THE EFFECTIVENESS OF RECIPROCAL READING ACTIVITIES FOR ENHANCING THAI EFL UNDERGRADUATE STUDENTS' READING COMPREHENSION ABILITY

WIMONPHON RAWENGWAN

A Dissertation Submitted to University of Phayao

in Partial Fulfillment of the Requirements

for the Doctor of Philosophy Degree in English

June 2020

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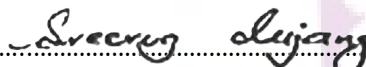
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Submitted by Wimonphon Rawengwan

Approved in partial fulfillment of the requirements for the

Doctor of Philosophy Degree in English

University of Phayao

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June 2020

ACKNOWLEDGEMENT

เรื่อง: ประสิทธิผลของกิจกรรมการอ่านแบบแลกเปลี่ยนบทบาทเพื่อพัฒนาความสามารถด้านการอ่านเพื่อความเข้าใจของผู้เรียนชาวไทยในระดับอุดมศึกษาที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ

ผู้วิจัย: นางสาววิมลพร ระเวงวัลย์ วิทยานิพนธ์: ศศ.ด. (ภาษาอังกฤษ), มหาวิทยาลัยพะเยา, 2563

ประธานที่ปรึกษา: ดร. รัตนา ยาวิเลิง, **กรรมการที่ปรึกษา:** ผู้ช่วยศาสตราจารย์ ดร. สุกัญญา เกาะวิวัฒนากุล, ผู้ช่วยศาสตราจารย์ ดร. คมกฤช ตาชม

คำสำคัญ: กลวิธีการอ่านแบบแลกเปลี่ยนบทบาท, กลวิธีการอ่านอภิปัญญา, การอ่านเพื่อความเข้าใจ, ผู้เรียนชาวไทย, การเสริมต่อการเรียนรู้

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ (1) เปรียบเทียบประสิทธิผลของกลวิธีการสอนอ่านแบบแลกเปลี่ยนบทบาท และกลวิธีการสอนอ่านแบบดั้งเดิม (2) เพื่อศึกษาผลสัมฤทธิ์ทางด้านการอ่านเพื่อความเข้าใจของผู้เรียนที่มีระดับความสามารถแตกต่างกัน โดยการใช้กิจกรรมการอ่านแบบแลกเปลี่ยนบทบาท (3) เพื่อศึกษาการใช้กลวิธีการอ่านอภิปัญญา ในกิจกรรมการอ่านแบบแลกเปลี่ยนบทบาทของผู้เรียนที่มีระดับความสามารถแตกต่างกัน (4) เพื่อศึกษาความคิดเห็นของผู้เรียนที่มีต่อการใช้กิจกรรมการอ่านแบบแลกเปลี่ยนบทบาทเพื่อพัฒนาการอ่านเพื่อความเข้าใจ กลุ่มตัวอย่างได้แก่ นักศึกษาชั้นปีที่ 1 จำนวน 73 คน โดยใช้วิธีการสุ่มแบบเจาะจง แบ่งออกเป็นกลุ่มควบคุมจำนวน 33 คน โดยใช้กลวิธีการสอนอ่านแบบดั้งเดิม และกลุ่มทดลองจำนวน 40 คน โดยใช้กลวิธีการสอนอ่านแบบแลกเปลี่ยนบทบาท เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล และวิเคราะห์ข้อมูล ได้แก่ แบบทดสอบวัดผลสัมฤทธิ์ด้านการภาษาอังกฤษเพื่อความเข้าใจ, แบบทดสอบวัดความก้าวหน้าด้านการอ่านภาษาอังกฤษเพื่อความเข้าใจ, แบบสังเกตพฤติกรรมการอ่าน และแบบสัมภาษณ์ ผลการวิจัยพบว่า (1) ผู้เรียนกลุ่มที่เรียนด้วยวิธีการสอนแบบแลกเปลี่ยนบทบาทมีผลสัมฤทธิ์ทางการเรียนหลังเรียนสูงกว่าผู้เรียนกลุ่มที่เรียนด้วยวิธีการสอนอ่านแบบดั้งเดิม (2) ผลสัมฤทธิ์ทางการเรียนหลังเรียนของผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศสูงขึ้นหลังจากเข้าร่วมกิจกรรมกลุ่มการสอนอ่านแบบแลกเปลี่ยนบทบาทกับครูและเพื่อนร่วมชั้น (3) ผู้เรียนทั้งสามกลุ่ม เก่ง ปานกลาง และอ่อน ส่วนใหญ่ใช้กลวิธีการอ่านด้านความรู้ความคิดด้วยการตั้งคำถาม และใช้กลวิธีการอ่านแบบอภิปัญญาด้วยการทำงานร่วมกับผู้อื่นและการเรียงรายการคำศัพท์ (4) ผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศกลุ่มเก่ง ปานกลาง และอ่อน แสดงความคิดเห็นต่อการใช้กลวิธีการอ่านอภิปัญญา (การทำนาย การตั้งคำถาม การหาความกระจ่าง และการสรุป) ว่ามีประโยชน์ต่อการพัฒนาการอ่านเพื่อความเข้าใจ ผลจากการอภิปรายเชิงปฏิบัติพบว่า การสอนอ่านแบบแลกเปลี่ยนบทบาทและการใช้กลวิธีการอ่านแบบอภิปัญญาสามารถส่งเสริมการอ่านเพื่อความเข้าใจของผู้เรียนได้ ผลจากการอภิปรายในเชิงทฤษฎีพบว่า กิจกรรมการสอนอ่านแบบแลกเปลี่ยนบทบาทด้วยการสอนเชิงประจักษ์ เปิดโอกาสให้ผู้เรียนเกิดปฏิสัมพันธ์ทางสังคมกับผู้สอน และเพื่อนร่วมชั้น แก้ปัญหาการอ่านได้ด้วยตนเองหลังจากได้รับความช่วยเหลือและการเสริมต่อการเรียนรู้จากผู้สอนและเพื่อนร่วมชั้น และในที่สุดสามารถอ่านภาษาอังกฤษเพื่อความเข้าใจได้ด้วยตนเองเมื่อได้รับการช่วยเหลือน้อยลง

Tittle: THE EFFECTIVENESS OF RECIPROCAL READING ACTIVITIES FOR ENHANCING THAI EFL UNDERGRADUATE STUDENTS' READING COMPREHENSION ABILITY

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Keywords: Reciprocal Reading Activities, Metacognitive Reading Strategies, Reading Comprehension, EFL Students, Scaffolding

