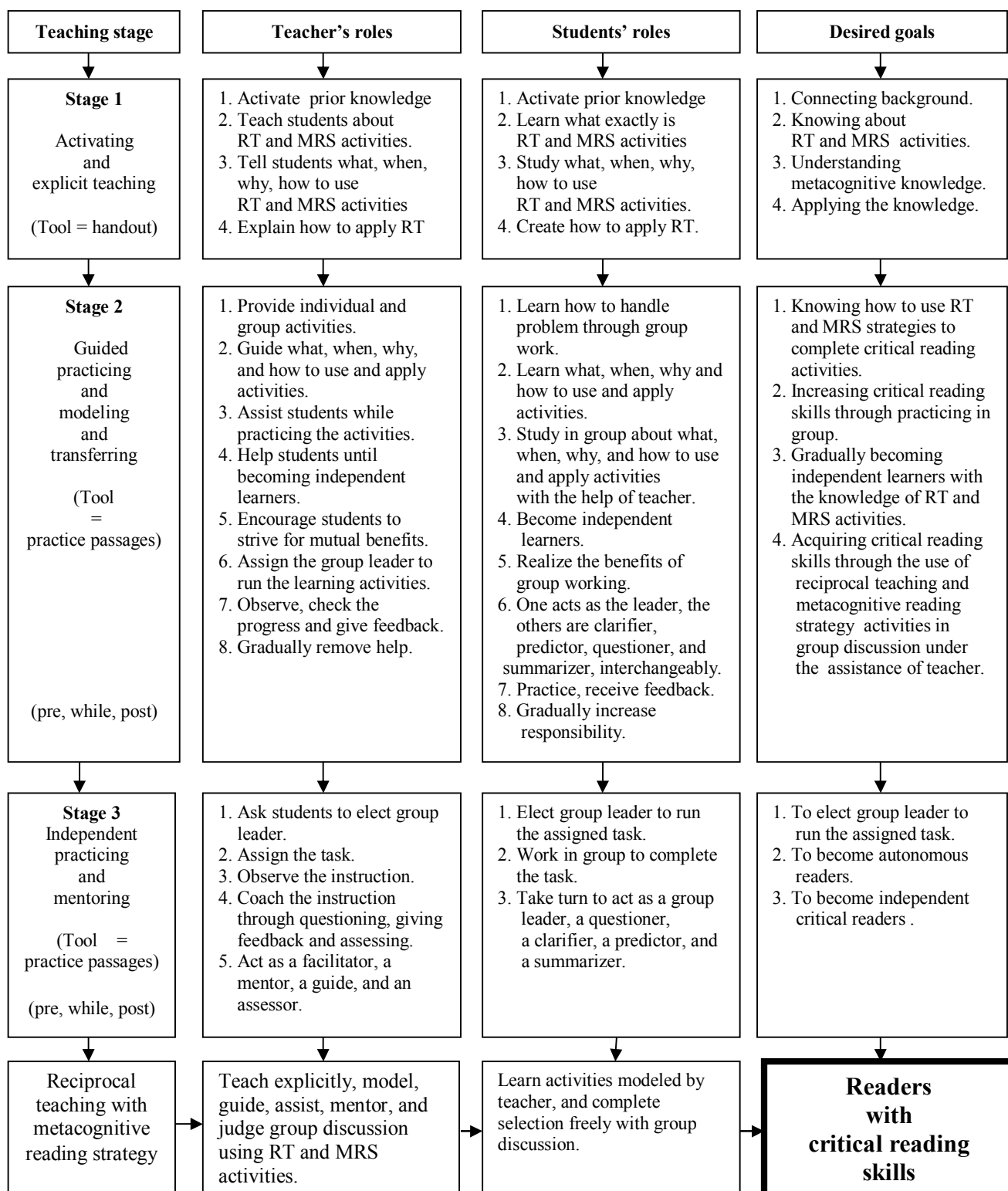


Figure 8: The instructional processes using reciprocal teaching with metacognitive reading strategy to enhance critical reading



## 5. Evaluation

The instruments used in the model consisted of quantitative and qualitative tools. Quantitative tools were composed of researcher-made test and attitude questionnaire. Qualitative tools comprised teacher's journals and students' journals. To evaluate the effectiveness of the developed model, the data gained from the quantitative and qualitative instruments were analyzed by means of descriptive statistics, inferential statistics and content analysis.

In conclusion, the developed instructional model was constructed with five components: rationales, objectives, contents, instructional processes and evaluation. These elements based on the analysis and synthesis of the learning and language theories. The core part of the developed instructional model was the instructional processes since it contained the roles of the teacher, the students' roles and the desired goals. These five elements were combined to form the completed model.

To sum up phase 1, the results of the development of the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students, the information was presented in two stages such as documentary study and model components. The documentary study focused on metacognitive reading strategy, reciprocal teaching, zone of proximal development and interactive approach. Metacognitive reading strategy merged with zone of proximal development and interactive approach was employed to direct the use reciprocal teaching to improve critical reading and to examine if the goal of reading had been fulfilled. The model components comprised five elements: rationales, objectives, contents, instructional processes and evaluation.

The information of documentary study and model components were organized to form the instructional model. The full version of the developed model was presented in appendix A. The next step after receiving the completely developed model was to take the model into phase 2 to experiment in authentic situation to examine the effectiveness and to confirm the gained effectiveness of the model.



## Phase 2: Results of the evaluation of the effectiveness of the instructional model

Phase 2 contained two stages. Stage 1 was conducted to examine the effectiveness of the developed instructional model. Stage 2 was carried out to confirm the gained effectiveness from stage 1. Findings regarding stage 1 and stage 2 revealed that the developed instructional model was found effective in enhancing critical reading ability and was confirmed effective as well. The further information was presented.

### Stage 1: Results of model experiment

The purpose of this stage was to examine the effectiveness of the developed instructional model. The effectiveness was inspected by considering the findings from critical reading achievement test, attitude questionnaire, teacher's journals and students' journals. A summary of the investigation of the effectiveness of the model was shown in table below.

Table 10: A summary of the results of the evaluation of the effectiveness of the model

<b>The results of the evaluation of the effectiveness of the developed model</b>	
<b>Instruments</b>	<b>Results</b>
1. Critical reading achievement test	1. t-test - t-statistic = 29.42 - Sig. (2-tailed) = 0.000 2. gained score analysis 1. all students increase their levels 2. 2 person = basic development 35 person = middle development 13 person = high development
2. Students' attitude questionnaire	1. Grand mean score of $\bar{x} = 4.45$ 2. Positive expression
3. Students' journals	Positive expression
4. Teacher's journals	Positive expression





Based on the table, the findings from critical reading achievement test revealed that the developed instructional model was effective in enhancing students' critical reading ability since it could be perceived through the statistically significant difference between the mean scores of the pretest and posttest. The findings from attitude questionnaire also indicated that the developed instructional model was found effective in increasing students' critical reading ability as it could be verified from the positive expression of the students. In addition, the findings from the teacher's journals and the students' journals synonymously echoed the effectiveness of the developed instructional model based on students' favorable opinions. According to the triangulation of these findings, it could be claimed that the developed instructional model was effective in enhancing students' critical reading ability. The following presentation was the detail of each instruments.

#### 1. The results from the critical reading achievement test

The quantitative data gained from multiple choice critical reading achievement test were analyzed by means of dependent sample t-test and gained score analysis. The t-test was analyzed to investigate the different mean score between the pretest and the posttest. For the gained score analysis, it was conducted to demonstrate the level of the development.

##### 1.1 The results from the dependent sample t-test

The scores to investigate students' critical reading ability were gained from multiple choice critical reading achievement test which comprised 24 items of three main critical reading skills (analysis, synthesis and evaluation) with six subskills of critical reading skills: analysis (distinguishing and classifying); synthesis (combining and predicting) and evaluation (prioritizing and concluding). The scores from the main study of the experiment stage were shown in table 11.

Table 11: The pretest and posttest mean scores of the experiment stage (Total score = 24)

Test	N	Min	Max	Mean	S.D.	t-statistic	Sig. (2-tailed)
Pre-test	50	8	16	13.22	1.92	29.42	0.000
Post-test	50	14	21	17.97	1.90		



In table 11, the mean score of the pretest of 50 students was 13.22 (S.D. = 1.92) with the highest score of 16 and the lowest score of 8. Moreover, the mean score of the posttest score of 50 students was 17.97 (S.D. = 1.90) with the highest score of 21, the lowest score of 14 . In order to analyze the difference between the pretest and posttest, Dependant Sample t-test was utilized. It was found that the posttest mean scores were significantly higher than the pretest mean scores at the level of 0.01.

Moreover, the sub skills of the main skills of critical reading ability were presented and compared to examine the effects of the instructional model on each of the sub skills.

Table 12: Comparison of critical reading skills using dependent sample t-test (divided according to the sub skills of critical reading skills) of the experimentation stage (Total score of each sub skill = 4)

Main skills	Sub skills	Test	N	Mean	Difference between Posttest and pretest	S.D.	t-statistic	Sig. (2-tailed)
Analysis	Distinguishing (fact/opinion)	Posttest	50	2.10	0.92	0.74	9.35	0.000
		Pretest	50	1.18		0.46		
	Classifying	Posttest	50	1.98	0.72	0.63	4.93	0.000
		Pretest	50	1.26		0.71		
Synthesis	Combining	Posttest	50	2.16	1.00	0.73	9.35	0.000
		Pretest	50	1.16		0.51		
	Predicting	Posttest	50	1.86	0.54	0.76	5.73	0.000
		Pretest	50	1.32		0.67		
Evaluation	Prioritizing	Posttest	50	1.96	0.94	0.76	8.66	0.000
		Pretest	50	1.02		0.53		
	Concluding	Posttest	50	1.74	0.66	0.69	4.56	0.000
		Pretest	50	1.08		0.77		

As the table displayed, the mean score of the posttest in all critical reading sub skills were higher than those of the pretest. The significance level of all sub skills



were at the level of 0.01. It was also indicated that the biggest different score between the posttest and pretest mean score was combining skill (1.00), while the smallest difference was predicting skill (0.54). This showed that after the treatment of the developed instructional model, the students had achieved most in the skill of combining, whereas in terms of predicting, they gained less improvement. In overall, they had improvement in all sub skills of critical reading. It could be interpreted that the developed model was found effective in helping students level up their critical reading ability.

### 1.2 The results from the gained score analysis

In order to gain deeper information about the development of the students' critical reading ability, Development Score or Gained Score(GS) analysis was used to analyze to examine the difference between the students' pre-test and post-test score. This exhibited the levels of the development which were classified into four levels: basic, middle, high and very high level as shown in table 13. The results were displayed in table 14.

Table 13: Interpretation of the Development Score or Gained Score(GS) of the model experiment

Score (%)	Level of Development
76-100	Very high development
51-75	High development
26-50	Middle development
1-25	Basic development

(Kanjnawasee, 2013).

Development Score or Gained Score(GS) (percent) of the experiment stage

X = Pre-test

Y = Post-test

F = total score

$$GS = \frac{(Y-X)}{(F-X)} \times 100$$



Table 14: The results of the Development Score or Gained Score (GS) of the Experimentation stage

No.	GS (%)	No.	GS (%)	No.	GS (%)	No.	GS (%)	No.	GS (%)
1	38	11	25	21	55	31	37	41	54
2	53	12	54	22	52	32	55	42	36
3	30	13	44	23	28	33	55	43	41
4	60	14	55	24	45	34	40	44	50
5	37	15	30	25	40	35	42	45	50
6	66	16	50	26	44	36	20	46	62
7	27	17	33	27	62	37	36	47	33
8	45	18	50	28	36	38	42	48	33
9	27	19	50	29	45	39	60	49	50
10	50	20	41	30	50	40	36	50	60

The table demonstrated that the highest level was 66%, while the lowest level was 20% and the large number of the scores were in the middle level. To summarize the results of the Development Score or Gained Score (GS) analysis, a summary was showed in table 15.

Table 15: Summary of the levels of the Development Score or Gained Score (GS) of the experiment stage (total students = 50)

Score (%)	Level of Development	The number of students
76-100	Very high development	-
51-75	High development	13
26-50	Middle development	35
1-25	Basic development	2



The table showed that 13 students gained high development level, 35 of them obtained middle development level and 2 person were in the basic development. The purpose of this analysis was to figure out the students' development levels. It was found that most students gained middle development level and all of them were able to increase their critical reading ability.

In conclusion, the findings from the t-test and the gained score analysis (GS) demonstrated that the developed instructional model was found effective in increasing students' critical reading ability as it could be observed through the significant difference between the mean scores of the pretest and posttest and the levels of the development score or gained score .

## 2. The results from students' attitude questionnaire.

Students' attitude questionnaire was one of the instruments which was used to triangulate and affirm the findings of the data analysis and consequently to verify the effectiveness of the instructional model. The attitude questionnaire was composed of two parts. The first part was the students' personal background employed to gain student general information and the other was attitude questionnaire questions used to elicit students' opinions towards the developed instructional model. Data obtained from the first part of the attitude questionnaire was exhibited in the table 16.

Table 16: Students' personal background

Gender		GPA				English gained from the latest semester							
Male	Female	2.00- 2.50	2.51- 3.00	3.01- 3.50	3.51- 4.00	4	3.5	3	2.5	2	1.5	1	
16	34	-	-	26	24	38	10	2	-	-	-	-	

As reported by the table, there were a total of 50 students: 16 males and 34 females. Most of them received GAP (Grade Point Average) in the range of 3.00-3.50, while the English grade gained from the latest semester ranged from 2.5 to 4.



With reference to the second part of the attitude questionnaire, it was classified into two parts: attitude questionnaire questions and open-ended questions. The first part was designed by using a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree (Likert, 1932). The data obtained were analyzed through  $\bar{x}$ , percentage and S.D. The mean scores of all items were higher than 3.50 indicating the grand mean score of 4.45. It was indicated that 3.5 points from the 5-point score showed positive opinions towards the developed model.

Table 17: Students' attitudes towards the developed instructional model analyzed using mean and S.D.

- 5 = Strongly agree  
 4 = Agree  
 3 = Undecided  
 2 = Disagree  
 1 = Strongly Disagree

ข้อ	รายการ	5	4	3	2	1	$\bar{x}$	S.D.
1	I like this instructional model using reciprocal teaching activities. ข้าพเจ้าชอบรูปแบบการเรียนการสอนที่เรียนเป็นกลุ่ม	24	21	4	1		4.36	0.72
2	I like activities before reading. ข้าพเจ้าชอบกิจกรรมก่อนการอ่าน (before reading)	16	22	11	1		4.06	0.79
3	I like activities while reading. ข้าพเจ้าชอบกิจกรรมขณะอ่าน (while reading)	21	16	12	1		4.14	0.86
4	I like activities after reading. ข้าพเจ้าชอบกิจกรรมหลังการอ่าน (after reading)	21	21	7	1		4.24	0.77
5	I like studying in the explicit teaching stage. ข้าพเจ้าชอบการเรียนในชั้นที่มีครูชี้แนะ (Direct teaching)	29	18	3			4.52	0.61
6	I like studying in the guided teaching stage. ข้าพเจ้าชอบการเรียนในชั้นที่ครูสาธิตการเรียน (Guided teaching)	30	18	2			4.56	0.58



Table 17 (continuers)

ข้อ	รายการ	5	4	3	2	1	$\bar{x}$	S.D.
7	I like studying in the independent practicing and mentoring stage. ข้าพเจ้าชอบการเรียนในขั้นแลกเปลี่ยนบทบาทในกลุ่ม	29	15	6			4.46	0.71
8	I think questioning helps improve reading skills. ข้าพเจ้าคิดว่า การถาม (Questioning) ช่วยในการพัฒนาทักษะการอ่าน	32	16	2			4.60	0.57
9	I feel that predicting helps develop reading skills. ข้าพเจ้ารู้สึกว่าการทำนาย(Predicting) ช่วยในการพัฒนาทักษะการอ่าน	23	17	9	1		4.24	0.82
10	I think clarifying helps increase reading skills. ข้าพเจ้าคิดว่า การทำให้กระจ่าง(Clarifying) ช่วยส่งเสริมทักษะการอ่าน	32	16	2			4.60	0.57
11	I think summarizing helps enhance reading skills. ข้าพเจ้าคิดว่า การสรุป (Summarizing) ช่วยเพิ่มพูนทักษะการอ่าน	28	19	3			4.50	0.61
12	I feel planning helps set up reading goals. ข้าพเจ้ารู้สึกว่าการวางแผน (Planning) ช่วยทำให้การอ่านมีเป้าหมายมากขึ้น	35	15				4.70	0.46
13	I feel motoring helps check the state of reading. ข้าพเจ้ารู้สึกว่าการตรวจสอบ (Monitoring) ช่วยสำรวจผลการอ่านได้	32	17	1			4.62	0.53
14	I think evaluation helps examine the results of reading. ข้าพเจ้าคิดว่า การประเมินผล (Evaluation) ช่วยในการตรวจสอบผลการอ่านได้	31	15	4			4.54	0.65
15	I feel this instructional model makes me happy when studying. ข้าพเจ้ารู้สึกมีความสุขทุกครั้งที่ได้เรียนตามรูปแบบการเรียนการสอนนี้	30	46	4			4.52	0.65
16	I think this instructional model helps improve reading skills. ข้าพเจ้าคิดว่ารูปแบบการเรียนการสอนนี้ช่วยพัฒนาทักษะการอ่านของข้าพเจ้า	30	18	2			4.56	0.58



Table 17 (continuers)

ข้อ	รายการ	5	4	3	2	1	$\bar{x}$	S.D.
17	I think the learning atmosphere in the classroom is more joyful than in normal class. ข้าพเจ้าคิดว่าบรรยากาศในการเรียนการสอนมีความสนุกสนานมากกว่าการเรียนตามปกติ	34	12	4			4.60	0.64
18	I feel there are a variety of learning activities. ข้าพเจ้ารู้สึกว่ามีกิจกรรมการเรียนการสอนมีความหลากหลาย	27	13	6	2		4.34	0.85
19	I think the learning activities helps encourage my expression. ข้าพเจ้าคิดว่ากิจกรรมการเรียนการสอนช่วยทำให้ข้าพเจ้ามีความกล้าคิดกล้าแสดงออก	27	18	5			4.44	0.67
20	I will recommend this course to other students. ข้าพเจ้าจะแนะนำให้รุ่นน้องหรือเพื่อน ๆ เรียนด้วยรูปแบบการเรียนการสอนแบบนี้เหมือนกันกับข้าพเจ้า	26	16	8			4.35	0.75
Grand mean score							4.45	0.11

Note: N = 50

As demonstrated in the figure, the grand mean score of  $\bar{x}$  was 4.45 . This indicated that most students strongly agreed with the questionnaire questions. According to the standard deviation (S.D.), it was found that the grand mean score was 0.11. This also indicated that most students expressed positive attitudes towards the developed model which was consistent with the grand mean score of  $\bar{x}$ . Based on these findings, it could be claimed that students had positive attitudes towards the developed instructional model. Moreover, most students strongly agreed that the developed instructional model provided them with learning enjoyment and they would recommend this program to other students.





Based on the open-ended part given at the end of the attitude questionnaire which provided students with the opportunities to present additional suggestions and comments, it was found that most students expressed positive opinions towards the developed instructional model. They noted that the model was more interesting, more fun and more valuable. Some of the students said that the class was different from other classes because they felt free to work in group, to do their roles and to exchange ideas with friends and teacher. The learning activities at all stages were enjoyable. Other students supported that the class was not the same as the previous classes. They performed the assigned tasks happily, relaxedly and collaboratively.

A number of students thought that learning through this model helped them feel more confident to ask for confirmation, to state what they thought and to ask for more information. Some students commented that the model encouraged them to share ideas. They dared to express what they thought, dared to question for more details and were not afraid to make mistakes. Others added that working in group helped them check their own state of knowledge by comparing it with their friends. This activated the more confidence to shape up themselves through questioning, clarifying, predicting and summarizing.

It is worth mentioning that some students revealed that this instructional model assisted them to improve critical reading skills. Some presented that the model provided them with the knowledge to think and read systemically. They were able to capture, group, divide and evaluate what they read. After learning with this model, they had increased critical reading ability.

According to the students' suggestions, they noted that learning activities should be more varied. Especially, in the parts of the discussion with teacher, the time should be additionally given. Some students suggested that the teacher should give them more time to ask and share ideas with friends. Another suggestion was concerned with time. More time for doing activities should be provided. To prove the effectiveness of the developed model, not only the results from students' attitude questionnaire, but also the results from the teacher's journals and the students' journals were analyzed.



### 3. The results from the students' journals

As stated previously, the effectiveness of the developed instructional model was echoed by the triangulation of the findings from critical reading achievement test, attitude questionnaire, students' journals and teacher' journals. At the end of each class, students were asked to reflect their opinions by writing students' journals for five minutes. The data indicated students' positive expression towards the developed instructional model. A summary of the content analysis is shown in table 18.

Table 18: A summary of students' opinions through their journals

Stage	Students' attitudes towards the model
Pre-reading	<ol style="list-style-type: none"> <li>1. Assisting them to know rough story before reading.</li> <li>2. Providing them enjoyment.</li> <li>3. Enhancing their reading skills.</li> </ol>
While-reading	<ol style="list-style-type: none"> <li>1. Providing them effective interpersonal skills.</li> <li>2. Helping them create more confidence in reading.</li> <li>3. Equipping them pleasurable atmosphere for learning.</li> </ol>
Post-reading	<ol style="list-style-type: none"> <li>1. Giving them the opportunities to practice in a group.</li> <li>2. Providing them critical reading skills.</li> <li>3. Helping them level up their reading ability.</li> </ol>

The following are the details of the content analysis of the students' attitudes towards the developed instructional model.

#### 3.1 Students' attitudes towards the pre-reading stage

According to this reading stage, students expressed favorable opinions towards the model due to four main aspects as the following:

##### 3.1.1 Assisting them to know rough story before reading

With regard to the pre-reading stage, students favored the learning activities because they were able to guess what would happen before reading the passage. For example, the students said that (S1) "Predicting by using title, topic noun and picture helps me see roughly what the passage will be about." (S2) "Working in group to match the synonym of vocabulary helps increase vocabulary knowledge." (S3)



“I have learned new knowledge that before reading, I have to predict to get topic nouns and its details.” (S4) “Planning before reading makes me set my purposes for reading.

### 3.1.2 Providing them enjoyment

The students also said that learning atmosphere in the pre-reading stage was fun and relaxing. They noted, for example, that (S1) “I like learning vocabulary by songs. It makes me feel happy and relaxed. I love English more.” (S2) “I love singing and learning through singing songs.” (S3) “ Working in group makes me feel free from tensions.” (S4) “It is my fun and I feel happier to learn and to do activities with friends.”

### 3.1.3 Enhancing their reading skills

Most of the students noted that the learning activities in the pre-reading stage helped them increase reading skills such as analytical, synthetic and evaluative reading skills. For example (S1) “ It is so cool that I have studied how to group, combine and evaluate information from reading passage.” (S2) I have learnt how to make concept map before, while and after reading.” (S3) “ I learn and understand more vocabulary.” (S4) “I can read critically better. I can separate main part and supporting details.” (S5) “ It enables me to get more knowledge about how to read and answer the questions.”

## 3.2 Students’ attitudes towards the while-reading stage

Based on the while-reading stage, students viewed it beneficial for them for three main reasons as follows:

### 3.2.1 Providing them effective interpersonal skills

Most responses revealed that reciprocal teaching with metacognitive reading strategy which learning activities mainly focused on working in a group to complete the designated tasks provided them opportunities to practice effective communicative skills. They expressed that (S1) “I like working in a group. I have made new friends in a group.” (S2) “I gain friendships.” “Group work helps me develop my speaking skills.” (S3) “Working in a group allows us to help and share ideas with each other.” (S4) “I think working in a group is better than working alone because we get not only presentation skills, but also gain a variety of reading methods.”



### 3.2.2 Helping them create more confidence in reading

Also, the students favored the learning activities because it provided them more confident in reading. For example, they reported that (S1) “I feel more confident to read to finish the goals of reading. I read better and quicker.” (S2) “The guidance of the teacher and the help of friends help me understand deeper in reading processes.” (S3) “Talking with friends help me make sure about the reading methods and get proper answers.”

### 3.2.3 Equipping them with pleasurable atmosphere for learning

The students noted that learning in the while-reading stage was preferable in such a way that it provided them enjoyment and relaxation while reading. The students, for example, expressed that (S1) “I love reading more because I can understand and analyze what I read.” (S2) “Reading is not difficult as I think. I can do it. I enjoy reading.” (S3) “Reading under the help of friends and the teacher is so good. I feel relaxed.” (S4) “It makes us become more active because the teacher will gear up me when I find no ways out, or when we are not advanced enough.” (S5) “I am always interested in reading and pay attention to the lesson. I feel relaxed, enjoyed and hopeful.”

## 3.3 Students’ attitudes towards the post-reading stage

For the post-reading stage, most students expressed their favorable feelings towards the model due to four main perspectives.

### 3.3.1 Giving them the opportunities to practice in a group

At the third learning stage, it was to allow students to practice in a group independently. In general, students’ views regarding this step were favorable in that it gave them opportunities to practice reading without control. They, for example, said that it is challenging to read with group members and it helped them to improve better reading ability. They expressed that (S1) “I can level up my reading skills to another step.” (S2) “I have opportunities to practice reading analytically and synthetically.” (S3) “I can apply what I practice in class to my own reading drills.” (S4) “I think it is good because I learn how to answer the questions critically.”



### 3.3.2 Providing them critical reading skills

According to the most of the students' responses, it was also indicated that the learning activities were beneficial to them in such a way that the activities helped them to increase their reading skills from lower-level to higher-level skills. They noted that (S1) "I can develop my reading skills from reading to get basic information to analyze and conclude the reading materials." (S2) "I can move forward from gaining understanding to making priority by writing concept map." (S3) "I can now classify information from a reading material faster and accurately." (S4) "I feel more confident when finding main idea or conclusion of the reading passage."

### 3.3.3 Helping them level up their reading ability

The students favored the learning activities because they thought that the activity enhanced their critical reading skills. They reported that (S1) "I can read critically. I can distinguish facts and opinions." (S2) "I can read better. I know how to merge important points." (S3) "It enables me to increase my reading ability and become more eager to read and answer the questions." (S4) "I can practice how to evaluate the results of reading while reading and after reading."

### 3.4 Students' overall opinions towards the model

The last part of the students was to allow students to express their overall views towards the learning activities of the model. A confirmation of their attitudes as stated in the other parts was found. Students' responses echoed their positive feelings towards the lessons in the similar manner that they had reported in the previous parts of the students' journals. They concluded that they favored the lessons. The learning activities enabled them to feel more confident in reading, helped them increase their reading ability, provided them with pleasurable learning atmosphere, equipped them with opportunities to practice working in a group, gained interpersonal skills, geared up them to read more critically and provided them enjoyment. For example, they noted that (S1) "I like the lesson because it is not too difficult to learn. It challenges me to increase my reading ability." (S2) "I have more confidence in reading critically. I can find main part, supporting details and conclusion." (S3) "I can move on to higher-level reading skills. I can read analytically and critically." (S4) "I feel relaxed, enjoyed and become more active while learning." (S5) "Working in a group enables me to gain friends. It is



better than working alone.” (S6) “I gain more advanced skills in reading. How to read critically helps me enhance my reading ability.”

### 3.5 Some negative responses to the model

Generally, most of the students reflected favorable feelings towards the instructional model, but there were some students who expressed complaints. The most frequently negative feedbacks were (S1) time constraints, (S2) non-participating members and (S3) some questions being left answered.

According to the time constraints, the students presented that the time to consult the teacher was not sufficient. They noted, for example, that “ the time for consulting the teacher is not enough. This makes us unable to complete the tasks within the time limit. If possible, we need to prolong the time for discussion.” In accordance with non-participating members problems, students reported that “some members are not active and attentive enough to take their role in completing the assigned tasks. It seems that they do not understand what and how to do. Sometime, poor students cannot follow good students, because the materials are too difficult for them to understand easily and quickly.” In terms of the complaints about some questions being left answered, they said that “due to the time limit and there are a lot of works to do, we cannot answer all questions in time. In some questions, we answer without thinking carefully. Nevertheless, it was revealed that these complaints were found only at the beginning of the study.