ABSTRACT

The purposes of the present study were (1) to compare the effectiveness of reciprocal teaching method and traditional teaching method. (2) to compare the achievements of the EFL undergraduate students with different language proficiency after engaged in reciprocal reading activities. (3) to investigate how metacognitive reading strategies are used by the different proficiency EFL undergraduate students based on reciprocal reading activities using four multi-metacognitive strategies for reading comprehension. and (4) to investigate the opinions of the EFL undergraduate students with different language proficiency after engaged in multi-metacognitive reading strategies. Seventy-three EFL undergraduate students studied at Nakorn Sawan Rajabhat University were selected by purposive sampling technique. They were classified into two groups: a control group using the TTM with 33 EFL students and 40 EFL learners participated in the experimental group using the RTM. For data collection, four instruments were utilized namely Reading Comprehension Achievement (RCA) test, Reading Comprehension Progress RCP test, observation form and semi-structured interview. This study revealed four significant findings as follows. (1) The EFL undergraduate students in the experimental group (taught using the RTM) gained higher post-test scores than the EFL students who participated in the control group (taught using the TTM). (2) The EFL students gained higher post-test scores after engaged in the reciprocal reading activities with teacher and peers. (3) The advanced, intermediate, and novice EFL students mostly used 'questioning' as a cognitive reading strategy and 'working with classmates' as well as 'vocabulary listing' as metacognitive reading strategies. (4) The EFL students viewed that multi-metacognitive reading strategies (predicting, questioning, clarifying, and summarizing) were useful for their reading comprehension ability. From a practical perspective the findings suggest that the use of RTM and metacognitive reading strategies can enhance EFL learners' reading comprehension ability. From a theoretical perspective, the findings suggest that reciprocal reading activity provides explicit reading instructions that EFL learners can gain more opportunities to engage in social interactions with teacher and peers, to solve reading problems by themselves after receiving helps and scaffolding from teacher and peers, finally to read by themselves with less assistance from teacher and peers.

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LIST OF ABBREVATIONS

AS1	Advanced Students Number One
AS2	Advanced Students Number Two
EFL	English as a Foreign Language Learners
ESL	English as a Second Language Learners
IS1	Intermediate Students Number One
IS2	Intermediate Students Number Two
NS1	Novice Students Number One
NS2	Novice Students Number Two
NSRU	Nakorn Sawan Rajabhat University
RCA	Reading Comprehension Achievement Test
RCP	Reading Comprehension Progress Test
RTM	Reciprocal Teaching Method
TTM	Traditional Teaching Method

CHAPTER I

INTRODUCTION

Rational and Background of the Study

It is widely accepted that reading is the essential skill for EFL learners in various situations, such as reading for academic success, reading for development and reading for specific purposes (Getkham & Rerkwanchai, 2015, p. 76). Moreover, reading is regarded as a skill based on learners' performance to interpret and co-construct the meaning from the printed texts or academic papers and it is not a skill only for the learning processes, but it can also extend one's knowledge as well (Nunan, 1991; Salehi & Vafakhah, 2013 as cited in Prastyo & Rodli, 2017). In addition, reading can introduce new abilities to learners, such as new lexical, grammar, or sentence structures to improve their perception skill (Levi, 2017, p. 23). Furthermore, reading comprehension is an important skill for higher education in an academic way (Meniado, 2016, p. 177), and it is not a skill to translate a word or a sentence. Rather, it is a process of understanding the written form in the term of phoneme, grapheme and interpreting the texts (Dubin & Bycina, 1991 as cited in Ayun & Yunus, 2017, p. 135) based on the different levels of learners. The purpose of reading comprehension is a capacity of one's own knowledge to get information from the text. Kemani, Khabir, and Rastegar (2017, p. 66) asserted that reading comprehension is a skill of language learners, and it consists of the cognitive process of one's own such as attention, learning and memory. Additionally the purpose of reading comprehension is to build a logical mental function from the readers' knowledge and information in the text (Gernsbacher, 1990; Kintsch, 1988; Flavell, 1976 as cited in Blume, Poblete & Soto, 2018). The logical mental cognition of readers can be called the readers' metacognition. Metacognitive is defined as the ability of one's own knowledge in the cognitive processes and product that learners are involved Flavell (1976 as cited in Cubukcu, 2008, p. 1).

Insufficient levels of reading comprehension can obstruct Thai undergraduate students who learn English as a foreign language (EFL). There are two main causes: impaired reading background knowledge of the learners and insufficient reading strategies practice.

Firstly, learners may have an impaired understanding of reading background knowledge due to lack of understanding or problems with vocabulary meaning, syntax and grammar and sentence structure (Chawwang, 2008, p. 4). Some Thai EFL learners may experience difficulties with reading skills such as understanding the meaning from the given context. These learners could not skim the main ideas, scan the details, make the inferences, and/or find the references within a textual medium. (Tanghirunwat, 2003 as cited in Chawwang, 2008, p. 4). For example, Thai engineering students faced difficulties with technical word meanings and sentence structures, therefore; their reading ability was deemed low. Also, Chawwang, 2008 claimed that Science and Arts undergraduate students also had problems with the ability to understand the text because of the limitation of vocabulary and grammatical knowledge. According to Wiriyakarun (2018), EFL learners had reading comprehension problems because they also had limited knowledge of vocabulary and this problem leaded them to academic failure. In regards to insufficient reading strategies practice, the main point is from reading instruction by the EFL teachers. Hayikaleng, Krishnasamy and Nair (2017, p. 84) and Kongkerd (2013, p. 5) also asserted that Thai EFL teachers had taught the various traditional ways in teaching and teacher center methods, such as grammar translation, direct method, lecture-based, chalk, and talk and read aloud. These teaching approaches are less efficient in promoting reading comprehension skills with learners, and they can have an adverse effect on reading motivation for them. The result from traditional teaching methods was that the EFL learners could only read English text word by word and they could not interpret the text meaning as a whole and hence become passive learners. In addition, they do not choose the suitable reading strategies particularly when they encounter reading comprehension problems. Furthermore, Dhanasobhon (2006) as cited in Noom-Ura (2013) claimed that 'English Language' teaching in Thailand is a failure because of these EFL teachers that are unqualified and poorly-trained. The suggestion from a researcher Chumworatayee (Chumworatayee, 2012, p. 84) claimed that good reading strategies, both cognitive and metacognitive, could improve the reading comprehension ability with EFL readers and also Thai undergraduate EFL learners who encountered difficulties with underpinning the meaning of the words, sentence structure, grammatical knowledge and lacked the good reading strategies practiced.

Particularly, EFL students at Nakorn Sawan Rajaphat University (NRSU) have been dealing with reading comprehension problems similar to other EFL undergraduate learners. These problems were from traditional methods of teaching and personal reading comprehension ability. Traditional teaching methods were trained to EFL learners at NSRU such as teacher-centered, grammar-translation and reading aloud. In addition, textbooks, worksheets and a dictionary are used as the teaching materials to support the traditional teaching methods (Getkham & Rerkwanchai, 2016). Furthermore, EFL teachers used mother tongue in language teaching (Kongkerd, 2013, p. 5). As a result, EFL learners at NSRU were passive readers with the usage of the dictionary to understand the meaning of the words at a sentence level and these situations could help the readers only good at decoding the text with correct pronunciation and focusing on grammar accuracy. This passive learning style could cause the Thai EFL learners inadequate reading comprehension skills. EFL learners have also encountered problems with personal reading comprehension abilities via the background knowledge of reading skills (e.g., topic, main idea, vocabulary meaning, and the sentence structures). Such problems have occurred in the reading sections with all of English subjects. Besides the passive styles of NSRU EFL learners, they practiced to be a good listener. These EFL students did not share their opinion with a teacher or peers to check their understanding while engaging in the reading activities. Thus, the passive learning style could cause the failure of the reading comprehension skill. To summarize the EFL learners at NSRU have the reading comprehension problems with reading instructions (using traditional teaching method) and personal reading ability (lacking of background knowledge). Next the reading solution by using the reciprocal teaching method will be presented.

In terms of pedagogical problems, various teaching approaches were used to enhance reading comprehension by EFL instructors in the EFL reading situation or EFL reading class in Thailand; however, these teaching approaches seem to be less effective in promoting reading comprehension for Thai learners as well as other EFL learners in Asian countries. In Thai EFL context, grammar translation, top down and bottom up were used to enhance reading comprehension for EFL learners. EFL instructors tend to use these traditional teaching approaches in EFL reading classrooms; nonetheless, these teaching approaches seem to be less effective to improve EFL learners' reading comprehension. Reading pedagogy methods

in Thai EFL context, using conventional teaching method with Thai learners in the EFL reading classes, can cause multiple learning difficulties including passive learning styles, learning strategies, and learning motivation. The first difficulty is EFL Thai learners' passive learning styles. These EFL learners learn through passive ways to practice English skills as a result of the conventional way of teaching. These EFL learners are shy to speak English with teachers and their peers. Furthermore, they are unlikely to pay attention to study while participating in EFL classrooms. Thus, it is unsurprising that Thai EFL learners have low proficiency in English language skills and also in reading comprehension (Noom-ura, 2013, p. 140). The second difficulty is learning strategies used by EFL learners in EFL reading classrooms. There are various approaches used by EFL Thai learners, for example, grammar translation was used by EFL learners. That is, a sentence or a reading context was analyzed by the grammar rules then the learners translate the sentence word by word or phrase by phrase and the teacher uses an unsuccessful teaching method (Dentisak, 2010, p. 1). As a result, these Thai EFL learners lack reading comprehension skills, such as topic, main idea, and critical thinking skill. The third difficulty is learning motivation. Thai EFL learners have low motivation because they gain few opportunities to engage in learning activities such as sharing their ideas, discussion with their teacher and their peers, and designing the reading activities by themselves. Additionally, lack of background knowledge, vocabularies, and reading techniques can cause low motivation and the learners are not inspired by reading leading them to be less successful in reading comprehension.

Problematically, Thai EFL teachers encountered difficulties with using inefficient approaches in the English reading class, thus they should use different effective approaches and also the teachers should give more chances for EFL learners to engage in reading processes such as using social interaction, promoting cooperative reading activity, and providing feedback by teacher and peers in the reading instruction. Thus, communicative language teaching approach, social interaction approach, and student-centered approach should all be promoted to improve English reading comprehension skills with EFL learners in Thailand. Furthermore, the instructors must use practical methods that can encourage the learners to practice cognitive and metacognitive reading skills in the permanent activities to encourage learners to share their ideas and thoughts in the reading processes. For these

reasons, practicing social interactions as well as focusing on learner-centered approach should be emphasized in EFL reading pedagogy in Thailand in order to overcome difficulties in EFL reading instructions.

To solve the pedagogical problems of EFL reading, metacognitive reading strategy is proposed since it plays a significant role to improving reading comprehension of EFL learners. During reading processes, metacognitive reading strategies can help learners to be aware of their thinking and control themselves while engaging in the reading processes (pre-reading, during reading, and post-reading), planning, monitoring, and evaluating in order to use these reading strategies to reach the goal of the reading task. Planning activity is used for selecting the appropriate strategies in the reading process. Monitoring activity is using for analyzing the success of the work from the data organized. Evaluation activity is used to conclude and regulate the process of work (Chevalier, et al., 2017). Metacognitive reading strategies are able to enhance different EFL proficiency learners in order to cope with their reading problems. According to Abassi et al. (2018), learners who were taught metacognitive are proficient in academic reading ability when compared with learners who lacked this teaching method. Thus, EFL instructors should promote metacognitive reading strategies in EFL reading classrooms in order to help EFL learners improve their reading comprehension ability.

The Purposes of the Study

The purposes of the study are:

1. To compare the effectiveness of reciprocal teaching method and traditional teaching method.

2. To compare the achievements of the EFL undergraduate students with different language proficiency after engaged in reciprocal reading activities.

3. To investigate how metacognitive reading strategies are used by the different proficiency EFL undergraduate students based on reciprocal reading activities using four multi-metacognitive strategies for reading comprehension.

4. To investigate the opinions of the EFL undergraduate students with different language proficiency after engaged in multi-metacognitive reading strategies.

Research Questions

1. What are the achievements of the EFL undergraduate students between the group with reciprocal teaching method and traditional teaching method?

2. What are the achievements of the EFL undergraduate students with different language proficiency after engaged in reciprocal reading activities?

3. What are four multi-metacognitive strategies used by the different proficiency EFL students engaged in reciprocal reading activities?

4. What are the opinions of the EFL undergraduate students with different language proficiency after engaged in multi-metacognitive reading strategies?

Significance of the Study

The significance of this study for EFL reading contexts is involved pedagogical and practical implications for EFL learners and EFL teachers. Pedagogically, reciprocal reading activities can enhance reading comprehension among EFL learners who engage in reading activities through the use of cognitive and metacognitive strategies with teacher and peers. The cognitive and metacognitive reading strategies provided during learning activities can assist different proficiency EFL learners through the use of dialogue as a tool of learning. Through reciprocal reading activities, EFL learners may gain more chances to practice reading in a small group of interaction from the expert modeling, and they may increase opportunities to take turns in the role to be the leader in cooperative work.

In addition, reciprocal reading activities can help EFL teachers shift from the traditional way in the reading instruction in EFL Thailand, and EFL learners can gain more opportunities to practice to be active readers also. Moreover, reciprocal reading activities can facilitate EFL learners to become self-regulated readers because it emphasizes the use of metacognitive reading strategies, and it may activate the use of metacognitive reading strategies to solve the reading comprehension problems with EFL learners. Also, reciprocal reading activity may promote the metacognitive awareness of being aware of planning, monitoring, and evaluating when they use four multi-metacognitive reading strategies; predicting, questioning, clarifying, and summarizing in reading activities by self. As metacognitive

reading strategies can help reading comprehension ability among EFL learners, EFL teachers should promote the reciprocal reading activities in EFL reading classes.