In conclusion, according to the qualitative data gained from students’ journals, it could be concluded that students had positive attitude towards the English instructional model. Most students purported that the model helped them improve critical reading ability, provided them interpersonal skills, assisted them to create more confident in reading critically, helped them level up their reading levels, equipped them pleasurable learning atmosphere and provided them enjoyment. However, the students presented their negative attitudes regarding the time allotted, non-cooperation, questions left answered.



#### 4. The results from the teacher's journals

The role of the teacher in the instruction was a lecturer, a facilitator, a designer, a supporter, a motivator, a mentor and an examiner. In order to examine students' opinions towards the model, the teacher observed students' behaviors and recorded the results in the teacher's journals. The observation was conducted throughout the lesson and at the end of the class, the teacher recorded it based on the reading stages: pre-while-post reading stage. A summary of the results was displayed in table 19.

Table 19: A summary of the students' attitudes towards the instructional model

Reading stage	Results
1. Pre-reading stage	<ol style="list-style-type: none"> <li>1. Learned attentively</li> <li>2. Worked actively</li> <li>3. Practiced thoughtfully</li> <li>4. Enjoyed learning</li> <li>5. Shared experienced</li> </ol>
2. While-reading stage	<ol style="list-style-type: none"> <li>1. Worked in group eagerly</li> <li>2. Read critically</li> <li>3. Performed the designated tasks happily</li> <li>4. Achieved higher critical reading skills</li> </ol>
3. Post-reading stage	<ol style="list-style-type: none"> <li>1. Reacted positively towards the learning</li> <li>2. Enjoyed seeking the way to clarify the problems</li> <li>3. Looked happier</li> <li>4. Get more confidence</li> <li>5. Advanced in interpersonal skills</li> </ol>

The table displays the students' opinions towards the developed instructional model in three reading stages through the teacher's journals. The following were details.



#### 4.1 Students' opinions in the pre-reading stage

The data gained from the teacher's journals revealed that most students reflected positive attitudes during the pre-reading stage. The teacher reported that most students learned attentively, participated in group working actively and practiced the lessons thoughtfully. For example, the teacher recorded that during the pre-reading stage, while the teacher was teaching about the reciprocal teaching, metacognitive reading strategy and critical reading, the students listened carefully, attentively and thoughtfully. Some students asked for more details about critical reading. They shared their experiences with the teacher about predicting, clarifying and planning. They asked to confirm their understanding. They enjoyed singing songs to enhance their vocabulary before reading. They smiled and laughed happily throughout the class. When asked about the instruction, they said that they favored it because it was new to them and it was practical. However, some students were still quite quiet. They did not dare speak with teacher but they asked their friends to handle their problem. Some groups did not finish their tasks in time, It seemed like they were confused in some points or they tended to perform every aspect perfectly. Other groups were not able to take their roles well enough in the first stage of the lesson, but in the next stage they did it quite well and smoothly.

To summarize the students' opinions towards the model through the teacher's journals, what the teacher noted indicated that the students enjoyed learning, had high attention, performed the designed tasks actively and shared the experiences with friends and the teacher reasonably. It could be claimed from the observation that students tended to have positive attitudes towards the model in this reading stage. Nevertheless, it should be reported that some students in some groups did not have full participation. It seemed like that they were not confident enough to express their feelings.

#### 4.2 Students' opinions in the while-reading stage

According to the teacher's journals, the students also behaved optimistically towards the model. Generally, the teacher recorded that the students had good reactions to the while-reading stage in the way that they worked in a group eagerly, read critically and performed the designated tasks happily. This could be found





from the teacher's journals reporting that when asked to perform the designed tasks in a group, they are eager to take their roles to ask, predict, clarify and summarize what they read. They are attentive to solve the problems they faced. It was also noted that the students are happy in doing exercises. They share ideas interactively and joyfully. Based on the closed observation of the teacher, it was found that the students were able to conduct a concept map and merge the similar aspect into separated groups. This showed that students read critically and synthetically. When the teacher gave them comments and suggestions about the action of their roles, they are able to adapt and improve quickly and accurately. However, it should be presented that some group members did not participate all reading processes. It seemed like they finished their own duties in doing tasks. But in reality, all members of the group had to help each other until the desired goals were reached.

In summary, it was significantly found that, in the while-reading stage, students were far advanced in critical reading under the mentoring of the teacher and they were excellent in conducting the tasks themselves independently. It could be concluded that students achieved higher reading skills and enjoyed reading critically.

#### 4.3 Students' opinions in the post-reading stage

The main activities in the post-reading stage were to answer the questions by choosing the most appropriate answer in the multiple choice test. They did it in a group. It was noteworthy that students reacted positively towards this stage in the way that they enjoyed seeking the way to clarify the problems. They looked happier, got more confidence and advanced in interpersonal skills. The teacher recorded that students have fun working in the last stage. It seems like they have enough experiences in conducting the tasks. They can finish the designed tasks in time. They look enjoyable and cheerful when reading. They are able to share the ideas and take their own roles proficiently and reasonably. Students are willing to improve their reading ability by trying to get more scores in each test. The teacher noted that all groups can finish reading in time. The problems found in the first two stages are not found in this stage. Discussing smiling and laughing can be seen through the stage. It could be claimed that, in this stage, students favored the activities, had fun, got more advanced reading skills and became critical readers.



#### 4.4 General impression of the students' behaviors through the teacher's journals

In the last part of the teacher's journals, the teacher noted general impressive behavior of the students. The findings gained from this part revealed that the students behaved happily, actively, attentively and thoughtfully. The teacher remarked that "the students are more likely to improve gradually from the pre-and while-reading stage. They can improve their reading skills. They are able to level up their essential knowledge. They achieve interpersonal skills and they are enjoyable while reading. They are critical readers."

The teacher's journals concluded that the students had positive opinions towards the model which was consistent with the results gained from the attitude questionnaire and from students' journals. So it could be interpreted that the instructional model was effective in helping students improve critical reading skills in three aspects such as analysis, synthesis and evaluation.

For a summary of the stage 1 of phase 2, the findings of the model experiment showed that the developed model was found effective in enhancing students' critical reading ability and encouraging students' positive opinions towards the model based on the results from critical reading test, the students' attitude questionnaire, the teacher's journals and the students' journals. The comparison between the pretest and the posttest scores revealed that students made progress in improving critical reading ability. Also, the findings from the students' attitude questionnaire, the teacher's journals and the students' journals indicated that the students favored the developed model reflected by their positive expression. The next step was to reaffirm the effectiveness of the model.

#### Stage 2: Model implementation

This stage was aimed to confirm the effectiveness of the developed model. The critical reading achievement test (pretest and posttest) was the same as the test used in the experiment stage. The data obtained from the critical reading test were analyzed by using computer program by means of dependent sample t-test and gained score analysis. The findings from both t-test and gained score analysis indicated that the



developed instructional model was confirmed effective in helping students increase critical reading ability.

1. The results from the dependent sample t-test

The data to confirm the effectiveness of the developed instructional model were gained from multiple choice critical reading achievement test which comprises 24 items of three main critical reading skills (analysis, synthesis and evaluation) with six subskills of critical reading skills: analysis (distinguishing and classifying); synthesis (combining and predicting) and evaluation (prioritizing and concluding). The scores from the model implementation were shown in table 20.

Table 20: The pretest and posttest mean scores of the implementation stage  
(Total score = 24)

Test	N	Min	Max	Mean	S.D.	t-statistic	Sig. (2-tailed)
Pre-test	50	8	16	12.90	1.87	24.86	0.000
Post-test	50	13	20	17.02	1.58		

In table 20, the mean score of the pretest of 50 students was 12.90 (S.D. = 1.87) with the highest score of 16 and the lowest score of 8. Moreover, the mean score of the posttest score of 50 students was 17.02 (S.D. = 1.58) with the highest score of 20, the lowest score of 13. Dependent Sample t-test was employed to analyze the data. The findings revealed that the mean score of the posttest was statistically significantly higher than that of the pretest at the significance level of 0.01. Hence, it could be concluded that the developed model was confirmed to be effective in enhancing students' critical reading ability. In addition, the sub skills of the main skills of critical reading were analyzed and compared to inspect the effects of the instructional model on each of the sub skills.



Table 21: Comparison of critical reading skills using dependent sample t-test (divided according to the sub skills of critical reading skills) of the implementation stage (Total score of each sub skill = 4)

Main skills	Sub skills	Test	N	Mean	S.D.	t-statistic	Sig.(2-tailed)
Analysis	Distinguishing (fact/opinion)	Pretest	50	1.00	0.75	4.37	0.000
		Posttest	50	1.60	0.60		
	Classifying	Pretest	50	1.08	0.77	4.07	0.000
		Posttest	50	1.64	0.69		
Synthesis	Combining	Pretest	50	1.04	0.66	4.17	0.000
		Posttest	50	1.70	0.78		
	Predicting	Pretest	50	1.06	0.51	5.31	0.000
		Posttest	50	1.70	0.67		
Evaluation	Prioritizing	Pretest	50	1.02	0.65	4.77	0.000
		Posttest	50	1.60	0.57		
	Concluding	Pretest	50	1.16	0.61	4.07	0.000
		Posttest	50	1.72	0.70		

As the table displays, the mean score of the posttest in all critical reading sub skills were higher than those of the pretest. The significance level of all sub skills were at the level of 0.01. It was also indicated that the biggest different score between the pretest and posttest mean score was combining skill, while the smallest difference was classifying skill. This showed that after the treatment of the developed instructional model, the students had achieved most in the skill of combining, whereas in terms of classifying, they gained less improvement. In overall, they had improvement in all sub skills of critical reading. It could be interpreted that the developed model was found effective in helping students level up their critical reading ability. So, the confirmation of the model was claimed.

## 2. The results from the gained score analysis

In order to obtain deeper information about the development of the students' critical reading ability, Development Score or Gained Score(GS) was used to analyze to examine the difference between the students' pre-test and post-test score.



This exhibited the levels of the development which were classified into four levels: basic, middle, high and very high level.

Table 22: Interpretation of the Development Score or Gained Score(GS) of the model implementation

Score	Level of Development
76-100	Very high development
51-75	High development
26-50	Middle development
1-25	Basic development

(Kanjnawasee, 2013)

Development Score or Gained Score(GS) (percent) of the experiment stage

X = Pre-test

Y = Post-test

F = total score

$$GS = \frac{(Y-X)}{(F-X)} \times 100$$

The gained score analysis was applied in this study to display the development of the students' critical reading ability to help confirm the effectiveness of the developed instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students. The determination of the confirmation was reflected by the levels of the students' critical reading development. The findings from the gained score analysis were exhibited in table 23.



Table 23: The results of the Development Score or Gained Score (GS) of the implementation stage

No.	GS (%)	No.	GS (%)	No.	GS (%)	No.	GS (%)	No.	GS (%)
1	37	11	58	21	30	31	33	41	45
2	50	12	33	22	28	32	28	42	33
3	46	13	36	23	36	33	25	43	30
4	53	14	33	24	27	34	35	44	16
5	58	15	30	25	40	35	20	45	35
6	41	16	33	26	31	36	36	46	44
7	45	17	40	27	33	37	38	47	27
8	54	18	36	28	38	38	35	48	33
9	50	19	27	29	22	39	22	49	36
10	55	20	33	30	40	40	40	50	50

Table 23 demonstrated that the highest level was 58%, while the lowest level was 16% and the large amount of the scores were in the middle level. To summarize the results of the Development Score or Gained Score (GS) analysis, a summary was showed in table 24.

Table 24: Summary of the levels of the Development Score or Gained Score (GS) of the implementation stage (total students = 50)

Score (%)	Level of Development	The amount of students
76-100	Very high development	-
51-75	High development	5
26-50	Middle development	40
1-25	Basic development	5



This table showed that 5 students gained high development level, 40 of them obtained middle development level and 5 person were in the basic development. The objective of this analysis was to investigate the students' development levels. It was found that most students gained middle development level and all of them were able to enhance their critical reading ability.

In conclusion, the findings from implementation stage demonstrated that the developed instructional model was confirmed effective in increasing students' critical reading ability as it could be observed through the significant difference between the mean scores of the pretest and posttest and the levels of the development score or gained score.

Based on the findings from the model experiment stage and from the model implementation stage, it could be affirmed that the developed model was effective in assisting students improve critical reading ability and promoting their positive attitudes towards the learning model.

#### **Chapter 4 summary**

This chapter reported the findings in the two phases: phase 1 (the development of the instructional model) and phase 2 (the evaluation of the effectiveness of the instructional model). For phase 1: the development of the instructional model was formed through considering theoretical framework of metacognitive reading strategy, reciprocal teaching, zone of proximal development and interactive approach. The main concepts of these theories were used to formulated the instructional model which consisted of five components. For phase 2: based on the examination of the critical reading ability results, it was revealed that the developed instructional model was found effective in enhancing students' critical reading achievement. In terms of the students' attitudes towards the instructional model, findings obtained from attitude questionnaire, students' journals and teacher' journals clearly showed that students had positive attitudes towards the developed model. Hence, it could be claimed that the developed instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students was effective to



assist students improve critical reading and was able to foster positive attitudes of the students, as well.





## CHAPTER V

### CONCLUSION, DISCUSSIONS AND RECOMMENDATIONS

This chapter discusses six topics: (1) a summary of the study; (2) a summary of the research findings; (3) the discussions of the research findings; (4) the implications of the study in EFL instruction; (5) recommendations for further studies; and (6) limitations of the study.

#### A summary of the study

This part is composed of statement of problems, research purposes, research questions, research hypotheses, research design and research procedures.

##### 1. Statement of problems

At the present boundless world, English is named as international language. It plays important roles in education, science, technology, business, entertainment, medicine, and communication. In the world of education, students have to achieve all kinds of English skills: listening, speaking, writing and reading. Particularly, when they face with a variety of media and gain tons of information, they have to be good at critical reading. Critical reading helps students become independent, careful, reasonable, thoughtful, analytical, synthetical and critical readers. Nevertheless, Thai students have low-level skills of critical reading.

Many scholars and researchers noted that reciprocal teaching and metacognitive reading strategy can assist students to improve critical reading skills. This study, therefore, was conducted to develop the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students.

##### 2. Purposes of the study

The objectives of this study are as follows:

2.1 To develop the instructional model based on reciprocal teaching with metacognitive reading strategy for enhancing critical reading ability.



2.2 To evaluate the effectiveness of the developed model.

2.3 To investigate the students' attitude towards the developed model.

### 3. Research questions

This study aimed to answer two questions.

3.1 Can the instructional model based on reciprocal teaching with metacognitive reading strategy help students enhance critical reading ability? If so, how?

3.2 What are the students' attitudes towards the developed critical reading model?

### 4. Hypotheses of the study

To evaluate the effectiveness of the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students and to investigate the students' attitudes towards the developed model, the hypotheses were proposed as follows:

4.1 The students' English reading ability scores obtained from the post-test are significantly higher than the scores gained from the pre-test at 0.01 level.

4.2 The students express positive opinions towards the developed model.

### 5. Research design

The main purposes of this study were to develop the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students and to evaluate the effectiveness of the developed model. In order to examine the effectiveness of the model, the researcher utilized the one-group pretest-posttest design. The evaluation of the effectiveness of the model was reflected by the results of quantitative data from the t-test, the gained score analysis and the students' attitudes. Furthermore, the reflections of qualitative data from the students' attitude questionnaire, the students' journals and the teacher's journals were analyzed to examine the students' opinions towards the developed model.

### 6. Research procedures

The research procedures of this study were composed of two phases: phase 1 (development of the instructional model) and phase 2 (evaluation of the effectiveness of the instructional model).



### 6.1 Phase 1: Development of the instructional model

This phase presented two stages: stage 1 (documentary study) and stage 2 (model development).

#### Stage 1: Documentary study

The first stage concerned documentary study by reviewing theoretical framework of critical reading, reciprocal teaching, metacognitive reading strategy, zone of proximal development and interactive approach to form the structure of instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students. In addition, the school curriculum, the national curriculum of the English subject for higher secondary level in terms of objectives, contents, instructional activities, assessment and evaluation were analyzed and synthesized. The results of the documentary study were used to develop the instructional model.

#### Stage 2: Model development

As for the second stage, the model development was constructed in three steps: (1) designing conceptual framework; (2) determining and validating the elements of the model; and (3) developing and validating the instruments.

##### 1. Designing conceptual framework

In the designing conceptual framework step, needs analysis and literatures concerned were studied to develop the conceptual frameworks which consisted of students' roles, teacher's roles and experimental procedures. The roles of the students in the instruction comprised three steps: (1) activating background knowledge and explicit learning; (2) guided practicing; and (3) independent practicing. The objective of this section was to boost students to become independent critical readers. According to the roles of the teacher, the teacher had the roles to teach students explicitly necessary knowledge, to activate students' prior knowledge, to model and transfer learning activities and to mentor students. This aimed to teach students about the necessary knowledge for critical reading and scaffold them to master reading strategies. When students got advanced in critical reading, the teacher removed helps and acted as a mentor. According to the experimental procedure, the one-group pretest-posttest design was considered to process to examine the effectiveness of the developed



model and to investigate the students' attitudes towards the model. The conceptual framework was formulated to determine the elements of the model and designed to develop instructional instruments and research tools.

## 2. Determining and validating the elements of the model

The components of the developed instructional model were invented according to the theoretical framework. The elements of the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability were composed of five aspects: rationales, objectives, contents, instructional processes and evaluation.

For the rationales, the instruction was consistent with the school curriculum, the National Education Act (1999) and the Basic Education Core Curriculum (2008). The collaborative working in a group of the students to complete the designed tasks using reciprocal teaching with metacognitive reading strategy to increase critical reading ability was applied for this. The teacher took the roles as an instructor, a guide, a motivator, a mentor and a facilitator. The teacher helped students at the first stage of the learning to understand how to better understanding of the reading materials. When the students mastered the reading processes, the teacher withdrew helps. At the end of the processes, students became autonomous critical readers .

In accordance with the objectives, the instructional model aimed to improve students' critical reading ability regarding the school curriculum, the Basic Education Core Curriculum (2008) and the National Education Act (1999). According to the contents, there are two aspects of the contents: reading passage-based contents and reciprocal teaching with metacognitive reading strategy-based contents. The instruction is relevant to the instructional processes to help students increase critical reading ability.

In terms of the instructional processes, there were three stages: (1) activating and explicit teaching; (2) guided practicing, modeling and transferring; and (3) independent practicing and mentoring. The key concept of the instructional processes was that the teacher scaffolded students at the beginning of the learning. Students gradually mastered the reading ability. Finally, they were able to work in a group using reciprocal teaching with metacognitive reading strategy to finish their



reading responsibilities. This instructional process boosted students to become critical and autonomous readers.

The last elements of the instructional model was evaluation. The objective of the instructional model was to level up students' critical reading ability and to promote positive attitudes towards the model. The instrument used to assess the students' reading ability was multiple choice critical reading achievement test developed by the researcher. In addition, the students' attitude questionnaire, the students' journals and the teacher's journals were employed to investigate the students' opinions towards the developed model.

In summation, the components of the instructional model involved rationales, objectives, contents, instructional process and evaluation. After the model components were determined, the instructional model was validated by the panel of the three experts in the field of English teaching as a foreign language before trying out to examine its feasibility and reliability. Validation findings revealed that three of the experts agreed on each item. Therefore, it could be claimed that the instructional model was considered acceptable.

### 3. Developing and validating the instruments

Two kinds of the instruments were developed. Instructional instrument consisting of lesson plans was designed to experiment to examine the effectiveness of the instructional model and to implement to confirm the effectiveness of the model. The lesson plans were developed based on the instructional processes to encourage students to use reciprocal teaching with metacognitive reading strategy to increase critical reading ability through a variety of learning activities. As for the research instruments, quantitative and qualitative tools were created to assess the students' critical reading ability and the students' attitudes. In order to collect quantitative data, the multiple choice critical reading achievement test was constructed by the researcher to gain the students' critical reading ability scores in pre-test and post-test. In addition, to triangulate the data pertaining to the students' attitudes towards the developed model, the students' attitude questionnaire, the students' journals and the teacher's journals were also employed. All instruments were validated and piloted and some parts of each tool were modified to make sure that they were effective before use.



## 6.2 Phase 2: Evaluation of the effectiveness of the instructional model

This phase presented two stages: stage 1 (model experiment) and stage 2 (model implementation). Stage 1 was aimed to investigate the effectiveness of the developed instructional model. For stage 2, it focused on conducting the implementation to confirm the gained effectiveness of the developed instructional model.

### Stage 1: Model experiment

The experiment was carried out by the researcher in the first semester in the academic year 2013 with an intact group of 50 higher secondary school students at Kalasinpittayasan school, Kalasin province, Thailand. The experiment lasted 39 periods. The main purpose of the model experiment was to investigate the effectiveness of the developed model. The study was based on the one-group pretest-posttest design. In the first week of the treatment, the introduction was presented and the pre-test was taken. At week 2-12, the instruction was conducted according to the designed lesson plans. In the last week, the posttest was conducted. The critical reading scores gained from pretest and posttest were compared to determine the effectiveness of the developed model. In addition, the data obtained from the students' attitude questionnaire were analyzed to support the findings from the critical reading test. The analysis employed descriptive statistics of percentage, Standard Deviation and mean, together with content analysis. Moreover, the information received from the students' journals and the teacher's journals was analyzed by means of contents analysis to support the findings derived from the students' attitude questionnaire. The information gained from the students' questionnaire, the students' journals and the teacher's journals was used to triangulate to confirm the results from the critical reading achievement test.

### Stage 2: Model implementation

In order to confirm the effectiveness of the developed model gained from the model experiment stage, the model implementation was conducted by the another researcher. The study was carried out in the second semester in the academic year 2013 with an intact group of 50 higher secondary school students at Kalasinpittayasan school, Kalasin province for 39 periods. The instruments used in this process were the teacher's manual, the lesson plans and the multiple choice critical



reading achievement test. The scores gained from the pretest and the posttest were compared to affirm the effectiveness of the developed model.

### **A summary of the research findings**

This section discussed the findings based on the objectives of the study. That is, the results of the model development, the investigation of the effectiveness of the developed model, the confirmation of the effectiveness of the developed model and the students' attitudes towards the model were presented.

#### **1. The results of the model development**

The instructional model based on reciprocal teaching with metacognitive reading strategy mainly focused on increasing the students' critical reading ability. The instructional setting was Kalasinpittayasan school, Kalasin province. The developed model was composed of five components: rationales, objectives, contents, instructional processes and evaluation. The heart of the instructional model was the instructional processes which consisted of three stages including (1) activating and explicit teaching, (2) guided teaching, modeling and transferring and (3) independent practicing and mentoring.

At the first stage of the learning, the students were explicitly taught how to use reciprocal teaching merged with metacognitive reading strategy to improve critical reading skills. Students worked in a group of five to take turn their roles to complete responsibilities in the reading goals. Later, when students gradually improved their critical reading skills, the teacher continually removed helps. At the end of the learning processes, students gain more advanced and became autonomous critical readers.

The instructional model was developed due to two phases: Throughout the two phases, the model was designed, experimented and reaffirmed the effectiveness of the model. Ultimately, the instructional model was proofed effective in helping students enhance critical reading ability. The ready-to-use instructional model including the teacher's manual and lesson plans were prepared to be employed by other teachers.



## 2. The results of the investigation of the effectiveness of the model

The interpretation of the effectiveness of the model was inspected through considering the t-test, the gained score analysis and the students' attitudes. For the t-test, it was found that the mean score of the posttest was statistically significantly higher than that of the pretest at the 0.01 level of the significance. The gained score analysis noted that all students were able to enhance their critical reading ability and most of them received middle development level. Moreover, most of the students expressed positive attitudes towards the developed model. Hence, it could be interpreted that the effectiveness of the developed instructional model was found.

## 3. The results of the reconfirmation of the effectiveness of the model

The evidence to confirm the effectiveness of the model was from the t-test and the gained score analysis. The t-test results indicated that the mean score of the posttest was statistically significantly higher than that of the pretest at the significance level of 0.01. In addition, the gained score analysis was found that all students were able to increase their critical reading ability and most of them obtained middle development level. Pertaining to this evidence it could be interpreted that the effectiveness of the developed model was reconfirmed.

## 4. The results of the students' attitudes towards the model

These results were reflected from the students' attitude questionnaire, the teacher's journals and the students' journals. The quantitative data from the students' questionnaire were analyzed by means of descriptive statistics and the qualitative data from the students' attitude questionnaire, the teacher's journals and the students' journals were analyzed using content analysis. Findings from these analyzes revealed that students had positive attitudes towards the developed model.

## **Discussions of the research findings**

This discussion was consistent with the research findings. The research findings were mainly classified into three aspects: (1) the model development, (2) the effectiveness and the confirmation of the effectiveness of the instructional model and





(3) the students' attitudes towards the model. Therefore, this section presented these three aspects as the following:

1. Discussion of the results of the model development

The instructional model was developed based on the key concept of reciprocal teaching and metacognitive reading strategy. Reciprocal teaching referred to an instructional strategy that makes use the form of a conversation between teacher and students and between students themselves for the purpose of creating critical reading skills. Metacognitive reading strategy was composed of three components: planning, monitoring and evaluating. Metacognitive reading strategy was used to direct the use of reciprocal teaching to increase critical reading and used to check if the desired goal has been fulfilled. According to the analysis of these key concepts, the instructional model was developed with five elements: rationales, objectives, contents, instructional processes and evaluation. The heart of the instructional model elements was the instructional processes. The instruction in the classroom was designed to have the teacher and the students work together to shape up the students' critical reading ability. Because of this, the developed instructional model was constructed from the application of the five conceptual frameworks: the teacher's scaffolding, the students-teacher cooperation, the social interaction, the learning atmosphere and the learning activities.

For the teacher's scaffolding and the students-teacher cooperation, the teacher was responsible for the whole of the instruction at the start of the learning and then tried to help students improve reading processes. At the end, the teacher removed help, when found that the students was master in what they learned. On the other hand, the students learned what, how, when and why to use reciprocal teaching with metacognitive reading strategy. They gradually improved critical reading processes. Finally, they were able to practice independently. They became self-regulated critical readers. This learning processes were conducted by applying the social interaction concepts to promote students' discussion confidence. Moreover, learning atmosphere and learning activities were appropriately provided in the instructional process as they were important for encouraging learning ability. After finishing this stage, the developed instructional model was used to find its' effectiveness.



## 2. Discussion of the results of the effectiveness of the instructional model

According to the research findings, it could be claimed that the instructional model based on the reciprocal teaching with metacognitive reading strategy were able to help students effectively increase critical reading ability after being exposed to the treatment. The students' development in critical reading ability could be due to six reasons: (1) the assistance from the teacher, (2) the collaboration between the teacher and the students, (3) the social interaction, (4) the reciprocal teaching strategy with metacognitive reading strategy, (5) the learning atmosphere in the classroom and (6) a variety of learning activities.

### 2.1 The assistance from the teacher

The instructional processes of the developed model were consisted of three stages including (1) activating and explicit teaching, (2) guided teaching, modeling and transferring and (3) independent practicing and mentoring. The significance of the instructional processes was to directly encourage students at the first step of the learning processes and tried to boost them to get better understanding about how to use reading strategy to improve the critical reading skills. At the final step after getting advanced in using reading strategy, the students were able to conduct reading autonomously. Independent effective critical readers were the ultimate goal of the instructional processes.

Based on the results of this study, it was found that there was a statistically significant difference between the mean scores students gained from the pretest and posttest of achievement critical reading ability at a significant level of 0.01. Besides, the findings from the students' attitude questionnaire, the students' journals and the teacher's journals harmoniously revealed that students gained development in critical reading strategy at the first stage of the instructional process. That is, the assistance of teacher was able to level up students' reading ability.

Theoretically, the help of the teacher through using activating and explicit teaching was essential for language learning because it could help students become metacognitive and it created independent critical readers (Palincsar and Brown, 1984; Vygotsky, 1978 and Rotchu, 2010). In the first stage of this study, activating strategy was applied to initiate the students' prior knowledge. For instance, the teacher



asked the students to monitor what being read or the teacher employed questioning technique using “what I know”, “what I want to know” and “what I learned”. Gradually, after the students had stimulated their background knowledge, they were provided opportunities to share their experiences in a group discussion. Finally, the students were able to make connections to the reading materials autonomously. In order to follow the students’ progress, the teacher examined and got feedback periodically. This would help students move forward to level up their critical reading stage.

Also, explicit teaching strategy was utilized in the first stage of the instructional process to instruct students essential knowledge for critical reading approach. Explicit teaching involved directing students attention toward the specific learning, describing new reading strategy and how to use it effectively and modeling concepts and reading process reasonably. For example, the teacher divided topics and contents into small sections and taught separately. The next step was to set the purpose of the reading, instructed students what to do, demonstrated them how to do it. Finally, the teacher allowed the students to practice in a group to master their new reading strategy. The explicit instruction was systematically developed from the little responsibility of the students to the total students responsibility. When the students were able to conduct the whole responsibility by themselves, the teacher removed help. The students came to be independent readers, while the teacher acted as a mentor. This would help students to gain unknown critical reading approach and obtain more confidence in reading.

In conclusion, based on the first stage of the instructional process in the developed model, the activating and the explicit teaching strategy which focused on how to refresh students’ prior knowledge and provide new vital reading strategy could be claimed as part of the students’ critical reading development.

## 2.2 The collaboration between the teacher and the students

Based on the second stage of the instructional process, guided teaching and modeling and transferring, the teacher and the students had to work together to achieve the critical reading strategy.

Theoretically, it was found that the learning demonstration and the reading modeling were beneficial for students in such a way that the students were able



to move forward from a lower level to a higher level of critical reading skills (Palincsar and Brown, 1984; Vygotsky, 1978 and Rotchu, 2010).

In this study, the teacher employed the guided teaching approach to recall the background to be used in reading materials. The teacher guided how to use predicting, questioning, clarifying, summarizing, planning, monitoring and evaluating to improve critical reading skills. This would activate the students to build up what they had already learned in the explicit teaching stage to manage the new situational reading. The students would feel more confident and proud of themselves for discovering the solutions. The teacher walked around observing the students' behaviors, guiding them towards the proper answer and giving them useful feedbacks. The guided teaching is utilized interchangeably with the modeling teaching.

As this instructional process was called the collaborative instruction and in order to help students master the critical reading skills, the teacher had to model the reading procedures and let them process the reading methods by themselves under the teacher's control. The teacher demonstrated how to use reciprocal teaching with metacognitive reading strategy to improve critical reading ability, while the students observed and imitated the critical reading procedures. Later, the teacher allowed the students perform the designed task in a group to reach the desired reading goals. During this time, the teacher gave essential feedbacks and assessed the students' improvement. The teacher withdrawn help, when found that the students gained more advanced in using critical reading strategy. Eventually, the teacher completely transferred responsibility to the students for practicing by themselves.

According to the research findings, it was revealed that the mean scores of the posttest were significantly higher than the mean scores of the pretest at 0.01 level. Also, the triangulation of the data from the students' attitude questionnaire, the students' journals and the teacher's journals confirmed the students' critical reading ability development and exhibited the positive opinions towards the developed model. The students' development in terms of critical reading ability referred to the effectiveness of the developed model which could be stemmed from their experiences derived from the collaboration between the teacher and the students as mentioned above.



### 2.3 Social interaction

In the third stage of the instructional process of the developed model: the independent practicing and mentoring: the students had to work in a group in order to take their roles to complete the designated tasks. In this stage, students were assigned to take role of the group leader, the predictor, the clarifier, the questioner and the summarizer interchangeably. They took turns to finish their responsibility in reading. At this point, the social interaction was implanted and continually improved and became independent critical readers with high social interaction skills.

In accordance with the theory of reciprocal teaching (Palincsar and Brown, 1984) and metacognitive reading strategy (Flavell, 1979), social interaction had important roles in helping students enhance critical reading ability. Interaction provided the opportunities for the students to share experiences, collaborate with each other to finish the responsibility and increase the students' critical reading ability (Vygotsky, 1978; Janudom, 2009; Rotchu, 2010 ). Social interaction in terms of reciprocal teaching with metacognitive reading strategy refers to the instruction that makes use the form of conversation between the teacher and the students, as well as between the students in a group to analyze, synthesize and evaluate the reading materials. Students took turns using reciprocal teaching strategies (predicting, questioning, clarifying and summarizing) integrated with metacognitive reading strategies (planning, monitoring and evaluating) to set the reading goals, to plan to use reading strategy, to discuss the reading issues, to check the state of reading and to examine whether the reading goals had been met.

In this process, social interaction provided students critical reading skills (Vygotsky, 1978; Flavell, 1979; Palincsar and Brown, 1984; Janudom, 2009 and Rotchu, 2010). Referenced to the research findings, it was noted that , from the critical reading achievement test, the students gained more advanced in critical reading ability. It was also found that students' positive attitudes were exhibited from the students' attitude questionnaire, the students' journals and the teacher's journals. Consequently, it could be said that social interaction provided in the instructional processes significantly impacted the students' critical reading ability improvement.



#### 2.4 The application of reciprocal teaching strategy

This study designed how to utilize metacognitive reading strategy to monitor the use of reciprocal teaching to enhance critical reading ability for higher secondary students. The reciprocal teaching strategy (predicting, questioning, clarifying and summarizing) was employed to increase critical reading skills, while the metacognitive reading strategy (planning, monitoring and evaluating) was inserted in the reading process to productively direct the use of reciprocal teaching strategy. The effectiveness of the model and the students' attitudes towards the model was investigated. Critical reading ability which reflected the effectiveness of the model was assessed by the multiple choice critical reading achievement test developed by the researcher using pretest and posttest format. The students' attitude questionnaire, the students' journals and the teacher's journals were triangulated the data to interpret students' opinions.

Before reading, planning strategy was used to set up the reading goals involving analyzing, synthesizing and evaluating reading materials. Later, predicting was employed to predict what will happen in the story. Followed by questioning, what, when, where, why, who were applied to ask about the reading passage before, during and after reading stage. Clarifying was also operated in this reading stage to make the problems clear. In the process of reading to achieve the reading goal, monitoring was utilized to examine the state of reading. After reading, summarizing helped to sum up the story and finally, evaluating was utilized to examine whether the reading goals had been reached. If the reading goals had not been met, the students came back to the first stage and recheck to handle the problems.

The application of these strategies in the instructional processes allowed the students to practice critical reading. Based on the research findings, it was noted that students achieved critical reading skills: analysis, synthesis and evaluation. Moreover, it was also found that the students expressed positive opinions towards the instructional processes. It could be asserted that these productive outcomes were affected through the use of reciprocal teaching strategy merged with metacognitive reading strategy to formulate this instructional model.



## 2.5 Learning atmosphere in the classroom

A good classroom atmosphere has positive results on learning (Nation, 2009; and Wan-a-rom, 2009). The instructional model provided the positive atmosphere to promote the students' critical reading achievement due to 5 aspects: (1) arranging students' desk to be productive to learn, (2) being the teacher's professional manner, (3) greeting the students with smile and warm manner, (4) giving positive feedbacks and (5) equipping the modern learning equipments.

In terms of desk arranging, students were asked to sit in a group of five to cooperate and collaborate to help each other to finish the designed responsibility. This assisted the students relaxed, happy and had fun. For being the teacher's professional manner, the teacher used a warm body language and a cheerful tone of voice to encourage the students' discussion in a group, or to express their opinions. The teacher's performance is relaxed, well-poised and enthusiastic. According to smiled greeting and warm welcome, the teacher made familiarity with the students through smiled speaking throughout the lesson. Warm welcome and cheerful manner of the teacher helped students feel more confident in practicing autonomously. Moreover, reflecting positive feedbacks was employed in the classroom to cheer up the students, when they faced the difficulty. The specific praise given to them was important, as well. In addition, high technology learning equipments were also essential in promoting good learning atmosphere. Visualizer, projector, computer and internet were provided in the classroom to support the students' needs and to boost good attitudes towards the learning.

Based on the results of the students' attitudes towards the instructional model, the students said that they favored the learning climate in the classroom. It provided them with enjoyment and relaxation while learning. The classroom was full of smiling and laughing. The students showed eagerly and attentively in learning participation. Consequently, all of these aspects could be claimed to promoted the students' critical reading development.

## 2.6 A variety of learning activities

The learning activities were developed so that the learning led to the achievement of the instructional model outcomes. The learning activities were



considered as the core part of the instructional model (Wan-a-rom, 2009). Hence, the learning activities in this study were discussed into 4 aspects: (1) related to the model's objectives, (2) based on student-centered learning, (3) helped students learn more critical reading skills, (4) scaffolded students to be autonomous learners and (5) encouraged students to read critically.

According to these aspects, the lesson plans were created using pre-while-post reading stage to design reciprocal teaching with metacognitive reading strategy to increase critical reading skills. For example, before reading, activity was created by using planning and predicting strategy through true or false guessing, words matching, phrases matching and other activities. In during reading activity, the monitoring, questioning and clarifying strategy were employed through concept mapping; main idea, supporting details and conclusion finding; wh-questioning, context-clue clarifying and group working. For after reading activity, confirming prediction, summarizing and evaluating strategy were utilized to help students achieve the desired goals of reading. The learning activity used involved answering the multiple choice test, discussing the open-ended questions and text-structure drawing.

With reference to the research findings, it was revealed that most students liked learning activities at all reading stages. They had fun, enjoyed learning, smiled and laughed while reading and felt relaxed. They attended the class actively, attentively and joyfully. They also noted that the learning activities provided were new to them and very beneficial for their learning. Therefore, it could be reasonably confirmed that the students' critical reading ability and the students' positive attitudes had stemmed from these learning activities.

To sum up the discussions of the research findings in terms of the effectiveness of the instructional model, it revealed that the developed instructional model based on reciprocal teaching with metacognitive reading strategy was significantly productive in helping students enhance critical reading ability. This effectiveness have been due to six reasons: (1) the scaffolding from the teacher, (2) the teacher and the students collaboration, (3) the social interaction, (4) the use of reciprocal teaching with metacognitive reading strategy, (5) the classroom learning climate and (6)





the varied learning activities. So it could be concluded that the developed model had substantial values in helping students increase critical reading skills.

### 3. Discussion of the results of the students' attitudes towards the model

The effectiveness of the instructional model was reflected through the results of the students' attitudes towards the model gained from the students' attitude questionnaire, the students' journals and the teacher's journals.

Based on the questionnaire, the mean scores in the students' attitude questionnaire were significantly higher than 3.0 from a 5- point Likert scale which indicates that the students have positive attitudes towards the instructional model. This showed that the instructional model was productively effective in helping students enhance critical reading ability.

In this section, the students' attitudes towards the model would be discussed. As reported by the content analysis of the students' questionnaire, the students' journals and the teacher's journals, it revealed that most students expressed positive attitudes towards the model. The students reported that they favored the model due to eleven reasons: (1) assisting them to know rough story before reading, (2) functioning background knowledge, (3) providing them enjoyment, (4) enhancing their reading skills, (5) equipping them more for questioning skills, (6) providing them clarifying skills, (7) helping them gaining monitoring skills, (8) increasing their reading skills, (9) providing more confident in reading, (10) creating pleasurable environment and (11) giving them opportunities to practice independently.

Given this evidence, it can be seen that the students liked the model. This could be stemmed from four aspects as follows: (1) relationships between the teacher and students, (2) learning activities and (3) learning climate.

#### 3.1 Relationships between the teacher and students

This instructional model made use of reciprocal teaching with metacognitive reading strategy to enhance students' critical reading ability. The instructional process was designed to have the teacher explicitly teach students at the early learning stage. Then, the teacher modeled and assisted students practice group discussions using four reciprocal teaching strategies and three metacognitive reading strategies to increase critical reading skills. When the teacher found that the students



were able to process the reading procedures by themselves, the teacher removed helps and acted as the observer. Finally, the students gained advanced in working in a group and became critical readers. The teacher came to be the mentor.

In accordance with the relationships between the teacher and students, it could be seen that the teacher and the students worked together throughout the processes. The teacher gave the whole direct instruction in the beginning of the learning stage. The role of the teacher was gradually decreased as the students developed their reading skills, while the role of the students was continually increased. The purpose of this instructional process was to boost the students to become autonomous critical readers.

The evidence seemed to indicate that most of the students favored the instructional process, enjoyed working in a group and had more confident in reading. They expressed that the use of dialogue in a group provided them good opportunities to get friendships, to create interpersonal skills and to build up the relationships with the teacher and friends. The following were the examples to show the impressions about having a good relationships with the teacher and friends.

The students stated that (S1) "I like working in a group, because we can share our experiences and help each other to finish the tasks". (S2) "Working under the helps of the teacher makes me feel more confident to do the mistakes and I learnt more about the faults". (S3) "Having good relationships with the teacher and friends allows me to improve social interaction skills. I dare to ask for more information, for confirmation and for conclusion. I love the teacher and my friends". (S4) "I have close, supportive, positive and helpful relationships with the teacher that makes me able to level up my reading ability levels. I am impressed with the cheerful helps of the teacher. I am looking forwards to seeing him for the next periods". (S5) "I can read better, can express my views towards the lessons freely and can achieve critical reading skills at higher levels academically. This may because I feel a personal connection to my teacher. He praises me when I do well and asks me to chin up when I failed". (S6) "The warm tone of the voice and the smiling and laughing of the teacher make me feel fun, relaxed and love the English class better." and (S7) "The cheerful manner of the teacher makes me feel more active, attentive and energetic."



In relation to the students' reflections, it must therefore be recognized that the students had good opinions towards the teacher and friends. The positive teacher-student relationships directed the students into the productive reading processes and built up their desire to learn autonomously. Therefore, this instructional model was productive in promoting a good relationships between the teacher and students which helped the students attain their needs.

### 3.2 Learning activities

In order to produce big gains in student learning, a variety of learning activities were provided based on the theoretical framework of reciprocal teaching with metacognitive reading strategy to enhance critical reading ability. The activities were developed pertaining to the objectives of the instructional model: to promote positive attitudes and to increase critical reading skills. The activities provided students the opportunities to practice steps by steps to build up critical reading levels. The students gradually strengthened their knowledge, experiences and confidence in critical reading. Exposing to the learning activities throughout the instructional sessions, the students were able to find that there was more than one right answer, there were good relationships in working with friends and there were entertainment in learning English.

Moreover, the learning activities can help students improve critical reading skills, to plan for reading, classify difficult concepts, to contribute more to group discussion and to become self-directed critical readers. The reflections from the students' journals revealed that the students had optimistic opinions towards the learning activities. They noted, for example,

(S1) "Discussing in a group to finish the desired tasks helps me master the presentation skills. I can convince my friends to accept my points of views. I am able to show what I think, what I accept and reject and how I feel about the learning. I am proud that I can do it. Thank you teacher."

(S2) "Working under the assistance of the teacher activates me to gain more confident, feel relaxed and enjoyed learning. When the teacher asked a question, I am trying to find more possible answers. I do not afraid to make mistakes. I think that because of the teacher's help, I can think out of boxes."



(S3) “The activities about reciprocal teaching and metacognitive reading strategy foster me to integrate concepts analyzed from the reading materials. I can apply my experiences to a new reading passage, as well as improve my critical reading ability. I am happy with my reading levels. I am confident that I can be trained to achieve higher levels of critical reading.”

(S4) “Creating concept mapping helps me take my own lecture notes and identify core part of the reading passage. I draw concept map to separate main idea, supporting details and conclusion. I can get deeper understanding through mapping. Knowing text structure makes me able to analyze and synthesize the passage effectively. I can read better and I think, it is because of the ability in mapping concepts.”

It was noteworthy that the students expressed favorable opinions towards the learning activities. The activities helped them participate more in class, did better in presentations, achieved critical reading ability and provided them enjoyment and relaxation. Therefore, it could be clearly seen that learning activities were powerful in helping students’ critical reading ability and fostered them to feel positive towards the instructional model.

### 3.3 Learning climate

A good classroom climate is considered as an productive factor in increasing students’ critical reading skills because it is directly concerned with the students’ emotional effects. It is related to the teacher, the classroom and the learning equipments. These elements promote creative, positive and motive feelings of the students. Consequently, setting a good classroom climate for students is essential (Wan-A-Rom, 2009).

Teacher is one of the most components in learning. The teacher performs as the instructor, the facilitator, the motivator, the assessor, the planner and the mentor (Wan-A-Rom, 2009). In order to build up a good environment in the classroom, the teacher plays important roles in promoting good feeling towards the students. The skillful teacher has a sense of humor. Relaxed, well-poised and active character is necessary for the teacher. The teacher is concerned with the learning throughout the whole processes. Therefore, it is vital that the teacher has to perform well in every



learning process and change his/her role according to the learning situation. In this study, the teacher is a professional person based on the aspects mentioned above. This made the students feel good towards the teacher and like to work together with the teacher and friends with good temper.

In relation to the physical classroom setting up, the students sat in a group of five to promote discussion. Each of them had their own major role to finish. Moreover, they had to help each other to complete the designed tasks. Other factors were also important such as a clean, safe, comfortable and attractive classroom. The last factor influencing a good classroom climate was learning equipments. As we are in the internet world, high educational technology is essential to be prepared for the learning. They were Visualizer, projector, computer, speakers and internet. These equipments provided the students to understand the concepts concretely and gave their opportunities to learn to get insight into the text deeper.

A good classroom climate is effective in promoting students' reading ability. The professional teacher, the appropriate classroom setting-up and the providing learning equipments play important roles in increasing students' attitudes towards the model. It can be found their positive expressions in the students' attitudes, the students' journals and the teacher's journals that they stated favorable opinions. For example,

(S1). "Learning in a good classroom climate helps me feel active, attentive and relaxed. I am looking forwards to seeing the teacher and friends working together in a group exchanging experiences, helping each other to gain new knowledge. The teacher always give me encouragement and ask me to chin up when I feel down".

(S2). "Sitting in a group and working together makes me feel more confident in making good relations with others. I get new friends. I understand others better. I can adjust myself to work with my friends. We all feel the same such as feel bad, happy, cheerful and down".

(S3). "Using internet promotes my active and productive learning. I love using my phone searching for unknown words, phrases and sometimes for new knowledge concerning the reading materials. We, all, love watching story presenting through using projector and visualize. It is interesting and exciting. It helps us understand the contents deeper."



Implied from these reflections, it was found that providing a good learning climate: a good character teacher and modern technology equipments was productive in fostering students' attitudes towards the learning. This make them active, relaxed and feel happy, while learning.

### **Implications of the study**

The instructional model based on reciprocal teaching with metacognitive reading strategy was proved that it is significantly effective in promoting students' critical reading skills. It was also revealed that students expressed positive attitudes towards the model. Therefore, it was valuable to apply the developed instructional model for critical reading instruction. The following were the implications of the study for the pedagogical instruction based on the research findings gained from the critical reading achievement test, the students' attitude questionnaire, the students' journals and the teacher's journals.

#### **1. Reciprocal teaching with metacognitive reading strategy**

The present study details how to model the concept of reciprocal teaching with metacognitive reading strategy to enhance critical reading skills. Many scholars (Palancsar and Brown, 1984, Naranunn, 1996, Galloway, 2003, Walters, 1989, Philip & Hua, 2010 and Tan Ooi Leng Choo et. al., 2011) noted that this concept is vital for learning. Overall significance in language learning is to boost students to improve reading skills from lower levels to higher levels. The collaboration between the teacher and the students or between the students and the students fosters critical reading ability (Palancsar and Brown, 1984, Cooper, Timothy and Greive, Cedric, 2009 and Iwai, 2011). To make this process more productive, reciprocal teaching activity should be directed by the use of metacognitive reading strategy. It effectively controls the reciprocal teaching activity to gear up students' critical reading ability and usefully examines if the goal of reading has been reached (Flavell, 1979, Cromley, 2005 and Philip & Hua, 2010). According to this concept, the instructional process of the model is developed. Based on the research findings, the instructional process is efficient in enhancing students' critical reading ability. The students are likely to acquire the ability



to analyze, synthesize and evaluate what they read through working in a group exchanging their roles to complete the designed tasks. In addition, the students trends to continually improve their responsibility in reading and probably become independent readers. In terms of the students' attitudes towards the model, it appeared that the mean scores were higher than 3.0 from a 5-point Likert scale. This may be stemmed from the instructional model based on reciprocal teaching with metacognitive reading strategy.

## 2. Design of collaborative learning strategy

The present study is based on the application of the reciprocal teaching which occurs in the form of a conversation between teacher and students pertaining the reading materials. This conversation is a kind of collaborative learning structured by the use of four reading strategies: predicting, questioning, clarifying and summarizing (Palincsar and Brown, 1984). Students are working in a group of five taking the roles as group leader, predictor, questioner, clarifier and summarizer. They help each other in the group learn to become critical autonomous readers. The group leader asks one another to take a prediction, clarification, question, or summarization and asks the other members of the group to confirm or reject what one says. The members actively share experiences through the reading stages to increase reading skills. Vygotsky (1978) said that in the zone of proximal development, the aids from teacher or friends or experts can enhance students in learning to become more advanced. When the teacher acts as the supporter and the students participate as a receiver, the students gradually master the learning ability. Eventually, the students are able to learn independently. According to the research findings, it appears that the students receive body of knowledge through the use of reciprocal teaching and are more likely to read critically and learn autonomously. Moreover, they enjoy learning, favor the instructional process and have fun while learning. Therefore, it may be claimed that the developed instructional model is potentially possible to help students develop critical reading ability.

## 3. Social interaction skills

The research findings revealed that the developed instructional model was effective in increasing students' critical reading ability and promoting students' positive attitudes. The model made use of social interaction as a part of the instructional processes to foster students' critical reading ability. This appeared to indicate that social



interaction had important role in nurturing students' critical reading skills and boosting students' good opinions towards the learning (Vygotsky, 1978, Flavell, 1979, Palincsar and Brown, 1984, Janudom, 2009 and Rotchu, 2010). Most students noted that they gained a good relationship with friends, got insight into what they learnt and obtained more confident through social interaction. Social interaction helps them level up their body of knowledge and encourage them to be independent in reading. To support a good atmosphere in building social interaction, the providing of a cheerful, helpful, relaxing, friendship learning climate is vitally needed (Vygotsky, 1978, Janudom, 2009 and Rotchu, 2010 ). Moreover, in order to direct students on the right track of the instructional process, the teacher's assistance is required. The teacher observes, gets feedbacks and mentors while the learning is going on. The students are attentive, active and creative, when the teacher pays attention to them while practicing. In conclusion, it is likely that the students' development in critical reading skills is resulted from the social interactions.

#### 4. Knowing students' state of mind

State of mind seems to be one of the most impactful factors supporting students critical reading (Palincsar and Brown, 1984, Warn-A-Rom, 2009 and Janudom, 2009). State of mind is a kind of something to show whether the students are ready to study or not. Students are not only different in the level of knowledge, but in the degree of readiness. Knowing students' mental state is important for the teacher as it is useful for running learning activities. To this point, the students' journals and the teacher's journals are utilized to reflect the mental states. After the class, students were allowed to write their journals to express their feelings, opinions and emotions. The teacher observed students' behaviors and recorded the information. Data gained from these instruments together with the observation of the teacher helped the teacher take more careful in operating instruction. As state of mind affects students' learning ability, activating the state seems to be one of the best ways to prepare the students ready for the study. Ways to activate the mental state are to speak out loud, say something to cheer students up and using eyes contact as well as body language to build up students' emotions. In brief, recognizing students' state of mind is important for the teacher to gear up students' learning ability.





### 5. Students' and teacher's role

The main role with regard to the instructional process is that the teacher and the students should work together to help students improve critical reading ability by using reciprocal teaching with metacognitive reading strategy. At the beginning of the instructional stage, the teacher has to provide explicit teaching to students and the students need to learn to activate the prior knowledge and gain new experiences. Later, the teacher offers guidance and models how to use reading strategy to enhance critical reading skills, while the students work in a group to help each other to imitate and apply what have been taught. At this point, the teacher assessed the students' development. When found that the students master the learning strategy, the teacher gradually removes aids. In the final stage, the teacher lets the students practice in a group independently. The students autonomously conduct the learning strategy to be self-regulated critical readers. Based on these instructional processes, the teacher tends to equip the suitable direct teaching, appropriate guidance and productive mentor to transform students' learning status. Similarly, the students should be active and attentive throughout the overall learning processes.

In summary, the effectiveness of the developed instructional model based on reciprocal teaching with metacognitive reading strategy is reflected through many aspects such as collaboration, social interaction, mental state, teacher's support and students' self-respect. Therefore, the teacher should be aware that the combination of these factors is imperative for helping students to become effective autonomous critical readers.

### **Recommendations for future research**

Based on the findings of the study, the evidence indicated that the developed instructional model was effective in increasing students' critical reading ability and promoting students' positive attitudes. The following are additional studies that could be carried out to further investigate the effectiveness of this model. Recommendations are presented as follows:



First, this instructional model based on reciprocal teaching integrated with metacognitive reading strategy is aimed to enhance critical reading strategy which consists three main aspects with six subaspects such as analysis (distinguishing and classifying), synthesis (combining and predicting) and evaluation (prioritizing and concluding). It is fascinating to examine the effectiveness of the model on other aspects of Bloom taxonomy (Bloom, 1956) such as knowledge, comprehension and application. Moreover, it is also interesting to investigate the effects of this model on other aspects of analysis, synthesis and evaluation in the further studies.

Second, based on the findings from analyzing students' journals, it was found that students gained more confident in conducting conversation in a group discussion. There should be a study carried out to investigate students' critical thinking, or speaking improvement.

Third, a replication of the present developed instructional model revealed the effectiveness in helping higher secondary school students enhance critical reading ability. It could be interesting to conduct the same study in the lower or higher level of this to confirm the effectiveness of the model.

Lastly, the same study should be done in other foreign languages classes to confirm the effectiveness of the model or to increase other skills such as creative reading, creative thinking, critical thinking, or other higher levels of reading skills.

To sum up, future studies in this area should be done to confirm the effectiveness of the model. The study should be extended to other skills of critical reading, done in thinking and speaking, carried out in lower and higher level of reading and done in other foreign languages.

### **Limitations of the study**

The factors that may affect the external validity (generalization) of the findings of the study to other student populations are as follows:

1. The participants were eleventh-grade students.
2. The participants were composed of 50 students which all of whom are Thai native speakers.



3. This study was limited to the selected critical reading skills based on Bloom's Taxonomy which consists of three main skills and six subskills analysis (distinguishing and classifying), synthesis (combining and predicting) and evaluation (prioritizing and concluding).

### **Chapter summary**

This chapter elaborates three aspects: summary, discussions and recommendations. A summary contained two sections: a summary of the study and a summary of the research findings. A summary of the study focused on introducing important issues pertaining to the study and research procedures. For a summary of the research findings, it aimed to detail the summary of the model development, the model experiment, the model implementation and the students' attitude questionnaire.

In terms of the model development, the five elements were combined to create the instructional model. With regard to the model experiment, it was noted that the developed instructional model was found effective in enhancing critical reading ability. Based on the model implementation, the findings revealed that the developed instructional model was confirmed effective in increasing critical reading ability. Finally, the findings from the students' attitude questionnaire, the teacher's journals and the students' journals indicated that students expressed positive attitudes towards the developed model.

The evidence from these findings displayed the effectiveness and the confirmation of the effectiveness of the developed model. Therefore, it could be claimed that the developed model was effective in enhancing critical reading and fostering positive attitudes towards the model.