In conclusion, reciprocal teaching is the most effective tool to activate the cognitive and metacognitive reading strategies used. Thus, from the information above, the EFL learners will have the opportunity to use reciprocal reading activities through the multi-metacognitive reading strategies in the EFL reading class. Also, EFL learners' reading comprehension ability might be improved. Moreover, the reciprocal teaching might activate the EFL learners to many metacognitive reading strategies in a small group of interaction with various types of EFL readers, and it might change the way of reading skill from receptive skill (the traditional way) to productive skill (interactive way). In addition, reciprocal teaching (RT) is an alternative approach or method for EFL teachers and EFL learners at Nakhon Sawan Rajabhat University to use in EFL reading classes. Reciprocal teaching might exchange the traditional way of reading instructions to the interactive style of reading comprehension with the various types of EFL learners, and it can promote interactive approach during reading activities. EFL learners can gain opportunities to practice reading skill through social interaction in small group work in the reading activities (pre-reading, while-reading, and post-reading). Also, reciprocal teaching can promote metacognitive reading strategies for EFL learners to be self-regulated readers.

Terms of Definitions

1. Reciprocal reading activities are the interactive strategies under the social interaction between the teacher-learners and learners-learners in a small group work. They compose of four multi-metacognitive reading strategies; predicting, questioning, clarifying and summarizing. Predicting is used to guess the title. Questioning is used to ask the questions to facilitate the understanding by using questions. Clarifying is used to clarify the difficult words. Summarizing is used to conclude or summarize the text or reading article.

2. Metacognitive reading strategies are the many cognitive and metacognitive reading strategies that are used by different proficiency EFL learners in the reading processes (pre-reading, during-reading, and post-reading) at the stages of reading (planning, monitoring, and evaluation) engaged in the reciprocal reading activities. The examples for cognitive reading strategies are predicting, questioning, re-reading, translating, summarizing and using a

dictionary. The example for metacognitive reading strategies are setting goals, vocabulary listing, working with classmate, reviewing, and evaluating.

       3. Reading comprehension ability means the readers' ability to get the information from the printed material, understand the vocabulary and meaning of the text, and interpreting the writer's purposes. It can be measured by using the reading comprehension tests.

       4. Traditional teaching means the teaching approaches that emphasized on teacher-centered, grammar-translation and lectured-based to promote reading comprehension for EFL learners in the reading activities. The learners are the passive style (e.g., working individual, and only a good listener).

       5. EFL undergraduate students with different language proficiency define as all participants and six EFL undergraduate students who were taught by using traditional teaching and reciprocal teaching methods. They have classified the reading comprehension ability in three groups of students (advanced, intermediate, and novice) by using the reading achievement test.
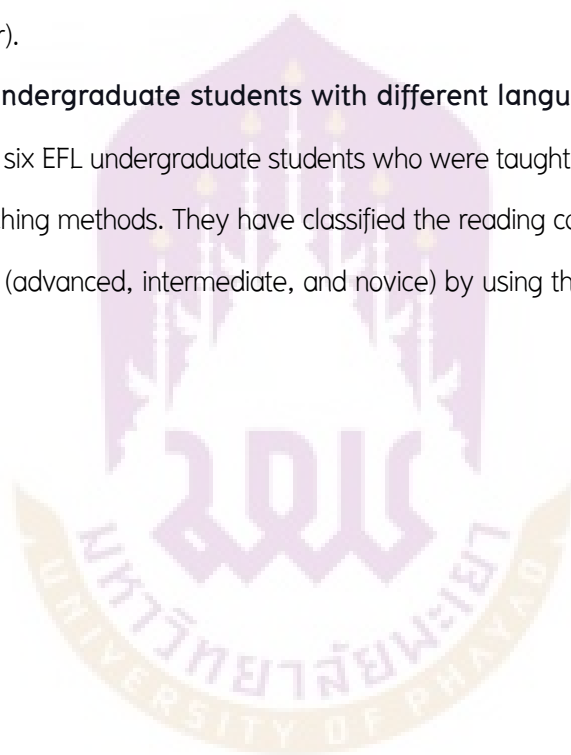
CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

This study is designed to investigate metacognitive reading strategies through reciprocal reading activities with a hope to enhance reading comprehension ability of Thai undergraduate EFL students. In this chapter, the literature review to this study includes the following topics namely reading skills, reciprocal teaching, and related research will be present.

Reading and Reading Comprehension Skills

Reading is defined as making meaning from the printed materials (Gilakjani & Sabouri, 2016). To gain reading skills, the sources of information are needed to create the meaning or interpret the text. For Ahmadi and Gilakjani (2011), the goal of reading was to gain the information from the text that the writer needed to present to the readers' perception. So, reading comprehension is defined as the process of eliciting, creating, and making meaning from the printed materials under the readers' perception. (Gilakjani & Sabouri, 2016). From the previous research, there are four models of teaching reading in EFL or ESL classes in the reading processes as follows.

Reading comprehension involves the use of metacognitive strategies (Boulware–Gooden et al. (2007, as cited in Chandio et al., (2015). That is, to gain reading comprehension, monitoring plays a role for understanding the text while reading (Anderson, Therriault, & Thiede, 2003 as cited in Chandio et al., 2015). Furthermore, acquiring reading comprehension is related to self–regulated behavior which needs monitoring as a strategy (Anderson, et al., 2003). According to Anderson and colleagues (2003) this is because monitoring is used to evaluate the reader's ability and it can apply to checking texts features (e.g., stylistic features, sophisticated sentence features, and markers). There are examples of metacognitive strategies that are involved in the monitoring of readers' reading in a while–reading process

and reading comprehension. These strategies consist of think–aloud, self–questioning, and self–regulation. Firstly, think–aloud is developed for evaluation of the learners' understanding (Newell & Simon, 1972 as cited in Chandio, et al., 2015). Think–aloud supports the readers learning ability through cognitive and metacognitive strategies whereby it improves the performance of learners through thinking and comprehending the text. The learners will use this strategy for summarizing and clarifying difficulty of activities or materials in the reading class. Secondly, questioning is used to provide the learner skills for evaluation or correcting misconception of their reading comprehension. Thirdly, self–regulation is a strategy for controlling learners' capacity in the reading process and understanding. This strategy is different from the learners' perception based on monitoring level that the learners apply within methods or approaches in the cognitive and metacognitive strategies used to comprehend the reading materials. Self–regulation strategy develops the learners' behavior of the problem–solving method in self–regulatory, self–regulation, and self–control during the learning process.