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## APPENDIX





**APPENDIX A**  
**Instructional model**



**Instructional model  
based on reciprocal teaching with metacognitive reading strategy  
to enhance critical reading ability for higher secondary school students**

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To elaborate instructional model based on reciprocal teaching with metacognitive reading strategies to enhance critical reading ability for higher secondary school students, four main key words to be discussed comprise background, theoretical framework, instructional model elements, and instructional procedure.

### **1. Background**

This section elaborates on the importance of the English language focusing on critical reading skills. Following this, the main key words of the study (metacognitive reading strategy, reciprocal teaching, and critical reading) will be described separately. After the description of each key word, the relationship between each of them will be presented. The following are detailed information.

In the present time, English as an international language has a prominent role worldwide. English is a universal language of education. For students to participate in the world of education, they need to acquire all kinds of English skills: speaking, listening, writing, and reading. Especially, as intensive learning to gain various knowledge through numerous media, students need to be fluent in reading skills. Though reading is vital for modern life, Thai students have low level of reading achievement (NIETS, 2012, and PISA, 2012). Thus, it is important to boost Thai students' reading ability which is relevant to Thai National Education Act (1999).

Reading is more closely related to thinking. Critical reading is a higher level of thinking. Critical reading is a process involving ability to analyze, synthesize, and evaluate what one reads (Paul, 1990). Critical reading can be improved through metacognitive reading strategies and reciprocal teaching (Flavell, 1979; Naranunn, 1996; Schraw, 1998; More et al., 2003; Feryal, 2008; Yoosabai, 2008; and Philip & Hua, 2010)

According to the relationship among metacognitive reading strategies, reciprocal teaching and critical reading, metacognitive reading strategies follows reciprocal teaching, especially, when reciprocal teaching fails. Failing is considered to stimulate



metacognitive reading strategies since learner strives to tackle the problem (Robert & Erdos, 1993). According to the recognition of failing, again, students have to go back to use metacognitive reading strategies to control the use of reciprocal teaching strategies and to examine whether the desired goal has been fulfilled (Flavell, 1979 and Garner, 1990). As metacognitive reading strategies and reciprocal teaching strategy enable students to reach critical reading skills, lack of metacognitive reading strategy and reciprocal teaching may cause poor performance in reading critically. The application of using reciprocal teaching with metacognitive reading strategies to enhance critical reading was shown in figure 1.

**Figure 1:** Using reciprocal teaching with metacognitive reading strategies to enhance critical reading abilities

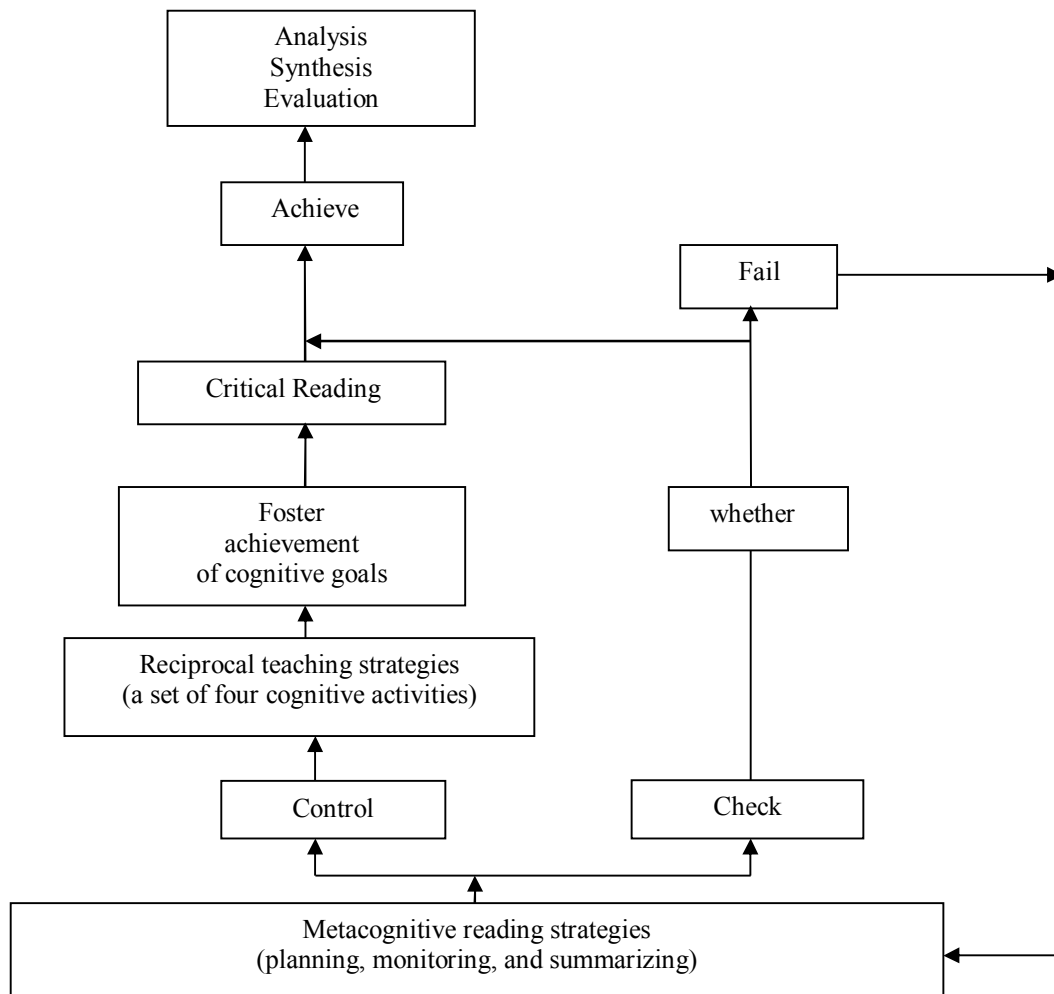


Figure 1 shows the combination of reciprocal teaching and metacognitive reading strategies to foster critical reading ability. Metacognitive reading strategies play two important roles including controlling the use of reciprocal teaching to enhance critical reading ability, and examining to see whether reciprocal teaching can increase critical reading. If reciprocal teaching fails to foster critical reading ability, once again, metacognitive reading strategies will check the errors and plan to do this task until it works.

In Thailand, it is a compulsory requirement for sixth graders, ninth graders, and twelfth graders to take an Ordinary National Educational Test (ONET). Especially, for twelfth grade students, ONET scores are used to apply for undergraduate studies. English is one of the eight subjects set in the ONET exam. In addition to ONET, the General Aptitude Test (GAT) is mandatory for twelfth graders who want to study in college or university. According to the National Institute of Educational Testing Service (NIETS), the results of English in GAT (year 2/2012) reveal that the maximum is 150 out of 150, the minimum is 0, and the mean is 52. For ONET (year 2011), the maximum is 98 out of 100, the minimum is 0, and the mean is 21. Based on these results, it is significantly noted that the overall test scores are quite poor. Rojsaranrom (2012) notes that the main causes that contribute to poor results are learning style of the students which involves memorizing books rather than employing critical reading skills.

This critical situation leads Thai teachers to find effective ways to enhance their students' critical reading ability to match their levels (Adunyarittigun, 1998; and Yoosabai, 2008). However, in Thai context, the research on the teaching of reciprocal teaching with metacognitive reading strategy to enhance critical reading is rare. Consequently, the researcher intends to develop instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students. The researcher hopes that the developed critical reading instructional model would help students read critically. Moreover, the developed model would be valuable for teachers to set up the learning activity, prepare the learning course, design the curriculum, and acquire the suitable teaching material for fostering students' critical reading ability.



## 2. Theoretical framework

In order to provide background information on reciprocal teaching, metacognitive reading strategy, and critical reading, this chapter presents the literature reviews and discusses the following topics: (1) metacognitive reading strategy; (2) Reciprocal teaching; and (3) critical reading.

### 1. Metacognitive reading strategies

“One way of promoting early development of reading comprehension and critical thinking skills is to teach primary students a metacognitive approach to reading.” (Cooper, Timothy and Greive, Cedric, 2009, p.46). Metacognitive readers are readers who read with purpose, are aware of their own ability, obtain data only related to their purposes, and take note information concerning to their purposes (Cooper, Timothy and Greive, Cedric, 2009, p.46). A successful reader “is likely to use metacognitive strategy to clarify the goal of reading, recognize the information, monitor reading process, evaluate the results and avoid reading failure” (Sun, 2011, p. 8). Metacognitive readers plan for reading, monitor the process and judge the results of reading. (Krause, Bochner & Duchesne, 2003).

According to many researchers (Israel, 2007; Bradford, 1991; Wernke et. al. 2011; Kelly and Irene, 2010; Philip & Hua, 2010; Iwai, 2011; Feryal, 2008; Schraw, 1998; Fisher, 1998; and Krause, Bochner, & Duchesne, 2003) conducting studies in using metacognition to foster reading ability, metacognitive reading strategies involve three components of metacognition: planning, monitoring, and evaluating strategies.

**1. Planning:** Planning “involves the selection of appropriate strategies and the allocation of resources that affect performance” (Schraw & Moshman, 1995, p. 354). Planning is employed before reading to activate prior knowledge to manipulate the reading content (Iwai, 2011). Students start learning process through using planning strategy to set goals and planning strategy use helps predict the content of the text (Philip & Hua, 2010). Thoughtful planning to manipulate reading strategies is essential for successful readers (Bradford, 1991). According to (Bentahar, 2012), the core aspects of planning involve predicting, surveying, and making guesses including time budgeting. Further, “while engaged in planning, readers activate their existing knowledge and become ready to start the reading passage” (p.24).



To sum up, good readers plan before reading. The first step of reading is setting goal followed by using background knowledge to predict and use reading strategies to achieve goal. For example, to acquire reading comprehension, essential strategies are thinking about the text's topic, text structure, and graphic organizers; reading title, table of contents, and graphics; as well as using skimming, scanning and text attack skills.

**2. Monitoring:** Spivey (1994, p.1) notes that “skilled readers require the ability to evaluate one’s own comprehension to tell whether or not one has understood. Students who do not monitor their understanding effectively are at a disadvantage in any learning situation.” During reading, monitoring strategies including questioning, summarizing, and inferring are used to examine whether the comprehension has been met (Israel, 2007). To be successful in reading, the readers monitor the state of reading (Bradford, 1991). “While making a preview, the learner may also engage a comprehension monitoring strategy – attending selectively to specialized terms to aid prediction of content” (Philip & Hua, 2010, p. 7). Monitoring ability which is defined as comprehension awareness and task execution improves with training and practice (Schraw & Moshman, 1995). The successful readers are different from the poor ones by the ability to monitor cognitive strategy (Bentahar, 2012).

In conclusion, monitoring which is taught directly to students mainly focuses on checking the degree of understanding through questioning, and summarizing. The strategies used in monitoring involve making prediction, connections, and inferences; and also using context clues, text structures, and graphic organizers. Moreover, think-aloud, self-questioning, and self-regulating are used as well.

**3. Evaluating:** Evaluating strategies are utilized after reading to check effectiveness of strategy use (Iwai, 2011). In the process of metacognitive reading strategy, planning, monitoring, and other essential strategies are intentionally employed to complete the goal of reading. In order to investigate to see whether the goals have been reached, evaluating needs to be used at the end of the process (Rasekh & Ranjbary, 2003). According to the study of Feryal, (2008) about “how to enhance reading comprehension through metacognitive strategies”, evaluating is used while reading to find out whether the knowledge or comprehension is acquired. Moreover, while reading, a successful reader continuously evaluate the order of comprehension (Bradford, 1991).



Philip & Hua (2010) explain evaluating as a strategy to determine the effects of the learning process and to examine whether the demanded goals of the reading are met. Moreover, evaluation is considered as the appraising of the outcomes and the control of learning processes (Schraw & Moshman, 1995).

In sum, good readers employ evaluating to reflect reading strategy use, determine whether the strategy used works, and finish the task. Schraw (1998, p. 114) reveals that “metacognitive regulation (planning, monitoring, and evaluating) improves performance in a number of ways, including better use of intentional resources, better use of existing strategies, and a greater awareness of comprehension breakdowns.” The improvement of one strategy (planning) may increase the others (monitoring, and evaluating). Kelly and Irene (2010, p.252) conclude that “the regulation component refers to the actual strategies one applies to control cognitive processes, such as planning how to approach a task, monitoring understanding and comprehension, and evaluating progress and performance.

In the current study, metacognitive strategy instruction provides students how to plan their reciprocal teaching activities, monitor strategy use, evaluate the process contributed to the improved and expanded critical reading ability.

## **2. Reciprocal Teaching**

Reciprocal teaching is considered a cooperative instructional method. Many scholars assert that cooperative learning is an effective learning strategy to develop higher order thinking skills, to increase social interaction skills, to foster diversity understanding, to use team approach to problem solving, and to facilitate reading ability.

Palincsar and Brown (1984), the father of this field, describes the concept of reciprocal teaching as a set of four study activities including summarizing, questioning, clarifying, and predicting used for comprehension-fostering and comprehension-monitoring. In Brown & Palincsar (1985, p.2), reciprocal teaching is defined as an instructional strategy which occurs in the form of conversation between teachers and students pertaining to information in the text. The assigned teacher takes turns in the roles of teacher leading the conversation using the four strategies: questioning, predicting, clarifying, and summarizing. This helps improve students' reading ability.



Reciprocal teaching involves employing four cognitive instructional activities to enhance reading ability regarding questioning, predicting, clarifying, and summarizing which take place in the form of conversation between students themselves or students and the teacher. They exchange the role assuming teacher leading the dialogue pertaining to the sections of the texts within the small group. Together, the students drill the reciprocal teaching strategies through questioning strategy to improve higher thinking skills, through predicting to make use of the previous knowledge to the topic, through clarifying to handle the difficulty in complicated information, and through summarizing to find out the main idea of the texts. The details of each strategy are as follows:

**1. Predicting:** Duke & Pearson (2002, p.3) defines that predicting “is making a guess of what will come next in the text you are reading”. According to Omari & Weshah (2010), predicting provides students opportunities to utilize a title, subtitle, and questions to predict the content before and while reading the texts. They make use of the prior knowledge to understand and criticize the text. Critical thinking skills are required for predicting to testify the assumptions and expectations about the texts of the students. Based on Cooper, Timothy and Greive, Cedric (2009), on the process of reading critical points, students have to make a reference to foretell the future of the content. Aloqaili (2010) defines predicting as making use of previous knowledge and text content to guess what will happen next. In the definition of Li-En (2011), predicting is concerned with previewing the content and make a prediction of the whole text. Magnuson (2009) describes predicting as the study activity that can happen before, during, and after reading. The strategy assists students to follow the text and think more about what will occur next. Palincsar and Brown (1984), the father of reciprocal teaching, argue that predicting concerns future content, making references, and making use of background knowledge.

In conclusion, predicting strategy is the ability to hypothesize what will happen in the text before, during, and after reading; is related to accepting and rejecting the assumptions and expectations; and is concerned with making references to foretell the future of the content. Students make use of prior knowledge to foster this skill. Predicting helps students follow the text, understand text deeper, and increase higher level thinking skills.





**2. Questioning:** Palincsar and Brown (1984, p.120) explain that “In requesting that students compose questions on the content, one is also asking for a concentration on main ideas, and a check of the current state of understanding.” Asking questions can happen before, during, and after reading (Sun, 2011). Questioning bolsters the summarizing skill to the extent to which it involves critical thinking skills (Armbrister ,2010). According to Magnuson (2009), questioning is the strategy to cope with the thoughts occurring while and after reading and helps students understand the text. In order to get more engage in the text, students have to stop to ask the questions and find the answers. Based on Omari& Weshah (2010), questioning ability is the higher order thinking skill. To require this ability, teacher needs to model the question to help students find the most important part of the text. Cooper, Timothy and Greive, Cedric (2009) describe question as a tool to check the students’ level of understanding.

In summation, composing questions can happen before, during, and after reading and question strategy is employed to check the level of understanding of the text including core part of the information. In addition, questioning strategy represents higher order thinking skill.

**3. Clarifying:** Palincsar and Brown (1984, p. 120) describe the characteristics of clarifying as follows: “Asking students to clarify requires that they engage in critical evaluation of content for internal consistency, and compatibility with prior knowledge and common sense.” According to Cooper, Timothy and Greive, Cedric (2009), clarifying means finding main point and themes of the text and making it clear that students understand difficult words and complicated phrases. In the definition of Omari & Weshah (2010), a teacher uses clarifying strategy to examine the text understanding of students and encourage them to use questioning and predicting strategy including group interaction to handle difficult situation found in the texts such as word meaning, phrase interpretation, complicated concepts, or idioms. In addition, Al-Qatawneh (2007) states that clarifying strategy concerns difficulty and unfamiliar concepts in the text. Magnuson (2009) indicates that clarifying strategy helps students deal with new and unknown words or phrases or concepts. Moreover, Li-En (2011) concludes that clarifying is vital for students having difficulty understanding the unknown or unclear words, phrases, or sentences to the extent to which students use some device to make it clear.



To summarize, students having difficulty understanding new, unknown, unfamiliar and unclear words, phrases, sentences or concepts employ clarifying strategy to deal with the problem through the using of dictionary, internet, peers, pairs, groups, or the help of teacher.

**4. Summarizing:** Sun, Li-En, (2011, 58) states that “summarizing is a skill that is critical for improving students’ overall comprehension. To acquire summarizing skill, teachers need to instruct students summarization skills and students have to analyze and synthesize the content to construct new information of the text. Armbrister (2010) suggests that summarizing strategy foster students to recognize main idea of the texts. In the study of Al-Qatawneh (2007), it is found that summarizing involves ability to synthesize information to construct main idea of the text and delete unwanted chunks. In addition, Omari & Weshah (2010) point out that summarizing activity provides opportunity to get main ideas of the text and construct the core parts by their own words. Reference to Cooper, Timothy and Greive, Cedric (2009), summarizing is the ability to sum up the gist of the text by students’ own word to prove that they gain deeper understanding about the content. The work of Palincsar and Brown (1984, p.120) indicates that “by asking students to summarize a section of text, one is simultaneously requesting that they allocate attention to the major content and that they check to see if they have understood it.”

To sum up, summarizing strategy requires students to analyze, synthesize information to find main ideas of the text and change the words of the text into their words. Summarizing strategy is considered to examine the reading comprehension ability and higher thinking skills of students.

### 3. Critical reading

Theoretically, critical reading is the ability to think automatically, carefully, intentionally, reasonably, actively and thoughtfully on the process to read the text, ask and answer the questions of analysis, synthesis, and evaluation (Bloom, 1956; Anibai, 1981; Scriven & Paul, 1987; and Paul, 1990).

Critical thinking has been defined in numerous ways and there is no consensus regarding the definition of critical thinking. Aloqaili (2010) notes that many studies on critical thinking suggest aspects in relation to Bloom’s Taxonomy. Bloom

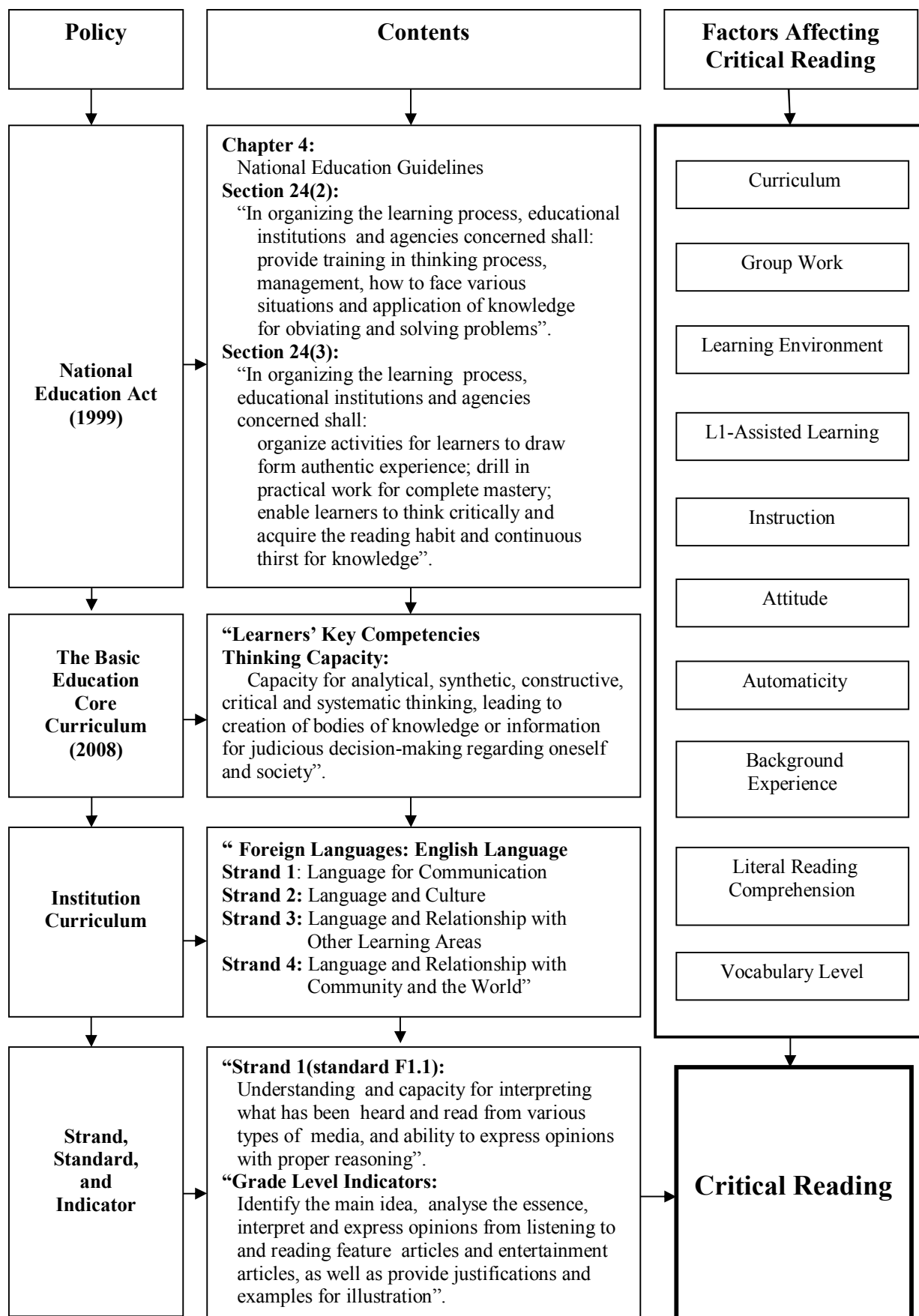


(1956) claims that critical thinking is the ability to acquire knowledge activated from six categories of cognitive domain which there are two levels of thinking: lower thinking skills (knowledge and comprehension) and higher order thinking skills (application, analysis, synthesis, and evaluation). Scriven, & Paul (1987, p.3) defines critical thinking as “the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and /or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.” Paul (2008, p.2) defines that critical thinking is the “art of analyzing and evaluating thinking with a view to improving it” and is “self-directed, self-disciplined, self-monitored, and self-corrective thinking” which it fosters productive problem solution and communication. Qatipi (2011) shows that critical thinking involves analyzing and evaluating skills, helps students construct the concept of material, and assists students to evaluate the results and summary. Horning (2004) stated that critical literacy consisted of analysis, synthesis and evaluation. Serrat (2011, p.1) reveals that critical thinking consists of analyzing and evaluating information obtained from experience, observation, reasoning, and conversation.

Mentioning above showed the definition and the importance of the critical reading which is concerning the theoretical framework. In addition, the importance of critical reading is concerned with the government policy and factors concerned as demonstrated in figure 2.



**Figure 2 :** Background of critical reading and factors influencing critical reading



The National Education Act (1999) together with The Basic Education Core Curriculum (2008) has proclaimed that in organizing the learning process, educational institutions and agencies concerned shall provide training, practice, activity, and a learning environment to promote critical thinking and critical reading.

Critical reading is like literal decoding. Thus, the readers are required to pay attention on thinking effectively in order to analyze, synthesize, and evaluate to accept or reject what they read without bias. To foster and increase growth of critical reading, the teacher needs to clearly understand the factors which facilitate and hinder the development of critical reading. Knowing this helps the teacher plan the suitable learning activity to gear up students' reading ability. On the other hand, the lack of this acquisition causes negative effects on students' perspectives.

### **3. Instructional model elements.**

The instructional model is based on the conceptual framework of social interaction, collaborative learning, reciprocal teaching, and metacognitive reading strategy. The model aims at fostering critical reading ability, and encouraging behavior of working together. The developed instructional model is composed of five elements: rationales, objectives, contents, instructional processes, and evaluation.

#### **3.1 Rationales**

The following are rationales of the model construction:

- 1.1 The instruction is based on National Education Act (1999), The Basic Education Core Curriculum (2008), and the School Curriculum.
- 1.2 Instruction is based on student-centered.
- 1.3 Practicing analysis, synthesis, and evaluation helps students increase critical reading skills.
- 1.4 Practicing reciprocal teaching strategies with metacognitive reading strategies fosters students to acquire critical reading skills.
- 1.5 Cooperative learning through group work assists students gain critical reading skills.
- 1.6 Students are exposed to reciprocal teaching strategy with metacognitive reading strategy through explicit teaching and group work.



1.7 The teachers acts as an instructor, a guide, a motivator, a mentor and a facilitator.

1.8 Students' roles are learners, creators, leader, and autonomous readers.

### **3.2 Objectives**

The objective of the instructional model is to enhance critical reading ability which consists of three main skills (analysis, synthesis, and evaluating) and six sub-skills (distinguishing, classifying, combining, predicting, prioritizing, and concluding) based on The School Curriculum, The Basic Education Core Curriculum (2008), and National Education Act (1999).

### **3.3 Contents**

The contents of the instructional model include:

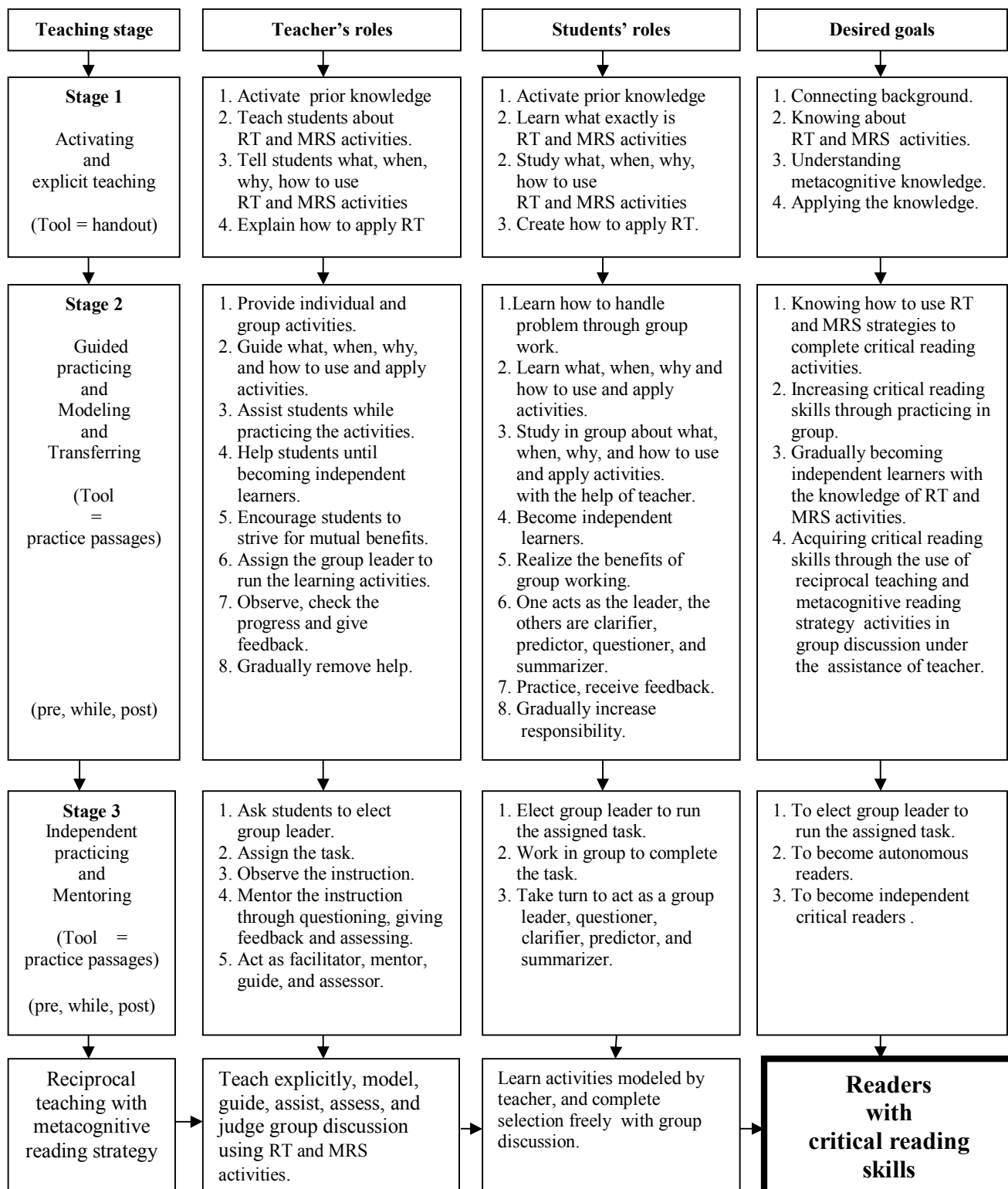
1. Reading passage-based contents. Reading passages received from the selection of the students based on the course description of the school curriculum.
2. Reciprocal teaching with metacognitive reading strategy-based contents. The instruction is based on the concept of reciprocal teaching strategies and metacognitive reading strategies.

### **3.4 Instructional processes**

The instructional processes are concerned with four aspects: teaching stages, teacher's role, students' role, and desired goals. In terms of the instructional processes, there are 3 teaching stages including (1) activating and explicit teaching, (2) guided teaching, modeling, and transferring, and (3) independent practicing, and mentoring. According to the teacher's roles, teacher acts as a teacher, a facilitator, a mentor, a guide, and an assessor to teach, help, encourage, lead, give feedback, and assess the progress. Based on the students' roles, they work individually, work in a group of five, learn how to use strategies, develop learning process, and finally become autonomous readers with critical reading. In addition, the desired goals of the instruction are to foster students to learn how to use the reciprocal teaching strategy with metacognitive reading strategy, to handle the problems by themselves and with the help of group members, and to become autonomous reader with critical reading skills. The instructional processes were displayed in figure 3.



**Figure 3 :** The instructional processes using reciprocal teaching with metacognitive reading strategy to enhance critical reading.



### 3.5 Evaluation

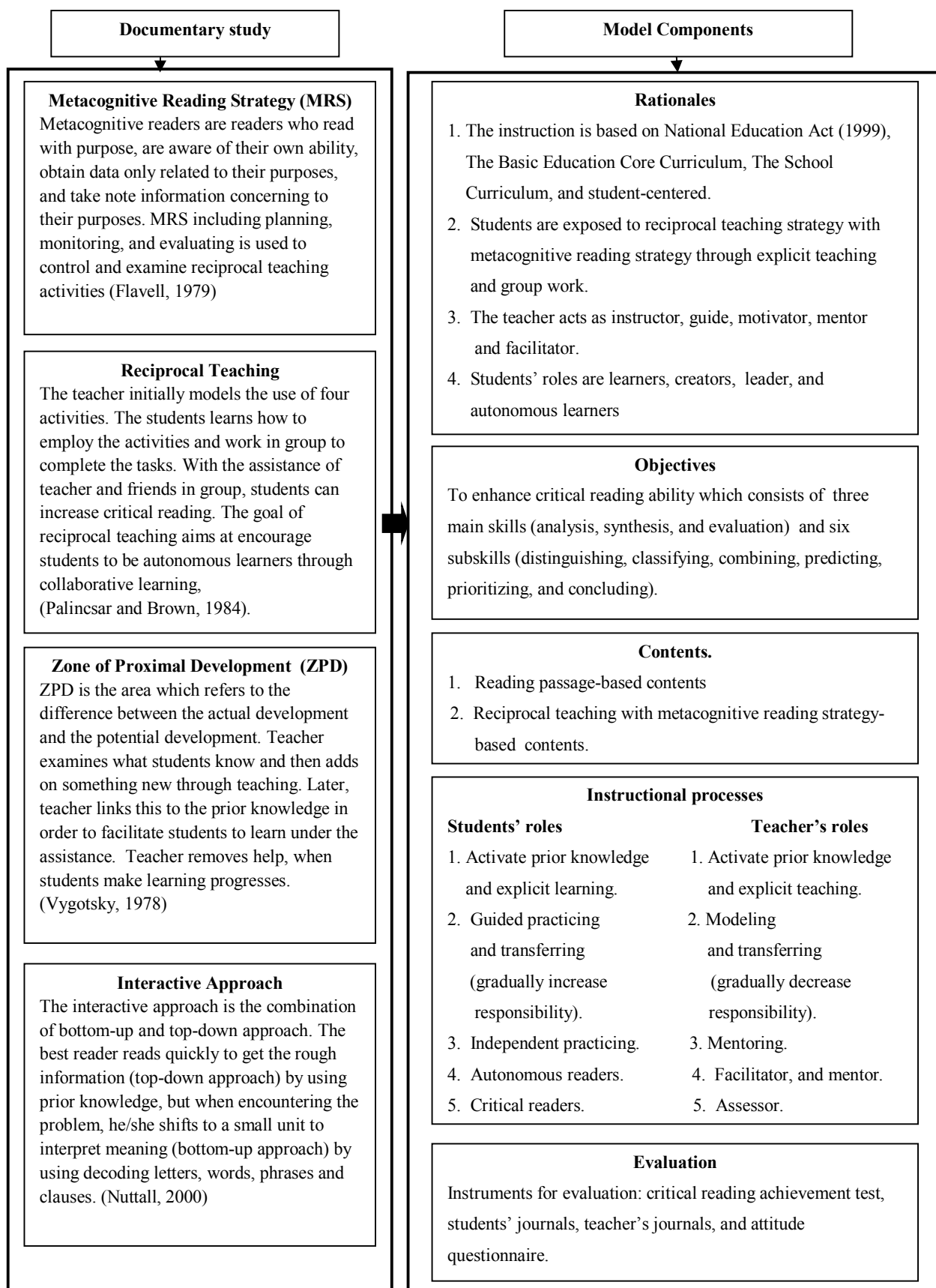
Instruments used in the model consist of quantitative tools and qualitative tools. Quantitative tools are composed of researcher-made test, attitude questionnaire and evaluation forms. Qualitative tools comprise teacher's journals, and students' journals.

To sum up the elements of the instructional model mentioned above, there are four elements including rationales, objectives, contents, instructional processes, and evaluation. These four elements are combined to integrate with the theoretical framework to form the instructional model as shown in figure 4.





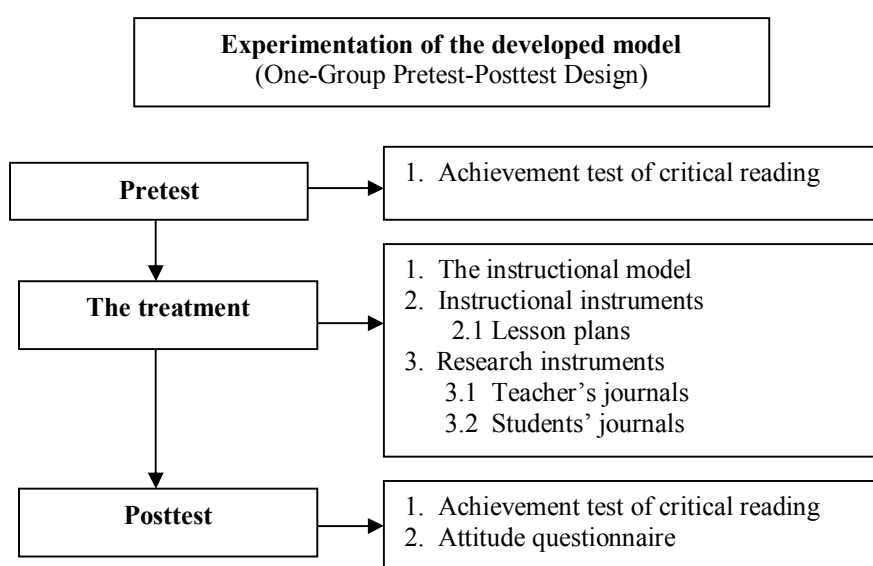
**Figure 4:** Instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students



#### 4. Instructional procedures

This main study was carried out with an intact group of 50 students in the first semester of the academic year 2013 at Kalasinpittayasan school, Kalasin province, Thailand. The main study was conducted three times a week for 13 weeks (39 hours). The procedure in conducting the main study were composed of three steps: the pretest, the treatment, and the posttest. The experimental procedures were shown in figure 5.

**Figure 5:** The experimental procedures



The figure showed that conducting main study contained three steps and the following discussed the details.

##### 1.1 Administering the pretest.

At the beginning of the course, the pretest was conducted using multiple choice critical reading achievement test developed by the researcher to investigate the students' state of knowledge. It provided two hours for the students to complete the 24-test items focusing on assessing the ability in analysis, synthesis, and evaluation. The gained quantitative data were analyzed to compare with the posttest score.

##### 1.2 Administering the treatment

The purpose of the treatment was to implant students how to use reciprocal teaching with metacognitive reading strategy to increase critical reading skills. The



instructional processes contained three stages: (1) activating, and explicit teaching; (2) guided teaching, modeling, and transferring; and (3) independent practicing, and mentoring. The learning activities were created based on the instructional processes. The instruction took 11 weeks (33 hours) with 11 lesson plans. To explore the productiveness of the instruction, the pretest-posttest method was employed.

### **1.3 Administering the posttest**

At the end of the course, the posttest was administered using multiple choice critical reading achievement test developed by the researcher to examine the students' critical reading progress. It took two hours to complete the 24-test items focusing on assessing the ability in analysis, synthesis, and evaluation. The obtained quantitative data were analyzed to compare with the pretest score to indicate the effectiveness of the developed instructional model.

### **1.4 Distributing the attitude questionnaire**

At the end of the course, the students' attitude questionnaire was carried out to examine students' opinions towards the model.

In conclusion, the main study was administered in three steps: the pretest, the treatment, and the posttest. The procedures of the treatment was presented as the following.

**Please note:** Details of the instructional procedures were presented in Appendix B (instructional manual).



**APPENDIX B**  
**Instructional manual**



**Instructional manual**  
**of an instructional model based on reciprocal teaching**  
**with metacognitive reading strategy**  
**to enhance critical reading ability for higher school students**

.....

This instructional manual of the developed instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students is designed to provide teachers with how to use the developed model effectively and to offer suggestions about activities that can be significantly performed within the classroom setting. Thus, the purpose of the manual is to allow teachers and users to bring information about enhancing critical reading to students in an interactive, effective, and interesting manner. The teachers' manual comprises the following components.

1. Theoretical framework of the instructional model based on reciprocal teaching with metacognitive reading strategy.
2. Objective of the instructional model based on reciprocal teaching with metacognitive reading strategy.
3. Instructional procedures and course schedule of the instructional model based on reciprocal teaching with metacognitive reading strategy.
4. Roles of teachers and students.
5. Assessment of the instructional model based on reciprocal teaching with metacognitive reading strategy.
6. Guidelines of the instructional model based on reciprocal teaching with metacognitive reading strategy.
7. General aspects of the instructional model based on reciprocal teaching with metacognitive reading strategy.

The detailed information is as follows:



### **1. Theoretical framework of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

The following are theoretical framework of the model construction.

1. The instruction is based on The National Education Act (1999), The Basic Education Core Curriculum (2008), and the School Curriculum (2013).
2. Instruction is based on student-centered.
3. Critical reading abilities contain three main skills and six subskills : analysis (distinguishing, and classifying); synthesis (combining, and predicting); and evaluation (prioritizing, and concluding). Practicing analysis, synthesis, and evaluation helps students increase critical reading skills.
4. Reciprocal teaching is an instructional method which is comprised of four reading strategies: predicting, questioning, clarifying, and summarizing. Metacognitive reading strategy refers to reading strategy which consists of three aspects: planning, monitoring, and evaluating. Reciprocal teaching and metacognitive reading strategy are merged together to form conceptual framework to formulate instructional process. Practicing reciprocal teaching strategies with metacognitive reading strategies fosters students to acquire critical reading skills.
5. Reciprocal teaching occurs in the form of conversation between teacher and students or between students and students in a group. Reciprocal teaching is like cooperative learning and collaborative learning. Cooperative learning through group working assists students gain critical reading skills.
6. Zone of proximal development is applied to integrate with reciprocal teaching with metacognitive reading strategy to design instructional process. The key concept of the zone of proximal development is that the teacher have to assist students at the first stage of the learning activity. When students get advanced in learning, the teacher removes help and lets students practice independently. Hence, in this model, students are exposed to reciprocal teaching strategy with metacognitive reading strategy through explicit teaching and group working.
7. The teacher has the roles not only to teach, but also to act as an instructor, a guide, a motivator, a mentor and a facilitator.



8. Students' roles are learners, creators, leader, and autonomous learners. While working in a group, they have the roles to be a group leader, a predictor, a clarifier, a questioner, and a summarizer interchangeably.

In conclusion, theoretical framework is concerned with the government policy, the school curriculum, reciprocal teaching, metacognitive reading strategy, critical reading, students' roles and teacher's roles. These concepts are studies to form the structure of the instructional model.

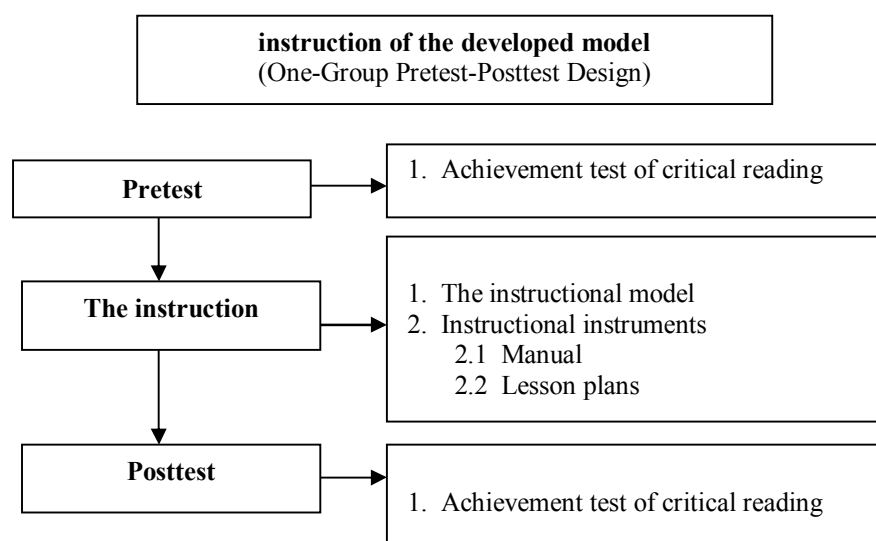
## **2. Objective of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

The objective of the instructional model is aimed to enhance critical reading ability which is composed of three main skills (analysis, synthesis, and evaluating) and six sub-skills (distinguishing, classifying, combining, predicting, prioritizing, and concluding) based on The School Curriculum, The Basic Education Core Curriculum (2008), and National Education Act (1999).

## **3. Instructional procedures and course schedule of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

The procedures in conducting the instruction are composed of three steps: administering the pretest, carrying out the instruction, and administering the posttest. The figure 1 shows the instructional procedures.

**Figure 1:** instructional procedures



The figure shows that the instruction contains three steps and the following discuss the details.

### **1.1 Administering the pretest.**

At the beginning of the course, the pretest is conducted using multiple choice critical reading achievement test to investigate the students' state of knowledge. It provides two hours for students to complete the 24-test items focusing on assessing the ability in analysis, synthesis, and evaluation. The gained quantitative data are analyzed to compare with the posttest score.

### **1.2 Administering the instruction**

The purpose of the treatment is to implant students how to use reciprocal teaching with metacognitive reading strategy to increase critical reading skills. The instructional processes contain three stages: (1) activating, and explicit teaching; (2) guided teaching, modeling, and transferring; and (3) independent practicing, and mentoring. The learning activities are created based on the instructional processes. The instruction takes 11 weeks (33 hours) with 11 lesson plans. To explore the productiveness of the instruction, the pretest-posttest method is employed. In terms of grouping, the students are able to arbitrarily form a group of five by themselves.

### **1.3 Administering the posttest**

At the end of the course, the posttest is administered using multiple choice critical reading achievement test to examine the students' critical reading progress. It takes two hours to complete the 24-test items focusing on assessing the ability in analysis, synthesis, and evaluation. The obtained quantitative data are analyzed to compare with the pretest score to indicate the effectiveness of the developed instructional model.

In conclusion, the instruction is administered in three steps: the pretest, the instruction, and the posttest. The procedures of the instruction are presented as the following.

### **1.4 Procedures of the instruction**

According to the instruction, it is a kind of one-group pretest-posttest design. The pretest is executed using multiple choice critical reading achievement test. Later, the instruction is administered employing lesson plans, and instructional manual.





Finally, the posttest is carried out using multiple choice critical reading achievement test. The whole processes of conducting the instruction is demonstrated in table 1.

**Table 1:** A summary of the overall processes of the instruction

<b>Time</b>	<b>Topics to be conducted</b>
The first week	1. Pretest: Critical reading achievement test 2. Course description 3. Concept mapping 4. Sentence structure
<b>Week 2-3</b> Stage 1: Activating, and explicit teaching	1. Reciprocal teaching 2. Metacognitive reading strategy 3. Critical reading
<b>Week 4-6</b> Stage 2: Guided teaching, modeling, and transferring.	1. Analysis: distinguishing, and classifying 2. Synthesis: combining, and predicting 3. Evaluation: prioritizing, and concluding
<b>Week 7</b>	A summary of stage 2 of analysis, synthesis, and evaluation.
<b>Week 8</b>	Midterm examination
<b>Week 9-11</b> Stage 3: Independent practicing, and mentoring	1. Analysis: distinguishing, and classifying 2. Synthesis: combining, and predicting 3. Evaluation: prioritizing, and concluding
<b>Week 12</b>	A summary of stage 3 of analysis, synthesis, and evaluation.
<b>Week 13</b>	1. Posttest: Critical reading achievement test

The table displays that the pretest and course description are executed in the first week. In week 8, the midterm examination is carried out to check students' progress and problems. The last implementation is the posttest which occurs in the week 13. The details of conducting main study are presented as the following.



## **Week 1: Lesson plan 1**

The main purposes of week 1 is to take a pretest, to introduce course description, to roughly teach concept mapping, and sentence structure. The following are the details.

**In the first week (lesson plan 1):** The introduction, the pretest, concept mapping, and sentence structure are presented. The introduction of the course is presented using course description. The pretest is administered using multiple choice critical reading achievement test. The sentence structure is taught roughly to activate the students' schema about how to read sentences. Moreover, the concept mapping is directly discussed to prepare students for reading critically. Hence, in this section, there are four topics to be discussed: pretest, course description, concept mapping, and sentence structure.

### **1. Pretest**

As the instruction is from the application of the one-group pretest-posttest design, the pretest is administered at the first stage of the study to gain quantitative data. The pretest is conducted using multiple choice critical reading achievement test which consists of 3 reading passages and 24 items. These items focuses on examining sixsubskills of critical reading.

### **2. Course description: Critical Reading Course**

This course (Critical reading) is designed for higher secondary school students. Its goals are to help students enhance critical reading abilities (analysis, synthesis, and evaluation). The teacher will use several methods to accomplish the goals of this course. First, via activating, and explicit teaching, The teacher shall teach new knowledge and helps students link old knowledge with the new ones. Additionally, guided teaching, modeling, and transferring will be employed to exhibit students how to obtain critical reading skills, Finally, students will be allow to practice freely in a group of five about the learning activities to gain higher critical reading skills. By actively participating in a group discussions, students will sharpen your own insights, and master the learning strategies to become critical autonomous readers. The course provides 11 lesson plans with 14 reading passages to shape up students' critical reading skills: distinguishing fact or opinion, classifying, combining, predicting, prioritizing, and concluding. The details of each passage are as follows:



Passage 1: Floodwaters

For studying distinguishing facts or opinions, and classifying (in class).

Passage 2: TV and Video

For studying distinguishing facts or opinions, and classifying skill(homework).

Passage 3: Egypt :

For studying combining and predicting skill (in class)

Passage 4: Music :

For studying combining and predicting skill (homework).

Passage 5: Iwao

For studying prioritizing, and concluding skill (in class).

Passage 6: Sparrows

For studying prioritizing, and concluding skill (homework).

Passage 7: Warmer weather

For reviewing distinguishing, classifying, combining, predicting, prioritizing, and concluding skill (in class).

Passage 8: Grazing

For independent studying distinguishing, and classifying skill (in class).

Passage 9: Piranhas

For independent studying distinguishing, and classifying skill (homework).

Passage 10:Transportation

For independent studying combining, and predicting skill (in class).

Passage 11: Children

For independent studying combining, and predicting skill (homework).

Passage 12: Mediterranean

For independent studying prioritizing and concluding skill (in class).

Passage 13: Chinese statue

For independent studying prioritizing and concluding skill (homework).

Passage 14: DDT

For reviewing independent studying distinguishing, classifying, combining, predicting, prioritizing, and concluding skill (in class).



**Please note:** All students are required to read all passages and do all activities in the lesson plans.

### 3. Concept mapping

#### What, why, and how concept mapping?

##### What concept mapping?

A concept mapping is a diagram that explains relationships between concepts used to organize and structure knowledge from what being read. A concept map typically represents ideas and information. A concept map is a way of representing relationships between ideas, or words in the same way that a sentence diagram represents the grammar of a sentence, or a road map represents the locations of highways and towns. In a concept map, each word or phrase connects to another, and links back to the original idea, word, or phrase. Concept map is a way to develop logical thinking and study skills by revealing connections and helping students see how individual ideas form a larger whole. Concept maps are applied to enhance meaningful learning in the language learning.

##### Why concept mapping?

Concept maps are used to stimulate the generation of ideas, and are believed to improve critical reading. Concept mapping is also sometimes used for brain-storming, and reading.

Concept maps are widely used in reading to:

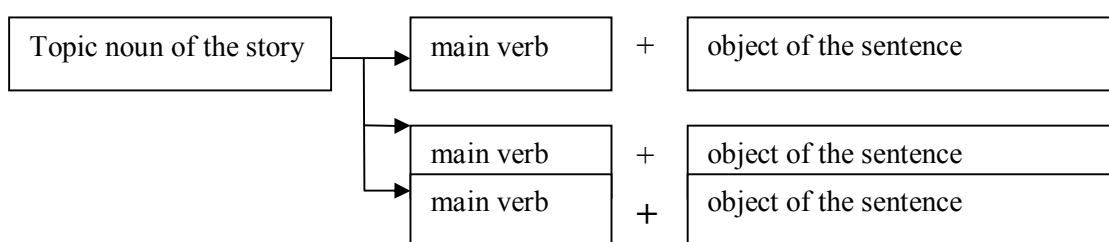
1. Take note and summarize key concepts, their relationships from reading materials.
2. Create new knowledge: e.g., transforming what being read into organizational concept. tacit knowledge into an organizational resource, mapping team knowledge.
3. Design instruction: concept maps used as "advance organizers" that provide an initial conceptual frame for subsequent information and learning.
7. Increase meaningful learning for example through writing activities where concept maps automatically generated from an essay are shown to the writer.
8. Rearrange the complicated ideas.
9. Detail the entire structure of an idea.
10. Enhance metacognition (learning to learn, and thinking about knowledge)
11. Improve language ability.



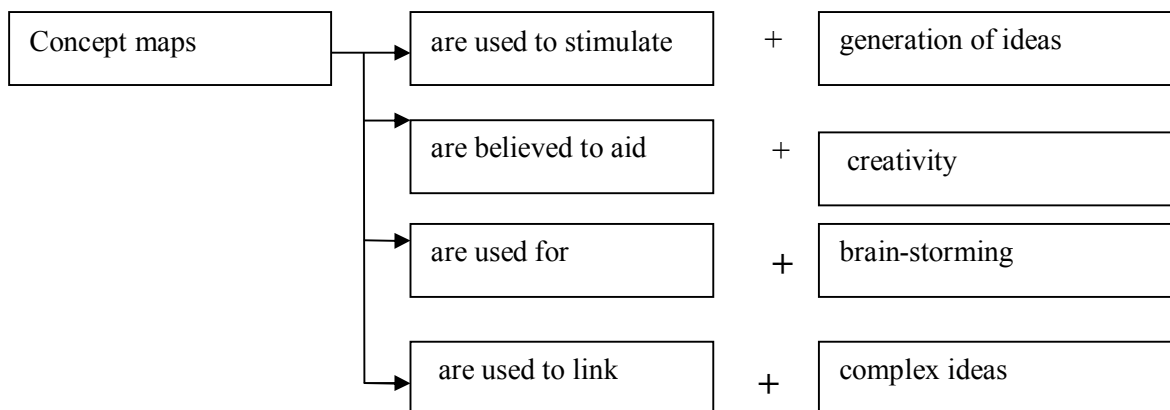
### How to use concept mapping.

As the concept mapping is a diagram used to organize, summarize, create, and link knowledge from what being read. When making concept mapping, students are to follow these ways:

1. Find the topic nouns of the passage and write it at the left side of the paper.
2. Find the main verbs and objects of each sentence, then write them after the topic noun written before.
3. The diagram of making concept mapping would be like this:



### For example



### 4. Sentence structure

Sentence structure is depicted in the text of sentence structure developed by the researcher. The main purpose of studying sentence structure is to classify main part and modifiers of the sentence, and to find main idea and supporting details of the reading passage.



Sentence structure is explained roughly in the following.

1. Normally, a sentence consists of S+V+Ob.
2. So, the main idea of the sentence is composed of S+V+Ob.
3. The sentence is longer because it has modifiers.
4. There are two kinds of modifiers: phrases, and clauses.
5. There are 4 kinds of phrases:
  1. Present participial phrase
  2. past participial phrase
  3. Prepositional phrase
  4. Appositive phrase
6. They are 2 kinds of clauses:
  1. General form of clause
  2. Appositive clause
7. The elements of general form of clause consist of :
  1. Clause marker +Verb+Ob.
  2. Clause marker + S + Verb+Ob.
8. Form of appositive clause is:
  - ....., ...appositive clause..... ,.....
  - .....: ...appositive clause..... : .....
  - .....; ...appositive clause..... ; .....
  - .....- ...appositive clause..... - .....

**Please note:** All students are required to study sentence roughly in the textbook of sentence structure before studying critical reading in details.

To summarize the first week activities, the introduction of the course is presented and the pretest is conducted using the multiple choice critical reading achievement test to get scores identifying students' critical reading ability for comparing with posttest to show students' critical reading achievement. Moreover, how to analyze sentence structure, and concept mapping are introduced as well.



### **Week 2-3: Lesson plan 2-3**

The purpose of week 2-3 activities is to carry out the stage 1 of the instructional processes: activating and explicit teaching. This stage is designed based on the instructional processes of the developed model which consists of three stages:

(1) activating and explicit teaching; (2) guided teaching, modeling, and transferring; and (3) independent practicing, and mentoring. The key concept of stage 1 is to activate the prior knowledge of the students, and directly teach them new ones. The designed activities of the stage 1 are as follows:

#### **Stage 1: Activating, and explicit teaching**

The main purpose of this stage is to encourage students to activate or connect prior knowledge in order to prepare them for learning new knowledge which relates to using reciprocal teaching strategies with metacognitive reading strategies to increase critical reading ability. In addition, this stage aims at teaching explicitly about the reading strategies. The teacher separately and holistically demonstrates the use of four reciprocal teaching activities and three metacongitive reading strategies, explaining what they are and how to use them increasing desired critical reading aspects. Besides, critical reading skills based on analysis, synthesis, and evaluation skills are directly taught.