Reading Strategies Used by Readers

There are many reading strategies to improve reading skills or the reading comprehension skill of the reader. The previous research studies show the effective reading strategies to improve reading comprehension skill, and these strategies were used by accomplished readers to understand the reading processes. These were predicting, visualizing, making connections, summarizing, questioning, and inferring (Kucukoglu, 2013).

Predicting – accomplished readers used it to set their purpose for reading. They used their experiences and knowledge to make a prediction and formulate their ideas.

Visualizing – accomplished readers acquired the imagination to construct what they read. This image was stored in the readers' memory for them to interpret the text.

Making connections – readers used this skill to activate the background knowledge and relate the idea in the text with their experiences.

Summarizing – was a skill used by the readers to determine the important part by using their own words. It helped the readers to organize the ideas in the reading passages.

Questioning – was used in the processes of reading. The adept readers used it to ask questions, construct the meaning, enhance understanding, find answers, solve problems and discover new information. Readers used their own knowledge along with information from the text to draw their own conclusions.

Reading strategies could be classified into four categories: cognitive strategies, compensation strategies, metacognitive strategies, and memory strategies. The table below shows the four types of strategies and their characteristics used by readers.

Table 1 Four Types of Reading Strategies Used by Readers

Reading Strategies	Reading strategies' characteristics
1. Cognitive strategies	
1.1 Summarizing	The readers summarize main ideas of the passage.
1.2 Translating	The readers translate the passage from English to Thai to increase their comprehension.
1.3 Taking notes	The readers take notes of what they think is important in the passage.
1.4 Marking a certain part of the text	The readers underline, highlight, or circle certain parts of the passage they think are important.
1.5 Making an inference or drawing conclusions	The readers infer meaning or draw conclusion from the passage.
1.6 Paraphrasing	The readers paraphrase the passage by using their own words.
1.7 Rereading previous text	The readers reread the previous sentences or paragraphs to increase their comprehension.
1.8 Looking for main ideas	The readers try to find the main idea in each paragraph.

Table 1 (cont.)

Reading Strategies	Reading strategies' characteristics
1. Cognitive strategies	
1.9 Referring to previous passages	The readers refer to messages in previous passage that they read to help increase their comprehension in the current passage.
1.10 Skimming or scanning	The readers skim the whole passage to comprehend a general idea of the passage or scan the passage to get a specific detail.
1.11 Considering tasks being assigned with the text	The readers refer to the task and think of how they will read to get the answers.
1.12 Elaborating	The readers read the text carefully and try to get the meaning out of it.
1.13 Applying grammar rules to understand the language	The readers refer to the grammar rules to help them understand the structure and meaning of each sentence.
1.14 Previewing the text	The readers examine heading and sub-headings of the text.
1.15 Looking at diagram, chart, and map	The readers refer to the diagram, chart, and map in the text to help them understand the content of the text.
1.16 Considering the purpose of the text	The readers consider what kind of message the text offers.
1.17 Outlining	The readers organize the pattern of the text.
2. Compensation strategies	
2.1 Looking for outside assistance	The readers ask for assistance from their friends or teachers or look up unknown words in a dictionary.
2.2 Using punctuation	The readers use punctuation to find a subject, verb, and object in a complex or compound sentence to help their comprehension.

Table 1 (cont.)

Reading Strategies	Reading strategies' characteristics
2. Compensation strategies	
2.3 Using context	The readers use context to understand the meaning of an unknown word or to comprehend a sentence.
2.4 Breaking vocabulary into parts	The readers use their knowledge of prefix and suffix to guess the meaning of an unknown word.
2.5 Adjusting reading rate in order to increase comprehension	The readers read more slowly to increase their comprehension.
2.6 Skipping unknown words or terms.	The readers skip unknown words or terms and continue reading.
2.7 Reading subsequent text	The readers read the subsequent sentence or paragraph in order to gain more ideas about the passage to help them understand the problematic sentence or paragraph they are reading.
2.8 Making logical connections	The readers connect ideas in each sentence logically to comprehend the passage.
3. Metacognitive strategies	
3.1 Concentrating	The readers concentrate more while reading.
3.2 Recognizing loss of concentration	The readers realize when they lose concentration.
3.3 Finding an author's intention	The readers think of an author's intention in writing the passage in order to comprehend the passage.
3.4 Forming hypotheses	The readers form a hypothesis about the content of the passage.
3.5 Monitoring comprehension	The readers read the passage and ask themselves if they comprehend or not. If they do not comprehend, they change reading strategies to the ones that are effective in increasing their comprehension.

Table 1 (cont.)

Reading Strategies	Reading strategies' characteristics
3. Metacognitive strategies	
3.6 Evaluating the content of the text	The readers evaluate the content of the passage.
3.7 Self-questioning	The readers ask themselves questions about the passage to help their comprehension.
3.8 Assimilating personal experience	The readers use their personal experiences to help them understand the passage.
3.9 Using prior knowledge	The readers use their background knowledge, which means knowledge that they gain from sources other than their personal experience, to help them comprehend the passage.
4. Memory strategies	
4.1 Looking for key words or phrases	The readers find the key words or phrases in the passage to help them comprehend the passage.
4.2 Using the structure of a sentence	The readers use the structure of the sentence to find the subject, verb, and object to comprehend the sentence.
4.3 Using the structure of a passage or a paragraph	The readers use the structure of the passage or the paragraph to help them find main ideas and supporting details.
4.4 Considering the organization of a text	The readers consider the organization of the text and try to get the meaning out of it.
4.5 Using rhetorical markers	The readers look at grammatical features such as: a) as a consequence, b) however, and c) in contrast, to get the meaning of the text.

Retrieved from: (Wirotanan, 2002, pp. 165-169)

Table 1 shows that there are four reading strategies, namely cognitive strategies, compensation strategies, metacognitive strategies, and memory strategies. However, this current study will focus on only cognitive strategies and metacognitive strategies.

Cognitive Reading Strategies Used by Readers

Cognitive strategy is one of the strategies that are used by EFL students including memory strategies, compensation strategies, metacognitive strategies, affective strategies, and social strategies (Oxford, 1990, as cited in Thampradit, 2006, p. 5). In learning language, cognitive strategies are used to manage the language by the learners and metacognitive strategies are planning, arranging, and evaluation on their own learning behavior (Oxford, 1990, as cited in Thampradit, 2006).

To explain, cognitive strategies consist of using context clues, predicting, paraphrasing, note taking, summarizing, and analyzing, whereas; metacognitive reading strategies include setting goals and objective, organization, self-monitoring and correction of errors, and self-evaluation.