In terms of activating prior knowledge, the connection is made before, while, and after reading. Before reading, the teacher tells the students about what will be going on in the study next to help students think in advance of the study. During reading, teacher encourages students to link the background to the current lessons and fosters students to connect the knowledge themselves. After reading, the discussion, summarization, and writing journal are used to gain deeper understanding and to internalize the learned knowledge.

During two weeks with six periods for activating and explicit teaching, the teacher stimulates students' background knowledge and explicitly teaches what is reciprocal teaching strategies and what is metacognitive reading strategies, and then models how to summarize the text, ask question, clarify the unclear words/ phrases, and sentences, and models how to predict the next scene of the text. Moreover, the teacher teaches how to plan, monitor, and evaluate to use four reciprocal teaching strategies to



acquire the desired critical reading skills. The expected goal of stage 1 is that students gain essential knowledge for learning in stage 2 (week 4-6).

### **Week 4-6: Lesson plan 4-6**

The objective of week 4-6 is to conduct the stage 2 of the instructional processes: guided teaching, modeling, and transferring. This stage is formulated concerning the instructional processes of the developed model which contains three stages: (1) activating and explicit teaching, (2) guided teaching, modeling, and transferring, and (3) independent practicing, and mentoring. The major concept of stage 2 is that the teacher has to guide, and model the running learning activities for students. When the students make progress, the teacher gradually transfers responsibility to students. The following are the contribution of stage 2.

#### **Stage 2: Guided teaching, modeling, and transferring**

At this stage, students work in a group of five and the teacher as the learning leader models the learning processes, encourages students to practice the previously learned strategies, and guides the learning procedures according to using reciprocal teaching strategies with metacognitive reading strategies to achieve critical reading skills: analysis, synthesis and evaluation. Students are asked to form a group arbitrarily and stay in the same group throughout the course. They are assigned to act as a group leader, a predictor, a clarifier, a questioner, and a summarizer. Each day a new role will be assigned interchangeably. They practice how to use four strategies of reciprocal teaching and how to employ three metacognitive reading strategies to gain critical reading skills. While the students are practicing, the teacher provides help and gives feedback. The teacher assesses the development of the students' progress. When students master the procedures, the teacher gradually removes the guidance and transfers the responsibility. On the other hand, students slowly increase the responsibility and finally, become autonomous readers.

To sum up, in guided teaching, modeling and transferring stage, the teacher models how to learn through the instructional processes and students are directed to practice the strategies under the guidance of the teacher. When students face difficulties, teacher provides hints and assesses the development. If students are able to handle the





situations freely, the teacher will withdraw aids and allow students to experience designed tasks independently. The desired goal of stage 2 is that students are able to conduct learning activities in a group under the assistance of the teacher and gain advanced to practice autonomously ready for learning in stage 3.

### **Week 7: Lesson plan 7: A summary of stage 2 of analysis, synthesis, and evaluation**

The purpose of this week is to help students make sure about how to use reciprocal teaching with metacognitive reading strategy to study critical reading skills: analysis (distinguishing facts or opinions, and classifying); synthesis (combining, and predicting); and evaluation (prioritizing, and concluding). Students are designed to sit in a group of five to accomplish freely the demanded tasks. The teacher observes and assesses the students' ability. When found that they master the learning processes, the learning activities are moved to stage 3 of the instructional processes: independent practicing, and mentoring.

### **Week 8: Midterm examination**

The purposes of this week are to assess students' critical reading progress and to investigate the unexpected problems.

### **Week 9-11: Lesson plan 8-10**

The aim of week 8-10 is to administer the stage 3 of the instructional processes: independent practicing, and mentoring. This stage is created pertaining to the instructional processes of the developed model which comprises three stages: (1) activating and explicit teaching, (2) guided teaching, modeling, and transferring, and (3) independent practicing, and mentoring. The key concept of stage 3 is that the teacher allows the students practice learning activities freely in a group, while the teacher observes and provides aids if necessary. Stage 3 is exhibited as the following.

### **Stage 3: Independent practicing, and mentoring**

Students are asked to formulate a group of five arbitrarily. They work in a group of five independently. One of the group member is assigned the teacher role to lead the reading processes. In general, the students in the group will be designated to run the role



of a conversation leader, a prediction generator, a question creator, a clarifier, and a summarizer, severally. The conversation leader is responsible for running group discussion; the prediction generator is to make prediction about the text; the questions of the text are raised by question creator; the clarifier tries to find the ways to answer the questions; and the summarizer makes a summary about the discussion topic of the text. While the tasks are carried out, the roles of each member are switched interchangeably. The following are the specific steps of using reciprocal teaching strategies with metacognitive reading strategies to increase critical reading ability: analysis, synthesis, and evaluation.

1. In a group of five, each student is assigned to act as a learning leader, a predictor, a questioner, a clarifier, and a summarizer, consecutively.

2. The group leader asks the group members to **plan** for the reading by questioning what are the purposes of the reading to be discussed: the reading goals such as: analysis (distinguishing, classifying), synthesis (combining, predicting), and evaluation (prioritizing, concluding)

1. After getting the goal of the reading to be discussed such as “distinguishing facts or opinions”, the leader asks the member who acts as a **predictor** to **predict** the fact and the opinion from the content through the information available: title, subtitle, topic noun, pictures, and graph. Likewise, the leader asks the members to **monitor** the correctness of the prediction.

2. The group leader asks the member who acts as the **questioner** to generate the questions concerning the purposes of the reading. Then, the leader asks the members to **monitor** the results of questioning by considering to reject or accept the questions.

3. The leader asks the member who acts as a clarifier to **clarify** the discussed question (desired reading goal) by using learning instrument such as dictionary, internet, textbook. In addition, the leader asks the members to **monitor** the clarifying results.

3. After clarifying, the group leader asks the member who acts as a **summarizer** to summarize the results of reading whether it is accomplished according to the desired reading goals and asks the member to **monitor** the summarizing by checking the correctness of the summarization. Finally, the leader **evaluates** the summation to see



whether it is the most appropriate answer to the desired reading goal. If it does not achieve the demanded reading goal, the group discussion will be back to the error point and start discussion to find the most suitable answer of the desirable goal.

When the teacher finds that the students are able to work in group autonomously, the next step is to ensure the students' learning progress and gradually withdrawn the assistance. The students take turns to perform each role interchangeably. Especially, the group leader asks one another to take a prediction, classification, questions, and summarization, and asks the other members of the group to confirm or reject what one said. The members actively share experiences through the reading stages to increase critical reading skills.

### **Week 12: A summary of stage 3 of analysis, synthesis, and evaluation.**

The purpose of this week is to ensure that students achieve critical reading skills through the designed instructional processes. The learning activities throughout the course are aimed to help students enhance critical reading abilities: analysis (distinguishing facts or opinions, and classifying); synthesis (combining, and predicting); and evaluation (prioritizing, and concluding). At this week, the teacher summarizes the whole processes to students, and lets them ask the faced problems. Additionally, students have to practice relaxedly learning activities in a group to make sure that they gain deeper understanding, and are able to level up their critical reading ability.

To brief stage 3, the demanded goal of this stage is to let students practice learning activities independently to improve critical reading ability. They work in a group using conversation skills to complete the tasks. They exchange taking the roles of a group leader, a predictor, a clarifier, a questioner, and a summarizer. Following the instructional processes and running learning activities are able to help them become autonomous critical readers.

### **Week 13: Conducted posttest**

At week 13 of the study, the posttest is conducted through the multiple choice critical reading achievement test to gain scores to compare with the pretest scores.



To summarize conducting main study, at the beginning, the pretest is conducted to gain the state of knowledge. Then the instruction is administered for 11 weeks to help students increase critical reading ability. Finally, the posttest is executed to investigate the students' critical reading achievement. The instructional procedures of the instruction is based on the instructional processes which explain the roles of the teacher and the roles of the students in each instructional stage. The following table shows a summary of the instructional procedures.

**Table 2:** A summary of the instructional procedures based on the instructional processes

<b>Stage 1: Activating, and explicating teaching</b>		
Instructional process	Teacher' roles	Students' roles
<b>Before reading</b> (The purpose of this stage is to directly teach reciprocal teaching, metacognitive reading strategy, and critical reading.	<ol style="list-style-type: none"> <li>1. Teacher students about what would be going on in the study next: learned explicitly about reciprocal teaching, metacognitive reading strategy, and critical reading ability.</li> <li>2. Teach students concept mapping and sentence structure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Learn directly about what the teacher taught.</li> </ol>
<b>During reading</b> (The purpose of this stage is to prepare students for the new lesson)	<ol style="list-style-type: none"> <li>1. Encourage students to link the background knowledge to the current lessons: reciprocal teaching, metacognitive reading strategy, and critical reading skills.</li> <li>2. Foster students connect the knowledge themselves.</li> <li>3. Guide how to conduct concept mapping.</li> <li>4. Guide how to find main idea of the sentence</li> </ol>	<ol style="list-style-type: none"> <li>1. Study individually what the teacher taught with attention.</li> </ol>
<b>After reading</b> (The purpose of this stage was to teach how to make use of	<ol style="list-style-type: none"> <li>1. Use discussing, summarizing, and writing journal to help students gain deeper understanding about reciprocal teaching and metacognitive reading</li> </ol>	<ol style="list-style-type: none"> <li>1. Attentively follow what the teacher has lectured.</li> </ol>



discussing, summarizing, and writing journals)	strategy, and to internalize the learned knowledge. 2. Guide how to conclude what have read.	
<b>Stage 2: Guided teaching, modeled and transferring</b>		
Instructional process	Teacher' roles	Students' roles
	<ol style="list-style-type: none"> <li>1. Model</li> <li>2. Encourage</li> <li>3. Guide</li> <li>4. Provide help</li> <li>5. Give feedback</li> <li>6. Assess students' progress</li> <li>7. Remove help</li> </ol>	<ol style="list-style-type: none"> <li>1. Act as a group leader, a predictor, a clarifier, a question creator, and a summarizer interchangeably.</li> <li>2. Practice according to the guidance.</li> <li>3. Exchange the roles.</li> <li>4. Gain advanced.</li> <li>5. Increase responsibility.</li> </ol>
<p><b>Before reading</b></p> <p>(The purpose of this stage is to guide the use of two reading strategies: planning, and predicting.)</p>	<ol style="list-style-type: none"> <li>1. Model how to <b>plan</b> for reading by <b>questioning</b> what is the purpose of reading to be discussed such as to distinguish facts or opinions.</li> <li>2. Model how to <b>predict</b> the passage based on the reading purpose (distinguishing facts or opinions), for example: <ul style="list-style-type: none"> <li>- To predict true or false.</li> <li>- To predict topic noun of the story.</li> <li>- To predict the tone of the story</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Learn directly how to use planning to set reading goals, and predicting to foretell about the story.</li> </ol>
<p><b>During reading</b></p> <p>(After getting the purpose of the reading, the aim of this stage is to guide</p>	<ol style="list-style-type: none"> <li>1. Ask the predictor to predict what will be happened next in the text and asked the other members to monitor the predicting by considering to reject or accept the predicting.</li> <li>2. Ask the questioner to question the</li> </ol>	<ol style="list-style-type: none"> <li>1. Learn how to make use of predicting, clarifying, and monitoring to develop critical reading skills with attention.</li> <li>2. Practice the use of reading</li> </ol>



the use of predicting, questioning, clarifying, and monitoring.)	unknown words, phrases, and sentences. Asked the others to monitor by considering to support or reject the questions. 3. Ask the clarifier to answer the asked questions and ask the others to monitor by checking the correctness of the answers.	strategies in accordance with the teacher's guidance.
<b>After reading</b> (The purpose of this stage is to guide the use of two reading strategies: summarizing, and evaluating.)	1. Ask the summarizer to summarize the goals of reading such as distinguishing facts or opinions) and ask the others to monitor the summarizing by examining whether the summarization is correct. 2. Ask all of the members of the group to evaluate the final results of the reading purpose (distinguishing facts or opinions) by inspecting if the reading goal has been successful.	1. Learn attentively how to make use of summarizing, and monitoring to develop critical reading skills. 2. Practice the use of reading strategies in accordance with the teacher's guidance. 3. Gradually increase responsibility.
<b>Stage 3: Independent practicing, and mentoring</b>		
Instructional process	Teacher' roles	Students' roles
	1. Mentor how to practice using planning, and questioning. 2. Observe the practicing. 3. Provide help if necessary.	1. Select a group leader. 2. Act as a group leader, a predictor, a clarifier, a questioner, and a summarizer interchangeably. 3. Practice how to make use of reciprocal teaching with metacognitive reading strategy to improve critical reading skills. 3. Exchange the roles. 4. Gain advanced. 5. Increase responsibility. 6. Become autonomous critical readers.



<p><b>Before reading</b></p> <p>(The purpose of this stage is to practice the use of two reading strategies: planning, and predicting.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using planning, and questioning.</li> <li>2. Observe the practicing</li> <li>3. Provide help if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. The group leader asks the group members to <b>plan</b> for reading by <b>questioning</b> what is the purpose of reading to be discussed such as to distinguish facts or opinions.</li> <li>2. The group leader asks the predictor to <b>predict</b> the passage based on the reading purpose (distinguishing facts or opinions), for example: <ul style="list-style-type: none"> <li>- To predict true or false.</li> <li>- To predict topic noun of the story.</li> <li>- To predict the tone of the story (sad or happy)</li> </ul> </li> </ol>
<p><b>During reading</b></p> <p>(After getting the purpose of the reading, the aim of this stage is to practice the use of predicting, questioning, clarifying, and monitoring.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using planning, questioning.</li> <li>2. Observe the practicing</li> <li>3. Provide help if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. The group leader asks the <b>predictor</b> to <b>predict</b> what will be happened next in the text and asks the other members to <b>monitor</b> the predicting by considering to reject or accept the predicting.</li> <li>2. The group leader asks the <b>question creator</b> to <b>question</b> the unknown words, phrases, and sentences. Ask the others to <b>monitor</b> by considering to support or reject the questions.</li> <li>3. The group leader asks the <b>clarifier</b> to answer the ask questions and ask the others to <b>monitor</b> by checking the correctness of the answers.</li> </ol>
<p><b>After reading</b></p> <p>(The purpose of this stage is to practice the use of two reading strategies: summarizing, and evaluating.)</p>	<ol style="list-style-type: none"> <li>1. Mentor how to practice using planning, questioning.</li> <li>2. Observe the practicing</li> <li>3. Provide help if necessary.</li> </ol>	<p>The group leader have to:</p> <ol style="list-style-type: none"> <li>1. Ask the <b>summarizer</b> to summarize the goals of reading and ask the others to <b>monitor</b> the summarizing by examining whether the summarization is correct.</li> <li>2. Ask all of the members of the group to <b>evaluate</b> the final results of the reading purpose (distinguishing facts or opinions) by inspecting if the reading goal has been successful.</li> </ol>



This table shows the instructional procedures about how to use reciprocal teaching strategies (predicting, questioning, clarifying, and summarizing) with metacognitive reading strategies (planning, monitoring, and evaluating) to enhance critical reading skills (analysis, synthesis, and evaluation). The procedures consist of three instructional processes including stage 1 (activating, and explicit teaching); stage 2 (guided teaching, modeling, and transferring); and stage 3 (independent practicing, and mentoring). The instructional procedures mainly focus on how to scaffold students at the beginning of the study and gradually transfer responsibility to students. Finally, students are able to conduct the learning strategy to enhance critical reading ability by themselves.

In order to productively make use of the developed model and the instructional processes, the course schedule of the teaching is constructed as a roadmap for the instruction. The course takes 39 periods ( 50 minutes for one period), 13 weeks to conduct the instruction. There are 11 lesson plans, and 14 reading passages used to improve critical reading skills. The course schedule of the main study is displayed in table 3.

**Table 3:** Course schedule of the main study.

time		Activities	Instruments	Objectives
Week	hour			
1	1	<b>Introduction</b>	<b>Lesson plan 1</b> Sheets of - Course description - Concept mapping content - Sentence structure content	- Introduce instructional program. - Directly teach about sentence structure roughly. - Explicitly teach concept mapping.
	2	<b>Pretest</b>	Achievement test	To gauge students' ability at the beginning of the course.
2	3	<b>Stage 1 :</b> Activating and explicit teaching  (Pre-While-Post)	<b>Lesson plan 2</b> Sheets of : - Reciprocal teaching - Metacognitive reading strategy	- To directly teach students reciprocal teaching strategies and metacognitive reading strategies. - To guide how to administer concept map, to find main idea of the sentence, and to capture main idea of the passage.
3	3	<b>Stage 1 :</b> Activating and explicit teaching	<b>Lesson plan 3</b> Sheet of critical reading	- To directly teach students critical reading skills: analysis; (distinguishing fact/opinion, and





		(Pre-While-Post)		<p>classifying); synthesis (combining, and predicting); and evaluation (prioritizing, and concluding).</p> <p>- To guide how to administer concept mapping, to find main idea of the sentence, and to capture main idea of the passage.</p>
4	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring  (Pre-While-Post)</p>	<p><b>Lesson plan 4</b> <b>In class</b> Passage 1: Floodwaters <b>Homework</b> Passage 1: TV and Video</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills: analysis (distinguishing fact/opinion and classifying) through group working</p>
5	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring  (Pre-While-Post)</p>	<p><b>Lesson plan 5</b> <b>In class</b> Passage 1: Floodwaters Passage 2: Egypt <b>Homework</b> Passage 1: TV and Video Passage 2: Music</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills: synthesis (combing, predicting) through group working</p>
6	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring  (Pre-While-Post)</p>	<p><b>Lesson plan 6</b> <b>In class</b> Passage 1: Floodwaters Passage 2: Egypt Passage 3: Iwao <b>Homework</b> Passage 1: TV and Video Passage 2: Music Passage 3: Sparrows</p>	<p>To train how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills: evaluation (prioritizing, and concluding) through group working</p>
7	3	<p><b>Stage 2 :</b> Guided teaching, modeling and transferring  (Pre-While-Post)</p>	<p><b>Lesson plan 7</b> <b>In class</b> Passage 1: Floodwater Passage 2: Egypt Passage 3: Iwao Passage 4: Warmer weather</p>	<p>To summarize how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (analysis, synthesis, and evaluation) by learning under the helps of teacher.</p>



8	3	<b>Midterm examination</b>	<b>Formative assessment</b>	To assess the development of students
9	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 8</b> <b>In class</b> Passage 1: Grazing <b>Homework</b> Passage 1: Piranhas	To practice questioning, predicting, clarifying, and summarizing with planning, monitoring, and evaluating to gain critical reading skills: analysis (distinguishing fact/opinion and classifying) through group working.
10	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 9</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation <b>Homework</b> Passage 1: Piranhas Passage 2: Children	To practice questioning, predicting, clarifying, and summarizing with planning, monitoring, and evaluating to gain critical reading skills: synthesis (combining, predicting) through group working.
11	3	<b>Stage 3:</b> Independent practicing and mentoring  (Pre-While-Post)	<b>Lesson plan 10</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation Passage 3: Mediterranean	To practice questioning, predicting, clarifying, and summarizing with planning, monitoring, and evaluating to gain critical reading skills: evaluation (prioritizing, and concluding) through group working.
12		<b>Stage 3:</b> Independent practicing and mentoring (Pre-While-Post)	<b>Lesson plan 11</b> <b>In class</b> Passage 1: Grazing Passage 2: Transportation Passage 3: Mediterranean Passage 3: DDT	To summarize how to use reciprocal teaching strategies with metacognitive reading strategies to study critical reading skills (analysis, synthesis, and evaluation) by practicing independently in group.
13	2	Post test	Achievement test	To gauge students' ability at the end of the course.



## Summary of the components of the instruction

### 1. Purpose of the instruction:

To increase critical reading ability: analysis, synthesis, and evaluation.

### 2. Text:

2.1 14 expository reading passages.

2.2 8 passages for teaching in class.

2.3 6 passages for homework.

### 3. Time:

3.1 13 weeks: 39 periods.

3.2 3 periods for introduction and pretest.

3.3 2 periods for posttest.

3.4 2 periods for midterm examination.

3.5 32 periods for the instruction.

### 4. Materials and instruments

4.1 Sheets of reciprocal teaching strategy-based contents.

4.2 Sheets of metacognitive reading strategy-based contents.

4.3 Sheets of critical reading skills-based contents.

4.4 Expository reading passages based on critical reading skills.

### 5. Instructional processes:

5.1 Stage 1 : Activating and explicit teaching

5.2 Stage 2: Guided teaching, modeling, and transferring.

5.3 Stage 3: Independent practicing and mentoring

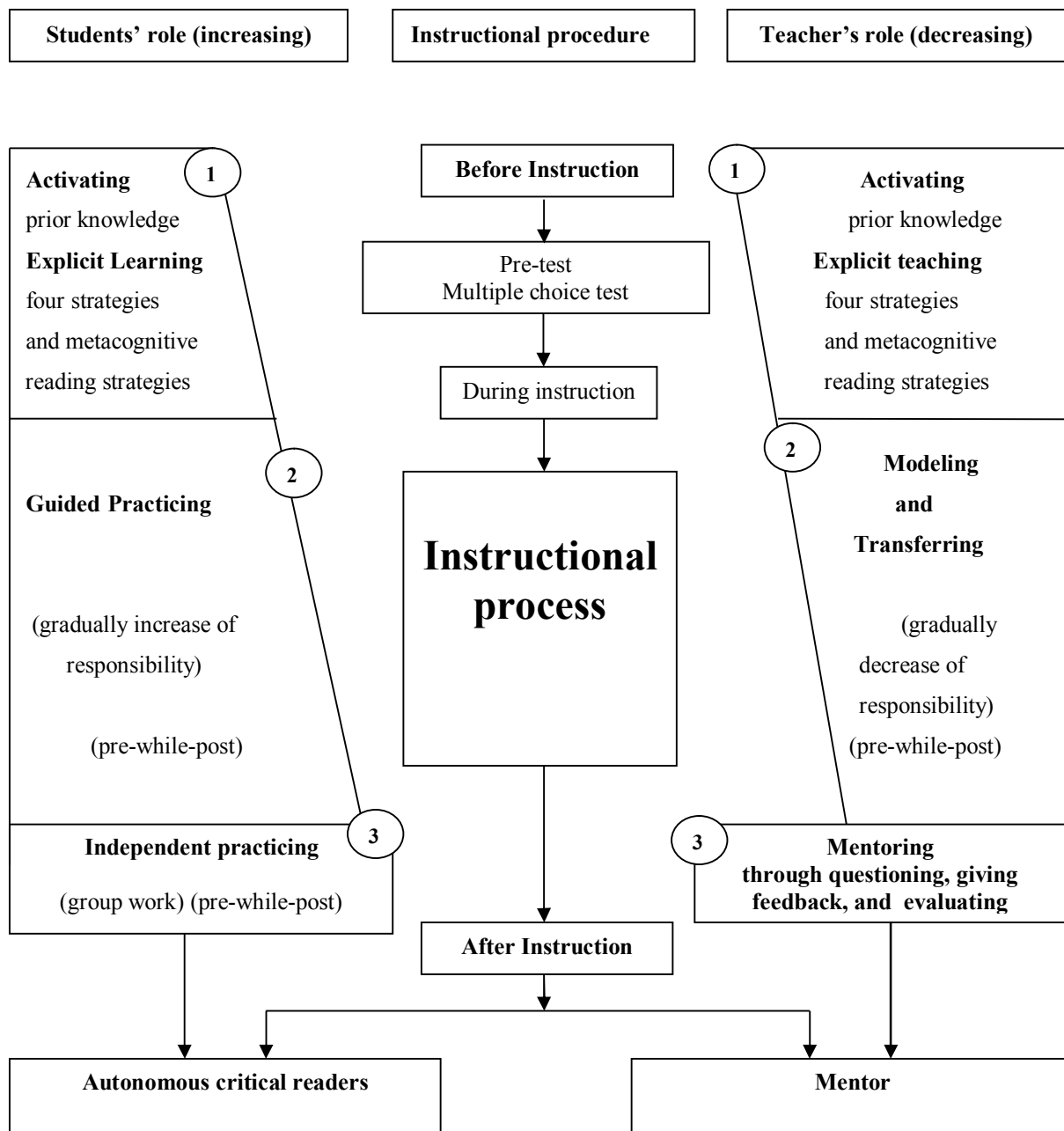
These instructional stages were conducted using pre-while-post reading stages.

## 4. Roles of teachers and students.

According to the developed instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary school students, the key concept of the instructional process is to work together between teacher and students to help students increase critical reading skills. The roles of the teacher and students are displayed in figure 2.



**Figure 2:** Roles of teacher and students.



Based on the instructional process which contains three stages: (1) activating, and explicit teaching); (2) guided teaching, modeling, and transferring; and (3) independent practicing, and mentoring.

**The roles of the teacher are as follows:**

**1. Activating:** The teacher activates and applies knowledge and understanding which students previously gain to prepare them for the new learning strategy.

**2. Explicit teaching:** The teacher provides students the assistance through direct teaching reading strategies (reciprocal teaching strategies, and metacognitive reading strategies) and critical teaching abilities (distinguishing, classifying, combining, predicting, prioritizing, and concluding).

**3. Guided teaching, modeling, and transferring:** In order to help students level up their critical reading ability, the teacher has to scaffold them by equipping the guidance about the learning activities, modeling how to work in a group using reciprocal teaching strategy with metacognitive reading strategy to enhance critical reading ability, and transferring the responsibility when found that the students master the learning activities.

**4. Mentoring:** The roles of the teacher are not only to teach the essential knowledge, but to facilitate, encourage, motivate, monitor, assess, and mentor them while they are working in a group to gear up their reading abilities.

**The roles of the students are as the following:**

**1. Activating:** While the teacher is trying to activate students' background knowledge, the students have to open mind, and expose to operate their prior knowledge.

**2. Explicit learning:** The students directly learn from the teacher about reciprocal teaching, metacognitive reading strategy, and critical reading skills.

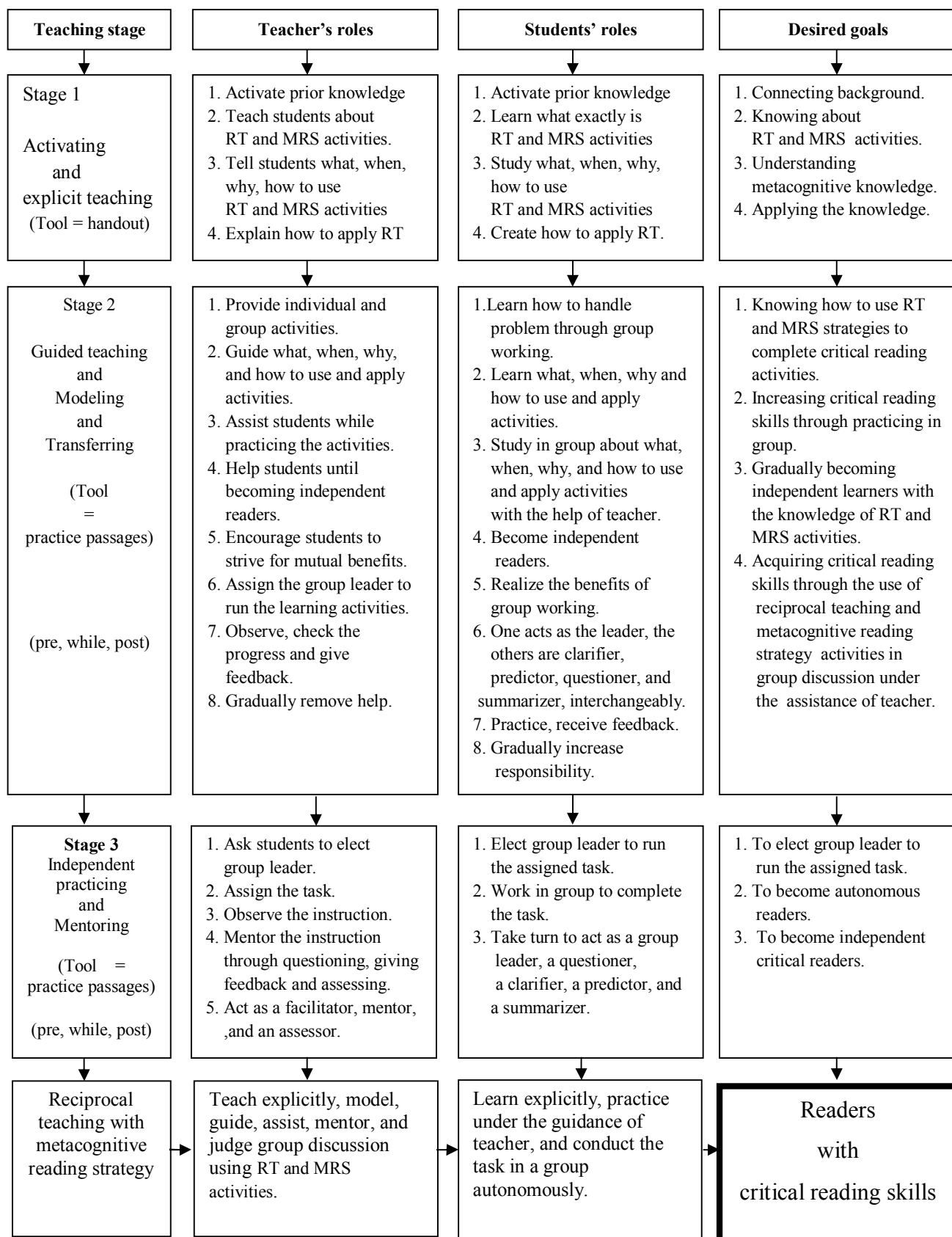
**3. Guided learning, modeling, and transferring:** The students work in a group, and help each other to achieve the goal of reading under the assistance of the teacher. They monitor the state of reading, and evaluate the reading results. When they obtain better understanding, they gradually increase their responsibility.