Table 2 Cognitive Reading Strategies Used by Readers

Cognitive Reading Strategies
1. *Prediction:* predicting the content of an upcoming passage or section of the text.
2. *Grammar concentration:* concentrating on grammar to help understanding unfamiliar construction.
3. *Finding the main idea:* identifying the main idea to comprehend the entire reading.
4. *Expanding vocabulary and grammar:* expanding vocabulary and grammar to help readers increase their reading.
5. *Guessing meanings from context:* guessing meanings of unfamiliar words or phrases to let readers use what they already know about English.
6. *Analyzing theme, style, and connections:* analyzing theme, style, and connections to improve reader's comprehension.
7. *Distinguishing between opinions and facts:* distinguishing between opinions and facts to aid in understand reading.

Table 2 (cont.)

Cognitive Reading Strategies
8. *Break down larger phrases into smaller parts:* break down larger phrases into smaller parts to help readers understand difficult passages.
9. *Translation:* linking what readers know in their first language with words in English or vice versa, translate the words in English into their first language.
10. *Creating graphic organizers:* creating a map, diagram, or drawing of related ideas to enable you to understand the relationships between words and ideas.
11. *Summarizing:* summarize what readers read and / or writing a short summary of what readers read to help them understand the main ideas.
12. *Setting goals:* having purposes in reading to help improve areas that are important to the reader.
13. *Vocabulary listing:* making lists of relevant vocabulary to prepare for new reading.
14. *Working with classmates:* working with classmates to help reader develop their reading skills.
15. *Reviewing:* taking opportunities to practice what readers already know to keep readers progress steady.
16. *Evaluating:* evaluating what readers have learned and how well they are doing to help them focus their reading.
17. *Relying on what readers know:* relying on what readers already know to improve their reading comprehension.
18. *Note-taking:* taking notes to help readers recall important details.
19. *Remembering:* trying to remember what readers understand from a reading to help them develop better comprehension skills.
20. *Reviewing the purpose and tone of a reading:* reviewing the purpose and tone of a reading passage so the reader can remember more effectively.
21. *Picturing scenes in readers' mind:* picturing scenes in reader's mind to help them remember and understand their reading.

Table 2 (cont.)

Cognitive Reading Strategies
23. *Using physical action:* using physical action help readers remember information they have read.
24. *Classifying words into meaningful groups:* classifying words into meaningful groups to remember more clearly.

Retrieved from: (Thampradit, 2006, pp. 14–16)

Therefore, this current study would apply the cognitive and metacognitive reading strategies by Thampradit, (2006); Wirotanan, (2002); Oczkus, (2018) as an analytical framework to interpret the learner's metacognitive strategies behavior that were used by different proficient EFL learners when they engage in reciprocal reading activities (see Appendix C).

To summarize, there are many reading strategies that EFL teacher in Thai or other countries use in the reading instruction to support the learner's reading comprehension ability. Also, all cognitive or metacognitive strategies can be simultaneously active within one's mind. Learners should be aware of their thoughts to select the strategies while encountering the reading comprehension problems. Therefore, EFL teacher should encourage the learners to use many strategies by explicit teaching and training of the learners to be the strategic reader.

Metacognitive Reading Strategies Used by Teachers

Metacognition is "cognition about cognition or thinking about thinking" Carrell (1998, p. 1 as cited in Albazi & Shukri 2016, p. 172). Moreover, metacognitive means "the knowledge and control that we have over our cognitive processes" Flavell, (1979 as cited in Karbalaei, 2011, p. 6; Mardi & Nosratinia, 2013). Besides, a previous study of Gita (2017) claimed that metacognition is "being aware of your thoughts" or "what individuals know about themselves cognitively about different strategies that can be used for learning and problem solving and about the demands of a particular learning task". Therefore, metacognition means the processes of individual self-knowledge that can control the thought or strategies used in the

processes of cognitive thinking. Metacognition is one's own cognition knowledge and metacognition involves two main types of knowledge: knowledge about one's own cognition and knowledge about self-regulation of one's own learning (El-Koumy, 2004). There are three subcategories of knowledge about one's own cognition; knowledge about self, knowledge about task, and knowledge about cognitive strategies.

Firstly, knowledge about self means the perception of the reader on his or her reading performance or background knowledge about a reading text. Successful readers are more self-efficient than the less successful readers to accomplish the reading task.

Secondly, knowledge about task refers to "what readers need to know about? (i) the purpose of the task, (ii) the task's demands, and (iii) implicit in these considerations, a determination of the kind of task it is" (Wenden, 1995 as cited in El-Koumy, 2004, p. 14). Good readers are aware of their purposes for task reading and task characteristics unlike poor readers. Also, good readers adjust their reading strategies.

Lastly, knowledge about cognitive strategies means knowledge about using the effectiveness of strategies to accomplish the task. Effectiveness of approaches or strategies can enhance metacognitive knowledge through direct instruction, and it improves reading ability (McDonough, 1999 as cited in El-Koumy, 2004).

Knowledge about metacognitive strategies or knowledge about self-regulation consists of one's own learning. It refers to the knowledge of reading about the processes of managing his or her reading strategies before, during, and after reading. Also, Nist and Simpson (1994) as cited in El-Koumy (2004, p. 22) claimed that metacognitive strategies could develop learners' self-efficacy and help them to succeed in the cognitive strategies used. Under the metacognitive strategies, there are three main strategies in the area of reading (planning, self-monitoring, and self-assessment).

Planning is setting a comprehensive plan for managing the reading task. Learners prepare to think about the purposes of text (for entertainment, for understanding, and for gathering the information). For the instruction, the teacher should provide the strategies for learners in pre-reading activities, such as skimming, semantic mapping, and self-questioning. These activities can activate background knowledge and attend important information for learners.

Self-monitoring is the regulation of reader comprehension during reading. It helps learners to revise loss of understanding. This metacognitive strategy helps learners finding better strategies to meet the goal of the task. There are two strategies of self-monitoring to help the learners during reading; fix-up strategies and study strategies. The examples of fix-up strategies are rereading and taking notes. They help to improve the learners focusing and resolving abilities on the comprehension failures, and study strategies (e.g. underlining, outlining, self-questioning) help learners to enhance storage, and retrieval the strategies used.

Self-assessment is the basement of metacognition and self-regulation. In the learning process, this metacognitive strategy provides learners with the opportunities to monitor and adjust strategic thinking and better learning in the reading process. Also, it can promote the learners to be autonomous readers (El-Koumy, 2004, p. 29).

According to O'Malley and Chamot (1990) as cited in Nor et al. (2017) asserted that metacognitive strategies consist of both metacognitive knowledge (knowledge of one's learning or cognitive process) and regulation or control of learning (recognize or using of metacognitive strategies). Also, Brown (1994) as cited in Nor et al. (2017) described that metacognitive reading strategies composes of monitoring or checking the possible outcome of any attempt to solve the problem, monitoring the effectiveness of any attempted action, evaluation, and revising strategies for learning.

Putra (2019, pp. 81-82) asserted that metacognitive learning strategies (MLS) are used to promote problem-solving skills and enable learners to achieve learning performance in the four various English language skills (listening, speaking, reading, and writing). He gives the examples of the benefits of using metacognitive learning strategies on the reading skill section as follows;

First, the learners' reading motivation will be improved when they are using metacognitive reading strategies.

Second, learners using various metacognitive reading strategies will be high motivated.

Third, reading lessons with metacognitive reading strategies will enhance learners understanding of the text better.

Fourth, learners who use high metacognitive reading strategies will have high reading comprehension.

Fifth, metacognitive reading strategies support the learner's understanding with the learners who are not native English speaker.

Sixth, metacognitive reading strategies support the learners on their learning process and confirm the text comprehension.

Seventh, metacognitive reading strategies facilitate the EFL/ESL learners in acquiring declarative knowledge (What strategies are used?), procedural knowledge (How to use the strategies?), and conditional knowledge (When, where, and why to use the strategies and evaluate the employed).

Eighth, the reading instruction by using metacognitive strategies in explicit terms has a positive effect on learners' comprehension, and self-efficiency belief.

Lastly, metacognitive reading strategies help the learners to gain deep understanding of the reading texts and understand the writing style.

Getkham and Rerkwanchai (2016, p. 77) explained that cognitive and metacognitive reading strategies are interrelationship because cognitive reading strategies helped the individual reader's processes of using strategies to understand the goal of reading while metacognitive reading strategies helped the individual reader to confirm the effectiveness of using reading strategies or used to recheck and evaluate ones understanding. Moreover, Anderson as cited in Getkham and Rerkwanchai (2016); asserted that some cognitive reading strategies consist of predicting, concentrating, understanding, explaining, and guessing while the readers are encounter the reading task.

Also, Karbalaei (2011, p. 6) supported that the general metacognition is composited of "awareness and control of planning, monitoring, repairing, summarizing, and evaluating." Strategies can be used as the tool for improving reading comprehension, and successful learners will use the cognitive and metacognitive reading strategies to help them for achieving the learning task. Thus, EFL teachers should emphasize to teach the learners both cognitive and metacognitive reading strategies in their reading class. The reasons are to develop the learner's awareness of their thought when they encounter reading problems, and teachers should practice them to be the strategic readers as well.

Similarly, Chevalier et al. (2017); Afflerbach and Pressley (1995) as cited in Abdullah, Ahmadi and Ismail (2013) asserted that metacognitive reading strategies are divided as the following elements planning, monitoring, and evaluating to the success of learning reading activity. Also, metacognitive reading strategies are the activities designed to control, monitor, and evaluate the reading process. They consist of planning reading task, monitoring the reading information, and integrating new information with prior knowledge. Planning is involved in the selection of appropriate strategies that affect performance. It is fundamental for intelligent behavior learners. Monitoring is a strategy used to analyze the data as a work of progress and improve the efficacy and success of work or organization. Evaluation is used to conclude and regulate the processes of work. While learners at the university level read the texts for comprehension, they will link the new vocabulary to prior experience. The reading strategies that are used by the learners are summarizing information, self-questioning, and connecting new understanding to the previous information, and encourage inferences from the text. They are summative learning for completing the task and organization, and all of them are influential to the learner's reading comprehension.

Suharni (2017) described that metacognitive strategies are the actions of the learners beyond the actual cognitive devices that provide the ways for learners coordinating their own learning process. Metacognitive strategies involve awareness and control of planning, monitoring, repairing, revising, summarizing, and evaluating.

Amir, Pammu and Maasum (2014) investigated the using of metacognitive reading strategies of forty less proficient learners at Hasanuddin University of Indonesia. The Metacognitive Awareness Reading Strategy Inventory (MARIS) was used as the questionnaire to analyze the descriptive data. The result found that less proficient EFL learners used a high level of problem-solving strategy and medium levels of both global strategy and support strategy. Moreover, the handling of reading strategy in the reading instruction, by the learner's request and teacher's offer, could generate the metacognitive awareness of learners and improve their reading' ability.

Therefore, metacognitive reading strategies are regulatory skills that the reader must use cognitive or metacognitive strategies in the processes of planning, monitoring, and

evaluating in the reading processes (pre, during, and post) to complete or reach the goal of the reading task.

The Link between Metacognitive Reading Strategies and Reading Comprehension

Metacognition has a significant impact on learners' achievement (Garcia & Pintrich, 1994; Metcalfe, 1998; Verschaffel, 1999; Wong, 1996 as cited in Blume, Poblete & Soto, 2018). Abassi, Channa and Nordin (2018) investigated metacognitive strategies through reading comprehension practice with first-year engineering students. Four engineering departments were selected as the participants. The instrument was a focus group interview. The data was documented by using audio-tape and Vivo software to manage the data. The result found that the group using metacognitive strategies performed highly in reading comprehension than the group not using metacognitive strategies.

Young and Fry (2008) as cited in Abassi et al. (2018) claimed that "metacognition is used to apply one's thinking about and regulating one's cognition for developing their reading approaches for evaluating and controlling their learning in an effective manner." Learners who have higher metacognitive knowledge performed better in academic reading ability when compared with the learners who have average and low use of metacognitive reading strategies.

Abdullah, Ahmadi and Ismail (2013) asserted that "metacognitive reading strategies had various benefits on learners' reading comprehension and fostering their learning activities." Therefore, metacognitive reading strategy skills should emphasize on the EFL reading instruction. In order to help novice EFL readers, the use of metacognitive reading strategy activates one's thoughts and helped the reader to improve reading performance. In teaching and learning of EFL classroom, metacognition is a power to determine the ability of learners. (Amir, Maasum & Pammu, 2014).

Akkakoson (2009, p. 333) investigated Thai EFL learners' use of strategies in reading English texts, and the researcher taught both cognitive and metacognitive strategies in the reading process by explicit instruction to extend the learners awareness of using strategies in their reading. Cognitive strategies were visualizing information read, questioning the text, using graphic organizers. metacognitive strategies were advance organization,

problem identification, goal setting, or selective attention. The finding showed that the handling of strategies training was encouraging the learners' awareness of using strategies and was effective in improving reading comprehension skills.