**4. Independent practicing:** They apply the learned knowledge to work in a group to improve their critical reading ability.

The roles of the teacher and the students can be concluded in figure 3.



**Figure 3 :** The roles of teacher and students in the instructional processes.



This figure demonstrates the details of the teacher's roles, the students' roles, the instructional stages, and the demanded goals. There are three stages of the instruction. In each stage, the desired goals are determined. In order to accomplish the goals, the teacher's and the students' roles are presented. In conclusion, the most important point of this figure is that the teacher needs to scaffold students, and lets them drill by themselves in a group working. At the end, the students become autonomous critical readers which this occurs in a form of conversation between the students and teacher, and between the students themselves.

##### **5. Assessment of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

The purpose of the developed model is to help students increase critical reading ability. The developed instructional model has three types of assessment.

**1. Pretest.** The pretest is carried out before the instruction to gain the information about students' critical reading ability to compare with the post-test. The instrument is the multiple choice critical reading achievement test. The data will be analyzed by using percentage, mean, S.D, dependent sample t-test, and development gained score analysis.

**2. Assessment during the instructional process.** Lesson plans, and the instructional manual are used to foster students' understanding, progress, and critical reading ability. The data are analyzed using content analysis which is consistent with the objectives of the instruction.

**3. Posttest.** The posttest is conducted at the end of the course to investigate if the students obtain significant development in critical reading ability. The data are analyzed using percentage, mean, S.D, dependent sample t-test and development gained score analysis.

In brief, the assessment of the developed instructional model is classified into three types: the pretest, the posttest and the formative assessment. These assessment methods help the teacher gain the information to foster students' critical reading ability.



## **6. Guidelines of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

Pertaining to this instructional model, the teacher should follow these suggestions:

1. Study theoretical framework, objectives, and guidelines clearly, as they direct the teacher to plan and conduct the instruction effectively.

2. Study the instructional procedure, and the roles of teacher and students carefully, because they are able to help the teacher to follow the model and administer the instruction productively.

3. Make long-term instructional plans by analyzing theoretical framework and objectives, and study learning content to outline the plans, create a session lesson plan, and develop the learning activity. These aspects are used to design interesting and effective lesson plans.

4. Prepare instructional instruments, teaching media, and classroom setting design which focus on the collaboratively administration between teacher and students or between students and students.

5. Develop assessment instrument which is related to the desired objectives.

In short, it is essential for the teacher to study the guidelines of the instruction because it provides the teacher suggestions which direct the teacher to plan productive instruction.

## **7. General aspects of the instructional model based on reciprocal teaching with metacognitive reading strategy.**

The general aspects of the developed instructional model are contributed as the following.

**1. Time.** This instructional model contains three instructional stages and eleven lesson plans. It takes three periods (150 minutes) to complete each lesson plan. Nevertheless, the teacher can adjust the teaching time to be appropriate with the content being taught. In eleven lesson plans, there are fourteen expository reading passages which eight of them are for teaching in class and six passages are for homework. The overall time of this course is thirteen week (39 periods). Three periods are for conducting introduction and for the pretest, two periods for the posttest, two periods for the mid-term examination, and thirty two periods for the instruction.





**2. Materials and instruments.** Materials are sheets of reciprocal teaching-based content, metacognitive reading strategy-based content, critical reading skill-based content, and expository reading passages based on critical reading skills. Instruments consist of lesson plans, and critical reading achievement test.

**3. Students.** This instructional model is designed for higher secondary school students. However, the teacher can apply this instructional model to teach students at university, lower secondary, or primary levels.

In conclusion, the instructional manual is developed as a guidebook for teacher or interested person to use this ready-to-use instructional model to help students increase critical reading skills. This manual comprises seven topics which aim to provide the teacher or interested person more information about the model. By following the suggestions in the manual, the teacher or interested person would be able to use this model productively.



## **APPENDIX C**

### **Lesson plan**



**1. Topic**

Critical reading skills: Summarizing of all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).

**2. Time:** 3 periods

**3. Instructional process:** stage 2 (guided teaching, modeling, and transferring)

**4. Objectives:** After class, students will be able to:

1. Design and conduct learning activities under the assistance of teacher.
2. Use reciprocal teaching with metacognitive reading strategy to improve all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).
3. Find topic noun(s) of the reading passage.
4. Identify main idea and supporting details of passage using concept mapping.

**4. Evaluation:** In the process of the instruction, teacher will:

1. Ask each group of the students to select the group leader and select the others to act as a predictor, a questioner, a clarifier, and a summarizer. So the teacher has to monitor their roles.
2. Allow students to design and conduct the learning activities based on the learned knowledge from the guidance and model of the teacher in lesson plan 4, 5 and 6. The teacher examine students' overall progress.
3. Check students' worksheets about the tasks concerning all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).
4. Check students' improvement about the understanding of all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).
5. Observe students' attitude, opinions and behaviors towards the instruction process through questioning, monitoring, and evaluating.



## 5. Essential prior knowledge

1. Concept mapping
2. Sentence structure
3. Four strategies of reciprocal teaching: predicting, questioning, clarifying, and summarizing.
4. Three skills strategies of metacognitive reading strategies: planning, monitoring, and evaluating.

## 6. Materials:

### 1. Texts:

Sheet of Warmer Weather for learning in class

### 2. Equipment:

1. Projector
2. Visual
3. Computer

## 7. Contents:

The main purpose of this lesson plan is to guide, model how to use reciprocal teaching with metacognitive reading strategy to increase all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding). The contents of the study are consistent with instructional processes.

## 8. Instructional procedures

Stage 2: Guided teaching, modeled and transferring		
Instructional process	Teacher' roles	Students' roles
	<ol style="list-style-type: none"> <li>1. Provide help</li> <li>2. Mentor</li> </ol>	<ol style="list-style-type: none"> <li>1. Act as a group leader, a predictor, a clarifier, a question creator, and a summarizer interchangeably.</li> <li>2. Practice according to the guidance.</li> <li>3. Exchange the roles.</li> </ol>



		<p>4. Gain advanced.</p> <p>5. Increase responsibility.</p>
<p><b>Before reading</b></p> <p>(The purpose of this stage is to guide the use of two reading strategies: planning, and predicting.)</p>	<p>-Ask each group of the students to select a group leader.</p> <p>- Allow the group leader to run the learning activities under the supervision of the teacher.</p>	<p>1. Select the group leader.</p> <p>2. The group leader assigns the members of the group to act as a predictor, a questioner, a clarifier, and a summarizer.</p> <p>3. For the role of a group leader, a predictor, a questioner, a clarifier, and a summarizer, students have to act interchangeably.</p> <p>4. Then, the group leader leads the learning activities to gradually master the learned knowledge under the assistance of teacher as the follows:</p> <p>1. <b>Plans</b> for reading by <b>questioning</b> the member about what is the purpose of reading.</p> <p>2. Asks the members to predict the passage based on the reading purpose:</p> <ul style="list-style-type: none"> <li>- To predict true or false.</li> <li>- To predict topic noun of the story.</li> <li>- To predict the tone of the story (sad or happy)</li> </ul>
<p><b>During reading</b></p> <p>(After getting the purpose of the reading, the aim of this stage is to guide the use of predicting, questioning, clarifying, and monitoring.)</p>	<p>1. Observe the learning conducting</p> <p>2. Assist if help is needed.</p> <p>3. Give feedback.</p> <p>4. Mentor.</p> <p>5. Gradually decrease teacher's duty, and increase students' responsibility.</p>	<p>1. Asks the predictor to predict what will be happened next in the text and asks the other members to monitor the predicting by considering to reject or accept the predicting.</p> <p>2. Asks the questioner to question the unknown words, phrases, and sentences. Asked the others to monitor by considering to support or reject the questions.</p> <p>3. Asks the clarifier to answer the asked questions and asked the others to monitor by checking the correctness of the answers.</p>



<p><b>After reading</b> (The purpose of this stage is to guide the use of two reading strategies: summarizing, and evaluating.)</p>	<ol style="list-style-type: none"> <li>1. Mentor.</li> <li>2. Gradually decrease teacher's duty, and increase students' responsibility.</li> </ol>	<ol style="list-style-type: none"> <li>1. Asks the summarizer to summarize the goals of reading such as combining, and predicting and asked the other to monitor the summarizing by examining whether the summarization is correct.</li> <li>2. Asks all of the members of the group to evaluate the final results of the reading purpose by inspecting if the reading goal has been successful.</li> </ol>
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According to these processes, students would be able to use reciprocal teaching with metacognitive reading strategy to enhance all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).

## 8. Hand out

Sheet used in this lesson plan is Warmer Weather.



Reading passage 1: Warmer Weather  
(For learning in class)

.....

**Warmer Weather Driving Some species of Butterflies Out**

According to researchers and scientists from Ohio State University, warm weather caused by sunlight penetrating the dwindling ozone layers is driving some species of butterflies to extinction. Scientists claimed that warmer weather, one of the most damaging form of natural disasters, killed the eggs of some species of butterflies, but left others healthy. Why? Because of the higher levels of ultraviolet radiation, the earth is appearing to become warmer. Some species of butterflies exposed directly to it increase the risk to be endangered. The findings of researchers support the idea that increased warm weather caused by UV passing through the thinning ozone layers could be killing more butterflies than in the past.

The researchers also found that the disappearances was due to the great temperature increase around the world. This was the results of pollution, deforestation, and habitat destruction. They concluded that most of butterflies are susceptible to the weather changing which possibly was wiping them out. Despite the declining numbers of butterflies due to the environmental damage, other factors such as predators, prey and human also influence species' ability to survive.

The researchers also found that in the areas of great temperature increases around the world, numbers species of butterflies were declining faster.



### **Instructional procedure**

The purpose of this passage is to use reciprocal teaching with metacognitive reading strategy to enhance critical reading skills. It is on the stage 2 of the instructional process: guided teaching, modeling, transferring. The instruction mainly focuses on the roles of the students to design and conduct the learning activities based on the learned knowledge under the assistance of the teacher. That is, they have to work in group, help each other to complete the desired reading goals they set up. This lesson plan aims to gradually decrease teacher's duty, and increase students' responsibility.

The teaching procedure of this reading passage is as follows.

#### **Teacher**

1. Asks each group to select the group leader to lead the learning activities.

#### **Each group of students**

1. Selects the group leader.
2. The group leader assigns the members of the group to act as a predictor, a questioner, a clarifier, and a summarizer.
3. For the role of a group leader, a predictor, a questioner, a clarifier, and a summarizer, students have to act their roles interchangeably.
4. Then, the group leader lead the learning activities to gradually master the learned knowledge under the assistance of teacher.

#### **Before reading**

Planning, and predicting

.....

.....

.....

.....





**During reading**

Predicting, monitoring  
.....  
.....

Questioning, and monitoring  
.....  
.....

**After reading**

Summarizing, monitoring, and evaluating  
.....  
.....  
.....



**Before reading****Teacher:**

Asks each group of the students to select the group leader to lead the learning activities.

**Group leader (Running the learning activities)****Planning, and predicting**

1. Tells the group members that before reading we should use planning to set up reading goals that is all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).
2. The members choose the desired reading goals.
3. Asks the members to predict the passage based on the reading goal (all subskills of critical reading: analysis (distinguishing, and classifying); synthesis (combing, and predicting); and evaluation (prioritizing, and concluding).

**1. True or False (To gain ‘distinguishing, and classifying’ critical reading skills)**

**Directions:** Look at the article’s headline and guess (predict) whether these sentences are true (T) or false (F).

T / F

- |   |       |
|---|-------|
| 1. Some species of butterflies are killed by warmer weather.              | ----- |
| 2. Warmer weather is the most cause of natural disaster.                  | ----- |
| 3. Sunlight penetrating the ozone layer causes warmer weather.            | ----- |
| 4. Researchers and scientists said that the weather is hotter.            | ----- |
| 5. The earth becomes warmer because of higher levels of UV radiation----- | ----- |
| 6. The death of butterflies happens first before warmer weather.          | ----- |
| 7. In the future, the weather would be hotter than at present.            | ----- |
| 8 Only pollution can cause warmer weather.                                | ----- |
| 9. Ozone layer can prevent warmer weather.                                | ----- |
| 10. Humans kill butterflies.  | ----- |



## 2. Words Matching (To gain 'distinguishing, and classifying' critical reading skills)

**Directions:** Match the following words which have the same meaning by writing the answer in the blank.

- |                     |       |                   |
|---------------------|-------|-------------------|
| 1. findings         | ..... | a. caused by      |
| 2. disaster         | ..... | b. results        |
| 3. damage           | ..... | c. kill           |
| 4. decline          | ..... | d. disappear      |
| 5. Researcher       | ..... | e. over the world |
| 6. extinction       | ..... | f. UV             |
| 7. around the world | ..... | g. decrease       |
| 8. natural          | ..... | h. warmer weather |
| 9. done by          | ..... | i. ozone layers   |
| 10. ultraviolet     | ..... | j. scientist      |

## 3. Phrases Matching (To gain 'distinguishing, and classifying' critical reading skills)

**Directions:** Match the following phrases according to the passage.

- |                                       |       |                                    |
|---------------------------------------|-------|------------------------------------|
| 1. driving some species to extinction | ..... | a. results of the study            |
| Answer .....                          |       |                                    |
| 2. findings of the researcher         | ..... | b. passing through ozone layer     |
| Answer .....                          |       |                                    |
| 3. dwindling ozone layer              | ..... | c. warmer weather                  |
| Answer .....                          |       |                                    |
| 4. weather changing                   | ..... | d. killing the eggs of butterflies |
| Answer .....                          |       |                                    |
| 5. sunlight penetrating ozone layer   | ..... | e. thinning ozone layer            |
| Answer .....                          |       |                                    |



### **During reading (To gain ‘predicting and combining’ critical reading skills)**

#### **Predicting and monitoring**

Leader: Asks the member who acts as a predictor to **predict** the story.

Do you think that what will happen next in the text?

Predictor: Answers the question.

I think that it might be about the changed weather.

Leader: Asks the rest of the group members to **monitor** the answer by considering to reject or confirm the answer.

In your opinions, do you confirm or reject this answer?

Students : We agree with him/her.

### **Questioning, clarifying, and monitoring (To gain ‘questioning and monitoring’ critical reading skills)**

Leader : - Asks the member who acts as a questioner to ask questions based on the purpose of the reading .

- Questioner, please ask one or two questions about the story concerning the reading purpose or about unknown words, phrases, and sentences.

Questioner: Asks the questions.

1. Is hot weather different from global warming?
2. Do the butterflies like hot weather, why?
3. What caused hot weather?

Leader : Asks the other members of the group to **monitor** the questions by considering to reject or confirm the questions.

- In your opinions, are they appropriate questions?

Students: We think that all of them are good questions.

Leader : Asks the student who acts as a **clarifier** to clarify the questions.

- Clarifier, please clarify the asked questions.

Clarifier : Clarify the asked questions.

- To me, I think that hot weather is not so serious as global warming, it is not the same.



- To my knowledge, I think all species of butterflies do not favor hot weather, because it is too hot for them to live and breed.

- I think it is from the changed environment, and pollution.

Leader : Asks the other members of the group to **monitor** the answer by considering the correctness of the answers.

- Students, please help him/her check the correctness of the answer.

Students : Monitor by considering the answers.

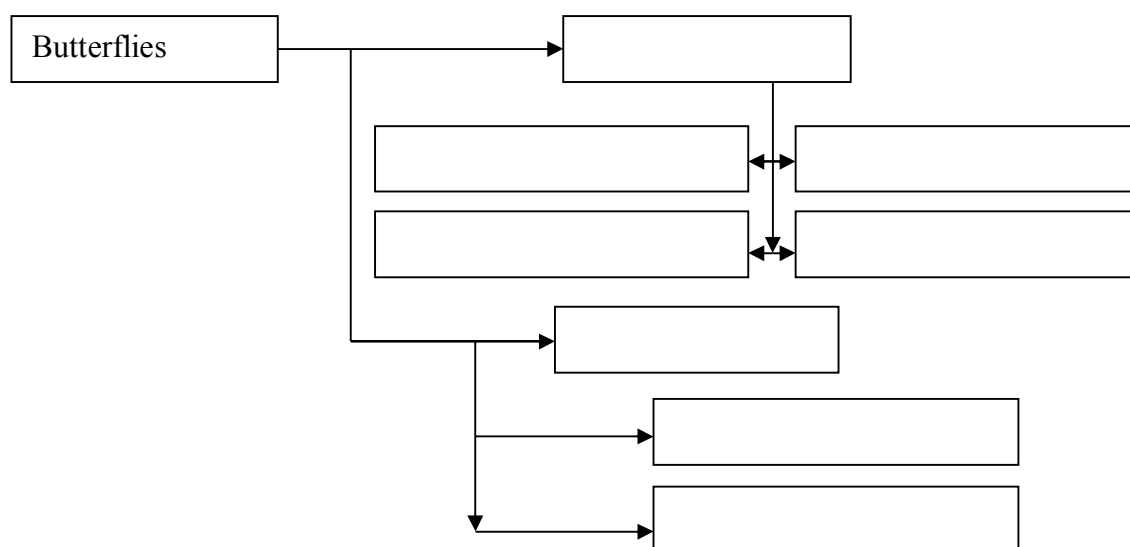
- I agree with him/her for the first two answers.

- For answer No. three, the hot weather is from pollution, deforestation, and habitat destruction.

Leader : Support the answer.

- Good job! All answers are correct.

Leader : Asks all students in each group to analyze and synthesis information of the story by making concept mapping.



**After reading (To gain ‘prioritizing and concluding’ critical reading skills)**

**(Summarizing, monitoring, and evaluating)**

Leader : Asks the student who acts as a summarizer to summarize the reading passage.  
Summarizer, please summarize the reading passage.

Summarizer: The passage is about the hot weather that caused some species of butterflies to be endangered species.



Leader : Asks the other members of the group to **monitor** by considering the correctness of the answer.

- Is the summarization correct?

Students: Answer the question.

- We think it's a correct summarization.

Leader : Asks the members of the group to evaluate the reading results

- Everybody, please evaluate to see whether we accomplish the goals of reading this story.

Students : Evaluate the reading results.

- Based on the group discussion, we conduct this with smooth conversation. We can enhance our reading skills. We enjoy, and favor these learning activities.

**Directions: Answer the following questions.**

4.1 What can be concluded from the passage? (concluding)

- a. Warmer weather increases the loss of butterflies.
- b. Humans are the main cause of losing butterflies.
- c. Butterflies are very beautiful animals with colorful wings.
- d. Butterflies like the weather because it is good for them.

4.2 According to the passage, what happens first? (prioritizing)

- a. Warm weather killing butterflies.
- b. Sunlight penetrating the dwindling ozone layers.
- c. The earth becoming warmer.
- d. Disappearance of the butterflies.

4.3 What will happen in the future according to passage? (predicting)

- a. A large number of butterflies will disappear.
- b. A lot of people will take care of butterflies.
- c. Warmer weather will gradually decrease.
- d. UV will not harm butterflies.



- 4.4 Based on the passage, which of the following is true. (classifying)
- a. Warmer weather is the only one cause of the butterflies' disappearance.
  - b. The declining of ozone layer is the main factor of the butterflies' disappearance.
  - c. Not only hot weather, but also predator, prey and humans can harm butterflies.
  - d. A large number of butterflies are declining because of cold weather.
- 4.5 What can be inferred about butterflies based on the passage? (distinguishing)
- a. Butterflies exposed directly to hot weather are in danger.
  - b. Butterflies living near humans are the major cause of disappearance.
  - c. Warmer weather is the only one factor to cause butterflies disappearance.
  - d. Pollution, deforestation, and habitat destruction are not related to hot weather.
- 4.6 What are the main factors causing butterflies to extinction? (combining)
- a. Hot weather and ozone layers.
  - b. UV and hot weather, researchers, and ozone layers.
  - c. Humans, UV and hot weather.
  - d. Humans, hot weather, deforestation, and predators.

## 9. Remark

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**APPENDIX D**  
**Students' attitude questionnaire**





**The questionnaire for eliciting students' opinions on the instructional model  
based on reciprocal teaching with metacognitive reading strategy  
to enhance critical reading ability for higher secondary school students**

แบบสอบถามเกี่ยวกับรูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญา  
เพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณสำหรับนักเรียนมัธยมศึกษาตอนปลาย

**คำชี้แจง**

1. แบบสอบถามนี้จัดทำเพื่อสำรวจความคิดเห็นของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญาเพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณของนักเรียนหลังจากที่ได้เรียนรู้ด้วยรูปแบบการเรียนการสอนนี้แล้ว
2. โปรดตอบแบบสอบถามทุกข้อให้ตรงกับความรู้สึกหรือความคิดเห็นของนักเรียนให้มากที่สุด คำตอบจะไม่มีผลใด ๆ ต่อตัวนักเรียนหรือโรงเรียน และจะถูกเก็บไว้เป็นความลับ ผลสำรวจนี้จะนำไปใช้ในการพัฒนารูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญา เพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณสำหรับนักเรียนมัธยมศึกษาตอนปลาย

3. แบบสอบถามนี้แบ่งออกเป็นสองตอน ซึ่งประกอบด้วย

ตอนที่ 1 แบบสอบถามรายละเอียดเกี่ยวกับตัวนักเรียน

ตอนที่ 2 แบบสอบถามทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญา เพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณสำหรับนักเรียนมัธยมศึกษาตอนปลาย

**ตอนที่ 1 แบบสอบถามรายละเอียดเกี่ยวกับตัวนักเรียน**

**คำชี้แจง** แบบสอบถามตอนที่ 1 นี้ มีสามข้อ โปรดทำเครื่องหมาย  ลงในช่อง  ตามความเป็นจริง

1.1 เพศ

ชาย  หญิง

1.2 คะแนนสะสม

2.00-2.50  2.51-3.00  3.01-3.50  3.51-4.00

1.3 เกรดวิชาภาษาอังกฤษในภาคการศึกษาหลังสุด

เกรด 4  เกรด 3.5  เกรด 3

เกรด 2.5  เกรด 2  เกรด 1.5  เกรด 1 0



**ตอนที่ 2** แบบสอบถามทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปราย เพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณสำหรับนักเรียนมัธยมศึกษาตอนปลาย

**คำชี้แจง** 1. แบบสอบถามมีทั้งหมด 40 ข้อ

2. โปรดอ่านข้อความทางซ้ายมือแล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นหรือความรู้สึกของนักเรียนมากที่สุดเพียงช่องเดียว

ข้อ	รายการ	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
1	ข้าพเจ้าชอบรูปแบบการเรียนการสอนที่เรียนเป็นกลุ่ม					
2	ข้าพเจ้าชอบกิจกรรมก่อนการอ่าน (before reading)					
3	ข้าพเจ้าชอบกิจกรรมขณะอ่าน (while reading)					
4	ข้าพเจ้าชอบกิจกรรมหลังการอ่าน (after reading)					
5	ข้าพเจ้าชอบการเรียนในชั้นที่มีครูชี้แนะ (Direct teaching)					
6	ข้าพเจ้าชอบการเรียนในชั้นที่ครูสาธิตการเรียน (Guided teaching)					
7	ข้าพเจ้าชอบการเรียนในชั้นแลกเปลี่ยนบทบาทในกลุ่ม (Independent practicing)					
8	ข้าพเจ้าคิดว่า การถาม (Questioning) ช่วยในการพัฒนาทักษะการอ่าน					
9	ข้าพเจ้ารู้สึกว่า การทำนาย (Predicting) ช่วยในการพัฒนาทักษะการอ่าน					
10	ข้าพเจ้าคิดว่า การทำให้กระจ่าง (Clarifying) ช่วยส่งเสริมทักษะการอ่าน					
11	ข้าพเจ้าคิดว่า การสรุป (Summarizing) ช่วยเพิ่มพูนทักษะการอ่าน					
12	ข้าพเจ้ารู้สึกว่า การวางแผน (Planning) ช่วยทำให้การอ่านมีเป้าหมายมากขึ้น					
13	ข้าพเจ้ารู้สึกว่า การตรวจสอบ (Monitoring) ช่วยสำรวจผลการอ่านได้					
14	ข้าพเจ้าคิดว่า การประเมินผล (Evaluation) ช่วยในการตรวจสอบผลการอ่านได้					



15	ข้าพเจ้ารู้สึกมีความสุขทุกครั้งที่ได้เรียนตามรูปแบบการเรียนการสอนนี้					
16	ข้าพเจ้าคิดว่ารูปแบบการเรียนการสอนนี้ช่วยพัฒนาทักษะการอ่านของข้าพเจ้า					
17	ข้าพเจ้าคิดว่าบรรยากาศในการเรียนการสอนมีความสนุกสนานมากกว่าการเรียนตามปกติ					
18	ข้าพเจ้ารู้สึกว่ากิจกรรมการเรียนการสอนมีความหลากหลาย					
19	ข้าพเจ้าคิดว่ากิจกรรมการเรียนการสอนช่วยทำให้ข้าพเจ้ามีความกล้าคิดกล้าแสดงออก					
20	ข้าพเจ้าจะแนะนำให้รุ่นน้องหรือเพื่อน ๆ เรียนด้วยรูปแบบการเรียนการสอนแบบนี้เหมือนกับข้าพเจ้า					

ข้อเสนอแนะเพิ่มเติม

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## **APPENDIX E**

### **Achievement test for pretest - posttest**



### Achievement test for pretest - posttest

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#### Passage 1

Is the earth warming up or not? Many scientists say it is, due to the greenhouse effect, the heat-trapping property of gasses that pollute the atmosphere. Some computer studies indicate that the warming could cause more frequent droughts and eventually produce climatic upheaval.

A study by the National Oceanic and Atmospheric Administration published in the journal *Geophysical Research Letters* shows that the climate in the 48 states of the U.S. has remained pretty much unchanged for nearly a century. By analyzing data gathered at weather stations across the U.S. between 1985 and 1987, meteorologist Kirby Hanson and two NOAA colleagues found that average annual temperature had fluctuated between 52F and 54F, with no statistically significant long-term trend either up or down. The same was true of average rainfall, which generally ranged from about 33 in. to 36 in. yearly.

At first glance, the study would appear to cast serious doubt on the greenhouse theory. Not so. The U.S. makes up only 1.5% of the earth's surface, and the country's temperature trends are not necessarily indicative of what is taking place on the planet as a whole. James Hansen, head of NASA's Goddard Institute for Space Studies and one of the most prominent supporters of the greenhouse theory, was not at all swayed by the new study. "Even in a warming world," he says, "you'd still expect on a statistical basis to see local variation—one region cooler than the average, another hotter. If you look at an area as small as the U.S., then natural variability is very large. But it's the global average that is important." While other climate experts are slower to make concrete predictions, Hansen's studies of global temperatures suggest that the warming trend has already begun and will soon become widely apparent. Warns the NASA scientist: "Our model predicts that by the middle of the 2010's, the greenhouse effect should be pretty clear not only to scientists, but also to the man in the street."



1. What is the main cause of the greenhouse effect?
  1. Heat
  2. Gas
  3. Drought
  4. Climate
2. According to the passage, which of the followings is **not** true?
  1. This research was carried out by NOAA.
  2. This study appeared in science journal.
  3. Only NASA scientists studied about greenhouse effect.
  4. In the future, ordinary people can notice the problems caused by greenhouse effect.
3. Which of the following event occurred first?
  1. Computer studies
  2. The warming earth
  3. Greenhouse effect
  4. Frequent droughts
4. What can be concluded about the greenhouse effect?
  1. It would be more serious in the future.
  2. It would be more interesting towards the scientists.
  3. Experts would predict more about its danger.
  4. NASA would warn more about the cause of it.
5. What can be predicted about the greenhouse effect in the future?
  1. Become worse
  2. Improve
  3. Fluctuate
  4. Remain unchanged
6. According to the last paragraph, who are able to notice the ecological problems caused by the greenhouse effect?
  1. Scientists and ordinary people
  2. NASA and NOAA
  3. Meteorologists and doctors
  4. Researchers and meteorologists
7. Which of the followings should this type of the writing usually appear in?
  1. Manuals
  2. Textbooks
  3. Periodicals
  4. Encyclopedias
8. Person and institutions who studied about greenhouse effects consisted of.....
  1. NOAA
  2. NASA
  3. NOAA, NASA, and Hansen
  4. NOAA, NASA, Hanson and Hansen
9. What can be predicted about the greenhouse effect study of NASA scientists?
  1. They will stop studying greenhouse effects.
  2. They will study more.
  3. They will study rocket instead.
  4. They will study space.



**Passage 2:**

The term biological clock is applied to the means by which living things adjust their activity patterns, without any obvious cue, to the time of day, or the month, or the year. The biological clocks seem to be beautifully adapted to the needs of living things. They are affected but little, if at all, by drugs, chemicals, or wide temperature differences – factors which may change substantially the rates of all ordinary processes of the body.

The nature of the biological clocks' mechanism is still a mystery. Two quite different theories have been advanced to account for them. According to the first of these theories, each individual contains its own independent timing system. This is believed to have evolved, aided by natural selection, as an adaptation to the rhythmic environment. It has now become independent of the environment. According to this view, the clocks are not perfect timers. They require regular corrections by the natural light and tide cycles and the changing lengths of the day throughout the year.

The other theory holds that living things react continuously to their rhythmic physical environment. The setting of their biological clocks, therefore, involves a constant adjustment to subtle environment forces. If this view is correct, the basic living clocks are potentially perfect timers.

Biological clocks appear to be everywhere in living things – even in individual cells or parts of cells. But the search for the specific timing system has been futile thus far. Despite the careful study of many rhythmic phenomena and even of detailed chemical variations between cells, there is no evidence that any one of them is the clock – timer itself. Not only has no independent timing system ever been discovered, but there has not yet been even a plausible guess as to its nature.

10. What is this passage mainly about?

1. a comparison of two types of biological clocks
2. Theories of the mechanism of biological clocks
3. The origin of timing systems in individuals
4. the study of rhythmic phenomena

11. What is the purpose of the writer?

- |             |            |
|-------------|------------|
| 1. classify | 2. explain |
| 3. persuade | 4. argue   |



12. What is the best title of this passage?
1. Living things and natural selection
  2. The future of rhythmic phenomena
  3. Timing systems and their natures
  4. The Mystery of biological clocks
13. All of the followings have little effect on biological clocks **except**.....
1. the sun and the moon
  2. extreme heat or cold
  3. nicotine and alcohol
  4. aspirin and penicillin
14. What is true about biological clocks?
1. The timing system has been found only in animals.
  2. The nature of all biological clocks is explainable.
  3. The actual clock-timer of living things has never been discovered.
  4. All chemical variations between cells determine the timing system of each individual.
15. All researchers agree that.....
1. living thing have internal timing mechanisms
  2. all biological clocks keep perfect time.
  3. the environment has no effect on the individual's timing system.
  4. biological clocks require regular corrections.
16. Rank the following in order from the first to the last?
1. Two theories of biological clocks.
  2. Reaction to physical environment.
  3. Independent timing system.
  4. Giving the meaning of "biological clocks".
1. 1-4-2-3
  2. 3-4-2-1
  3. 2-1-3-4
  4. 4-1-3-2





**Passage 3:**

The most damaging insects in the world are the corn earworm and several other harmful crop insects.

Each year, they cost American farmers about 2,000 million dollars. That amount includes money spent on efforts to control them, and on lost crops. At one time, chemicals were used to control these insects and helpful insects were affected.

Today, many farmers are using insects to control insects. The most popular are very small wasps. Two kinds of wasps are used. One is the microplitis croceipes. It attacks insects in the heliothis/helicoverpa group. The second wasp is the cotesia marginivenris. It is used against a number of insects, especially those of the noctuid family. They include the fall army-worm, the beet armyworm and the cabbage looper.

Several government and university scientists studied what happens when a harmful insect, such as a corn earworm, attacks a plant. They found the plant releases a chemical announcing the attack. A wasp smells the chemical and flies to the plant in search of the insect. The wasp attacks when it finds the corn earworm. It drills a tiny hole in the worm with its tail and lays an egg.

When the wasp larva leaves the egg it begins eating the blood and fat of the corn earworm. In a short period of time, the earworm dies. The wasp lays only one egg in the worm. If another worm attacks the plant, it will release another chemical signal. The wasp may return to the plant if it smells the chemical. But, having marked the first worm with its own special smell, the wasp will pass it by and look for the second worm.

In studies, wasps have laid their eggs in from 80 to 100 percent of the corn earworms in an affected field. Scientists now are looking for way to produce large amounts of the wasps in the laboratory to be released on farms. They say farmers need between 300 and 600 female wasps for each acre. This number, they say, will provide a healthy population of wasps to control harmful insects.

17. What is the best title for this passage?

- |                             |                             |
|-----------------------------|-----------------------------|
| 1. Destructive Wasps        | 2. Life Cycle of Wasps      |
| 3. Wasps: Friends of Plants | 4. How Wasps Attack Insects |



18. What is the author's purpose in writing this passage?
1. To explain how wasps control harmful insects.
  2. To improve ways of controlling harmful insects.
  3. To persuade farmers to use wasps to control insects.
  4. To discuss the results of using insects to control insects.
19. Which of the following is not true?
1. The wasp uses the earworm as a host.
  2. The wasp's egg feeds on all the earworms.
  3. The wasp's egg develops in the earworm.
  4. A chemical signal leads the wasp to the earworm.
20. What happens if the plant is attacked again by another worm?
1. The wasp will ignore this plant after recognizing its own smell.
  2. The wasp will send a signal to another wasp to attack the worm.
  3. The wasp will come back to eat the worm, but not to lay another egg.
  4. The wasp will not detect the chemical smell because of its own smell.
21. What can be predicted from the passage about wasps?
1. Wasps can kill harmful insects instantly.
  2. Male wasps cannot be used to kill these harmful insects.
  3. Wasps, used to attack other insects, must be laboratory-tested.
  4. One kind of wasp can attack one specific kind of insects.
22. What is the current problem in using wasps to control harmful insects?
1. The number of wasps is not adequate to control the insects.
  2. Scientists have to do more experiments to confirm the results.
  3. The researchers have found that it is difficult to make wasps active.
  4. Farmers are not satisfied with the unpredictable results of this method.
23. Place the following in order of priority?
1. Farmers use insects to control insects.
  2. Insects damages crops.
  3. Wasps control insects.
  4. Farmers use chemicals to control insects.
1. 2-4-1-3      2. 4-2-3-1      3. 3-4-2-1      4. 1-2-4-3



24. According to the last paragraph, what can we predict about the wasps?

1. Scientists are growing corn trees.
  2. Scientists are controlling wasps.
  3. Scientists are studying to get more wasps.
  4. Scientists want 600 wasp
- .....

Distribution of each subskill of critical reading

No.	Subskills of critical reading	Passage 1		Passage 2		Passage 3	
		Item No.	Item No.	Item No.	Item No.	Item No.	Item No.
1	Distinguishing	2		13	14	19	
2	Classifying	1	6	11		18	
3	Combining	7	8	12		17	
4	Predicting	5	9			21	24
5	Prioritizing	3			16	20	23
6	Concluding	4		10	15	22	
	Total	9		7		8	
		24 items					



**Key of the test**

Items/Choices	1	2	3	4
1		2		
2			3	
3			3	
4	1			
5	1			
6	1			
7			3	
8				4
9		2		
10		2		
11		2		
12				4
13		2		
14			3	
15	1			
16				4
17				4
18	1			
19		2		
20	1			
21				4
22	1			
23	1			
24			3	
<b>Total</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>5</b>



**APPENDIX F**  
**Teacher's Journal**



**คำชี้แจง** แบบบันทึกนี้แบ่งออกเป็นสองตอน

**ตอนที่ 1** บันทึกบุคลิกลักษณะ เจตนา และพฤติกรรมของนักเรียนในชั้นเรียนเพื่อตรวจสอบทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอน

**ตอนที่ 2** บันทึกความสามารถด้านการอ่านอย่างมีวิจารณญาณของนักเรียน

<p><b>ตอนที่ 1</b></p> <p>1. พฤติกรรมของนักเรียนก่อนการอ่าน (before reading) (Students' behaviors in the stage of 'before reading'.)</p>
<p>2. พฤติกรรมของนักเรียนขณะอ่าน (while reading) (Students' behaviors in the stage of 'while reading'.)</p>
<p>3. พฤติกรรมของนักเรียนหลังการอ่าน (after reading) (Students' behaviors in the stage of 'after reading'.)</p>
<p><b>ตอนที่ 2</b></p> <p>1. ความสามารถในการวิเคราะห์ (analysis) (Students' ability to analyze information.)</p>
<p>2. ความสามารถในการสังเคราะห์ (synthesis) (Students' ability to synthesize information.)</p>
<p>3. ความสามารถในการประเมินผล (evaluation) (Students' ability to evaluate information.)</p>



**APPENDIX G**  
**Students' Journal**



### บทเรียนเรื่อง

.....  
**คำชี้แจง** กรุณาเขียนบันทึกแสดงความคิดเห็นของนักเรียนที่มีต่อบทเรียนตามคำถามต่อไปนี้

1. นักเรียนมีความคิดเห็นอย่างไรต่อการเรียนการสอน ขั้นก่อนการอ่าน (before reading)  
 (What do you think about the first teaching step: before reading?)

.....  
 2. นักเรียนมีความคิดเห็นอย่างไรต่อการเรียนการสอน ขั้นขณะอ่าน (while reading)  
 (What do you think about the second teaching step: while reading?)

.....  
 3. นักเรียนมีความคิดเห็นอย่างไรต่อการเรียนการสอน ขั้นหลังการอ่าน (after reading)  
 (What do you think about the third teaching step: after reading?)

.....  
 4. นักเรียนได้เรียนรู้อะไรบ้างจากบทเรียนนี้  
 (What knowledge do you gain from this lesson?)

.....  
 5. นักเรียนชอบหรือไม่ชอบกิจกรรมการเรียนการสอนนี้ เพราะเหตุใด  
 (What do you like or dislike about the learning activities in this lesson?)

.....  
 6. นักเรียนมีความคิดเห็นอย่างไรต่อการเรียนการสอนโดยรวมของรูปแบบการเรียนการสอนนี้  
 (In overall, what do you think about the instruction delivered through the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability)

.....  
 7. นักเรียนมีข้อเสนอแนะเกี่ยวกับการเรียนการสอนเรื่องนี้อย่างไรบ้าง  
 (What additional comments or suggestions do you have?)

.....  
 .....





## **APPENDIX H**

### **Research instrument evaluation for the model**



**Directions:** The evaluation form consists of two parts.

**Part 1:** Please indicate how you evaluate (appropriate, not sure or not appropriate) each of these statements by ticking (✓) for the appropriate degree.

**Part 2:** Specifying comments for each item will be welcomed.

- +1 means the item is appropriate  
 0 means not sure  
 -1 means the item is not appropriate

Items	appropriate	not sure	not appropriate	comment
<b>1. Theoretical Framework</b>				
1.1. Is the theoretical framework accurate?				
1.2. Is the theoretical framework clear?				
1.3. Is the theoretical framework appropriate?				
<b>2. Elements of the model:</b>				
<b>2.1 Rationale:</b>				
1. Has the model rationale been well summarized based on theoretical principles?				
2. Has the model rationale been well summarized based on pedagogical principles?				
3. Is the model construction process clearly explained?				
4. Is the model development reasonable?				
<b>2.2 Objectives:</b>				
1. Are the objectives feasible?				
2. Are the objective consistent with the rationale?				
3. Are the objectives clearly stated?				



Items	appropriate	not sure	not appropriate	comment
<b>2.3 Contents:</b>				
1. Are the contents consistent with the objectives?				
2. Are the contents appropriate?				
3. Are the contents synthesized?				
4. Has the theoretical framework been well synthesized?				
5. Has the theoretical framework been well organized?				
<b>2.4 Instructional process:</b>				
1. Are the sequences of the instruction properly applied for higher secondary school students?				
2. Are the instructional processes clearly explained?				
3. Have the instructional processes been organized?				
<b>2.5 Evaluation:</b>				
1. Is the evaluation consistent with the objectives?				
2. Is the evaluation appropriate?				
3. Is the evaluation accurate?				

Comments: Please give your additional comments and recommendations on the model.

.....  
 .....



## **APPENDIX I**

### **Evaluation form for instructional manual**



**Directions:** Please indicate how you evaluate (appropriate, not sure, or not appropriate) each of these statements by ticking ( ✓ ) in the box to indicate what you think and specifying comments or suggestions for each item will be deeply appreciated.

Items	appropriate	not sure	not appropriate	comment
1. Theoretical framework.				
2. Objectives.				
3. Instructional procedures.				
4. Roles of teachers and students.				
5. Assessment.				
6. Guidelines.				
7. General aspects				

Additional comments and suggestions:

.....

.....

.....



**APPENDIX J**  
**Evaluation form for lesson plan**



**Directions:** Please put a tick in the rating box (+1, 0, -1) if you consider the score to which the item is appropriate. Giving comments for each item will be deeply appreciated.

+1 means the item is appropriate  
 0 means not sure  
 -1 means the item is not appropriate

Items	appropriate	not sure	not appropriate	comment
1. The content is appropriate.				
2. The objectives of the lesson plans are appropriate.				
3. The instructional procedures are consistent with the instructional model.				
4. The teaching materials used in the lesson plan are appropriate.				
5. The tasks used in the lesson plans are appropriate.				
6. The amount of time used in the lesson plans is appropriate.				
7. The language applied in the lesson is appropriate.				
8. The evaluation employed is appropriate.				

Comments: Please give your additional comments and recommendations on the model.

.....  
 .....  
 .....



**APPENDIX K**  
**Evaluation form for attitude questionnaire**





The evaluation form for attitude questionnaire is composed of two parts:

**Part 1:** for overall aspect of the attitude questionnaire.

**Part 2:** for each individual question in the attitude questionnaire.

**Directions:** Please indicate how you evaluate (appropriate, not sure, or not appropriate) each of these statements by ticking (✓) the appropriate degree. Specifying comments for each item will be deeply appreciated.

+1 means the item is appropriate  
 0 means not sure  
 -1 means the item is not appropriate

**Part 1: The evaluation for the overall aspect of the attitude questionnaire**

Items	appropriate	not sure	not appropriate	comments
1. The questionnaire directions are clear.				
2. The questions are consistent with the objectives.				
3. The questions are able to directly elicit attitudes towards the developed model.				
4. The language employed is appropriate to students.				
5. Questions are purposeful.				
6. Questions are consistent with the procedure				
7. Questions are clear and easy to understand.				
8. The length of the questions is appropriate.				

**Additional comments and suggestions:**

.....

.....

.....

.....



**Part 2: Evaluation for each individual question in the attitude questionnaire.**

Items	appropriate	not sure	not appropriate	comments
1.ข้าพเจ้าชอบรูปแบบการเรียนการสอนที่เรียนเป็นกลุ่ม				
2. ข้าพเจ้าชอบกิจกรรมก่อนการอ่าน (before reading)				
3. ข้าพเจ้าชอบกิจกรรมขณะอ่าน (while reading)				
4. ข้าพเจ้าชอบกิจกรรมหลังการอ่าน (after reading)				
5. ข้าพเจ้าชอบการเรียนในชั้นที่มีครูชี้แนะ (Direct teaching)				
6. ข้าพเจ้าชอบการเรียนในชั้นที่ครูสาธิตการเรียน (Guided teaching)				
7. ข้าพเจ้าชอบการเรียนในชั้นแลกเปลี่ยนบทบาทในกลุ่ม (Independent practicing)				
8. ข้าพเจ้าคิดว่า การถาม (Questioning) ช่วยในการ พัฒนาทักษะการอ่าน				
9. ข้าพเจ้ารู้สึกว่า การทำนาย(Predicting) ช่วยในการ พัฒนาทักษะการอ่าน				
10.ข้าพเจ้าคิดว่า การทำให้กระจ่าง (Clarifying) ช่วย ส่งเสริมทักษะการอ่าน				
11.ข้าพเจ้าคิดว่า การสรุป (Summarizing) ช่วยเพิ่มพูน ทักษะการอ่าน				
12.ข้าพเจ้ารู้สึกว่า การวางแผน (Planning) ช่วยทำให้ การอ่านมีเป้าหมายมากขึ้น				
13.ข้าพเจ้ารู้สึกว่า การตรวจสอบ (Monitoring)ช่วยสำรวจ ผลการอ่านได้				
14.ข้าพเจ้าคิดว่า การประเมินผล (Evaluation)ช่วยในการ ตรวจสอบผลการอ่านได้				
15.ข้าพเจ้ารู้สึกว่ามีความสุขทุกครั้งที่ได้เรียนตามรูปแบบ การเรียนการสอนนี้				



Items	appropriate	not sure	not appropriate	comments
16. ข้าพเจ้าคิดว่ารูปแบบการเรียนการสอนนี้ช่วยพัฒนาทักษะการอ่านของข้าพเจ้า				
17. ข้าพเจ้าคิดว่าบรรยากาศในการเรียนการสอนมีความสนุกสนานมากกว่าการเรียนตามปกติ				
18. ข้าพเจ้ารู้สึกว่าการเรียนการสอนมีความหลากหลาย				
19. ข้าพเจ้าคิดว่ากิจกรรมการเรียนการสอนช่วยให้ข้าพเจ้ามีความกล้าคิดกล้าแสดงออก				
20. ข้าพเจ้าจะแนะนำให้รุ่นน้องหรือเพื่อน ๆ เรียนด้วยรูปแบบการเรียนการสอนแบบนี้เหมือนกับข้าพเจ้า				

ข้อเสนอแนะเพิ่มเติม

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## **APPENDIX L**

### **Evaluation form for achievement test**



**Directions:** Please put a tick in the rating box (+1, 0, -1) if you consider the score to which the item is appropriate. Specifying comments for each item will be deeply appreciated.

+1 means the item is appropriate  
 0 means not sure  
 -1 means the item is not appropriate

Items	appropriate	not sure	not appropriate	comment
1. The time used is appropriate.				
2. The language employed is precise.				
3. The language used is clear and easy to understand.				
4. The test is consistent with the objectives.				
5. The test shows content validity.				
6. The number of items is appropriate.				
7. The level of vocabulary is appropriate.				

**Additional comments and suggestions:**

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**APPENDIX M**

**Evaluation form for teacher's journal**



The evaluation form for teacher's journal comprises two parts:

**Part 1:** To record students' participation in doing learning activities in the classroom in order to investigate students' attitudes towards the instructional model.

**Part 2:** To record how well students can perform critical reading ability.

**Directions:** Please indicate how you evaluate (appropriate, not sure, or not appropriate) each of these statements by ticking ( ✓ ) in the box to indicate what you think and specifying comments or suggestions for each item will be deeply appreciated.

Items	appropriate	not sure	not appropriate	comment
<b>Part 1:</b>				
1. Students' behaviors in the stage of 'before reading'.				
2. Students' behaviors in the stage of 'while reading'.				
3. Students' behaviors in the stage of 'after reading'.				
<b>Part 2:</b>				
1. Students' ability to analyze information.				
2. Students' ability to synthesize information.				
3. Students' ability to evaluate information.				

Additional comments and suggestions:

.....

.....

.....



**APPENDIX N**

**Evaluation form for students' journal**





**Directions:** Please indicate how you evaluate (appropriate, not sure, or not appropriate) each of these statements by ticking ( ✓ ) in the box to indicate what you think and specifying comments or suggestions for each item will be deeply appreciated.

Items	appropriate	not sure	not appropriate	comment
1. What do you think about the first teaching step: before reading?				
2.. What do you think about the second teaching step: while reading?				
3. What do you think about the third teaching step: after reading?				
4. What knowledge do you gain from this lesson?				
5. What do you like or dislike about the learning activities in this lesson?				
6. In overall, what do you think about the instruction delivered through the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability.				
7. What additional comments or suggestions do you have?				

Additional comments and suggestions:

.....

.....



## **APPENDIX O**

### **The IOC Value of the Experts' Opinions on the Research instruments**



**Table 1:** The IOC value of the experts' opinions on the developed model

Items	appropriate	not sure	not appropriate	IOC
<b>1. Theoretical Framework</b>	3	-	-	1
1.1. Is the theoretical framework accurate?	3	-	-	1
1.2. Is the theoretical framework clear?	3	-	-	1
1.3. Is the theoretical framework appropriate?	3	-	-	1
<b>2. Elements of the model:</b>				
<b>2.1 Rationale:</b>				
1. Has the model rationale been well summarized based on theoretical principles?	3	-	-	1
2. Has the model rationale been well summarized based on pedagogical principles?	3	-	-	1
3. Is the model construction process clearly explained?	3	-	-	1
4. Is the model development reasonable?	3	-	-	1
<b>2.2 Objectives:</b>				
1. Are the objectives feasible?	3	-	-	1
2. Are the objective consistent with the rationale?	3	-	-	1
3. Are the objectives clearly stated?	3	-	-	1



Items	appropriate	not sure	not appropriate	comment
<b>2.3 Contents:</b>				
1. Are the contents consistent with the objectives?	3	-	-	1
2. Are the contents appropriate?	3	-	-	1
3. Are the contents been synthesized?	2	1	-	0.66
4. Has the theoretical framework been well synthesized?	2	1	-	0.66
5. Has the theoretical framework been well organized?	3	-	-	1
<b>2.4 Instructional process:</b>				
1. Are the sequences of the instruction properly applied for higher secondary school students?	3	-	-	1
2. Are the instructional processes clearly explained?	3	-	-	1
3. Have the instructional processes been organized?	3	-	-	1
<b>2.5 Evaluation:</b>				
1. Is the evaluation consistent with the objectives?	3	-	-	1
2. Is the evaluation appropriate?	3	-	-	1
3. Is the evaluation accurate?	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>0.97</b>



**Table 2:** The IOC value of the experts' opinions on the instructional manual

Items	appropriate	not sure	not appropriate	comment
1. Theoretical framework.	3			1
2. Objectives.	3			1
3. Instructional procedures.	3			1
4. Roles of teachers and students.	3			1
5. Assessment.	3			1
6. Guidelines.	3			1
7. General aspects	2	1		0.66
<b>Grand Mean Score of IOC</b>				<b>0.96</b>



**Table 3:** The IOC value of the experts' opinions on the lesson plans

Items	appropriate	not sure	not appropriate	IOC
1. The contents are appropriate.	3	-	-	1
2. The objectives of the lesson plans are appropriate.	3	-	-	1
3. The instructional procedures are consistent with the instructional model.	3	-	-	1
4. The teaching materials used in the lesson plan are appropriate.	3	-	-	1
5. The tasks used in the lesson plans are appropriate.	3	-	-	1
6. The amount of time used in the lesson plans is appropriate.	3	-	-	1
7. The language applied in the lesson is appropriate.	2	1	-	0.66
8. The evaluation employed is appropriate.	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>0.96</b>



**Table 4:** The IOC value of the experts' opinions on the attitude questionnaire

Items	appropriate	not sure	not appropriate	IOC
1. The questionnaire directions are clear.	3	-	-	1
2. The questions are consistent with the objectives.		-	-	1
3. The questions are able to directly elicit attitudes towards the developed model.	3	-	-	1
4. The language employed is appropriate to students.	3	-	-	1
5. Questions are purposeful.	3	-	-	1
6. Questions are consistent with the procedure	3	-	-	1
7. Questions are clear and easy to understand.	3	-	-	1
8. The length of the questions is appropriate.	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>1</b>



**Table 5:** The IOC value of the experts' opinions on the achievement test

Items	appropriate	not sure	not appropriate	IOC
1. The time used is appropriate.	3	-	-	1
2. The language employed is precise.	3	-	-	1
3. The language used is clear and easy to understand.	3	-	-	1
4. The test is consistent with the objectives.	3	-	-	1
5. The test shows content validity.	3	-	-	1
6. The number of items is appropriate.	3	-	-	1
7. The level of vocabulary is appropriate.	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>1</b>





**Table 6:** The IOC value of the experts' opinions on the teacher's journal

Items	appropriate	not sure	not appropriate	IOC
<b>Part 1:</b>	3	-	-	1
1. Students' behaviors in the stage of 'before reading'.				
2. Students' behaviors in the stage of 'while reading'.	3	-	-	1
3. Students' behaviors in the stage of 'after reading'.	3	-	-	1
<b>Part 2:</b>	3	-	-	1
1. Students' ability to analyze information.				
2. Students' ability to synthesize information.	3	-	-	1
3. Students' ability to evaluate information.	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>1</b>



**Table 7:** The IOC value of the experts' opinions on the student's journal

Items	appropriate	not sure	not appropriate	IOC
1. What do you think about the first teaching step: before reading?	3	-	-	1
2.. What do you think about the second teaching step: while reading?	3	-	-	1
3. What do you think about the third teaching step: after reading?	3	-	-	1
4. What knowledge do you gain from this lesson?	2	1	-	0.66
5. What do you like or dislike about the learning activities in this lesson?	3	-	-	1
6. In overall, what do you think about the instruction delivered through the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability.	3	-	-	1
7. What additional comments or suggestions do you have?	3	-	-	1
<b>Grand Mean Score of IOC</b>				<b>0.96</b>



## VITA



## VITA

**NAME** Mr. Borworn Chythawin  
**DATE OF BIRTH** January 22, 1962  
**PLACE OF BIRTH** Kalasin Province  
**ADDRESS** 35 Moo 4, Baan Tao Hai, Tambon Luub, Amphoe Muang,  
Kalasin Province, 46000, Thailand.  
**POSITION** Teacher  
**OFFICE** Foreign Language Department, Kalasinpittayasan School,  
66 Tambon Muang, Muang District, Kalasin Province  
46000, Thailand.

### EDUCATION BACKGROUND

1982 Vocational certificate in Accounting  
from Chiangrai vocational college, Thailand  
1984 Higher vocational certificate in accounting  
from Chiangmai vocational college, Thailand  
1988 Bachelor of education in English major  
from Mahasarakham university, Thailand  
1994 Master degree in linguistics  
From Chulalongkorn university, Thailand.  
2015 Doctor of Philosophy (English Language and Arts of  
Language) Mahasarakham University, Thailand