Models of Teaching Reading in the EFL Class: *The bottom-up model* is focused on the smallest unit of the text such as letters, words, phrases, and sentences. To understand the meaning of the texts, the readers will begin with decoding the smallest linguistic units: phonemes, graphemes, and word. Then, readers construct the definition from the smallest unit to the largest units and also apply the background knowledge to understand the text information (Yoosabai, 2009, pp. 16-17). According to Lambe (2017, p. 264) the teaching of the bottom-up model in reading, a teacher can teach after learners learn the letters of the alphabet, followed by words and phrases. In the same way, learners will start the process of identifying reading text into word-by-word, linking word into phase-by-phase and sentence-by-sentence. The bottom-up model is suitable for EFL learners who feel that the English text being read is difficult. Also, the bottom-up model can be called "local strategies." It consists of using the sound-letter, word meaning, sentence syntax, and text details to interpret the text meaning (Carrell, 1989 as cited in Hussein & Osuji, 2017).

The top-down model, the model of using background knowledge to understand the processes of reading. In the reading instruction, the teacher will train the connecting information in the text by using cues for learners to guess the meaning of the words, predict the writer's purposes, recall the prior knowledge or information and find the main idea of the text on the comprehension way (Lambe, 2017, p. 265). The top-down model is also called "global strategies." It consists of background knowledge, textual organization, and text gist (Carrell, 1989 as cited in Hussein & Osuji, 2017, p. 9). Also, a teacher will guide the readers to use their intelligence and experience to predict, interpret, and inference of the opposition of the text in the conscious way.

Interactive model, this model combines the bottom-up and top-down models. That is to say, reading involves with using the information in the decoding of the letters, words, and sentences in the smallest unit of reading (bottom-up processing). Then the learners will

link all of the smallest units into the process of comprehensible input in term to cover the idea of all information (top-down processing). Stanovich (1980 as cited in Yoosabai, 2009) asserted that the interactive model is a process based on the data from several sources such as lexical, syntactic, semantic knowledge, and schemata. When the readers read word by word, they do not comprehend all of the text; therefore, they will use background knowledge to support the comprehension (bottom-up model to top-down model).

Socio-cognitive model of EFL teaching reading, Vygotsky illustrated the socio-cognitive theory that learning is not an individual process, but it takes place in the social setting. Wood, Burner and Ross (1976) who supporters the collaborative process of learning by Vygotsky. They claimed that scaffolding is used as a tool in the development of learning the cognitive process. In the same way, scaffolding can be interpreting and modeling, featuring differently. Many scholars have implemented scaffolding for the teaching of reading regarding assistance and creation of the conditions through an appropriate teaching reading strategy, such as self-questioning, semantic mapping, summary writing, monitor learning, and constructing meaning from the text.

These strategies are deliberately very usefully in reading comprehension. While the learners are assisted with the more knowledgeable person practiced, they can do the task beyond their Zone of Actual Development (ZAD) to reach the Zone of Proximal Development (ZPD). Thus, scaffolding is a useful model to develop a higher function of the actual skill of learners, and it is a crucial role in the socio-cognitive model (Nurkamto & Utami, 2017, pp. 2-3).

Reciprocal Teaching Method and Traditional Teaching Method

Reciprocal Teaching Method and Traditional Teaching Method

The table below shows the comparison between reciprocal teaching method and traditional teaching method in the reading instruction.

Table 3 Reciprocal Teaching Method and Traditional Teaching Method

Reciprocal Teaching Method	Traditional Teaching Method
Reciprocal teaching is a scaffolded technique based on teacher modeling and student's participation by using four strategies.	Conventional teaching is the teaching method that use teacher-centered approach, grammar-translation method, and read-aloud technique in the reading instruction.
(1) Predicting	
(2) Questioning	The characteristic of conventional teaching is that the teacher is a translator. Textbooks and dictionaries are used as the teaching instrument to support this teaching method. Students are passive learners and will be good listeners. The readers do the individual work (Kongkerd, 2013).
(3) Clarifying	
(4) Summarizing	
Advantages of reciprocal teaching, it is used to instruct students with the specific strategies that can apply in all kind of text. Students take turns to be the role of the leader in small group work. They share the experience and opinion in the reading activities. This teaching method is flexible and is dependent on the text and the reader's skills (Warman, 2015).	

Reciprocal teaching is a scaffolded technique based on teacher modeling, student participation, and four strategies that accomplished readers use to comprehend text: predicting, questioning, clarifying, and summarizing. Although reciprocal teaching originally was designed for use with struggling readers, this book offers innovative lessons aimed at improving the reading comprehension of all students. As mentioned above, reciprocal teaching was used as the teaching method to improve reading comprehension with EFL undergraduate students in this study. The information below shows the four main strategies that are used to improve reading comprehension ability.

Four multi-metacognitive Reading Strategies Practice

Reciprocal teaching method composes of four metacognitive reading strategies practiced for using in the reading processes; predicting, questioning, clarifying, and summarizing.

First, predicting is by activating the learners' background knowledge or experience by using clues, such as a title, text features, and text structure. In this strategy, the learners will link the prior knowledge to the new knowledge that they acquire in the reading process.

Second, questioning is the strategy that the learners use to construct understanding. It allows the learners to examine how much they understand the reading text by using the questions on their own. Questions will be used as a strategy to develop their comprehension.

Third, clarifying is a monitoring comprehension. When the learners are ambiguously reading text, this strategy will help them to find out to the extent of their perception. The learners will ask their teacher or peers, and also, they can open the dictionary to find the meaning of unfamiliar words.

Fourth, summarizing is the strategy that enables the learners to summarize the main points of each paragraph in the text. They will focus on making the appropriate words or sentences by themselves, and they will practice linking their knowledge to summarize the main idea into a text structure (Palincsar & Brown, 1984 as cited in Mongkolrat, 2017).

Reciprocal teaching (RT) is a cognitive reading strategy (explicit instruction of metacognitive or self-regulation). Palincsar and Brown (1984) as cited in Mongkolrat (2017) were the persons who originated reciprocal teaching. It comprises of four cognitive strategies that help students to improve their reading comprehension skills: predicting, clarifying, questioning, and summarizing. With Reciprocal teaching, the teacher and students use dialogue or discussion about the text based on using four strategies. Predicting is used to guess the text title or topic. Questioning is used to ask the question about the important information in group work or share their idea to answer the question. Clarifying is used for identifying the unknown and difficult words in the part of a sentence by asking their peers or using a dictionary. Summarizing is used to conclude the important parts of the text by writing the understanding from the whole. Discussion is emphasized on this strategy (among students-students and teacher-students).

In Thailand, explicit teaching can improve the students' reading ability. Good reading strategies should be activated with the readers to be aware of their thought. Therefore, this study will use reciprocal teaching through four reading strategies for enhancing Thai EFL learners' reading comprehension ability. Also, the reciprocal teaching in the reading activities can activate the use of cognitive approach based on learners' metacognitive and self-regulation. When the teacher trains the learners by using explicit teaching in the reading instruction, they will show the use of reading strategies applied to comprehending the text. In addition, this study of reciprocal teaching is based upon the sociocultural theory underpinning three perspectives. The information below is illustrated.

The meaning of reciprocal teaching has been defined by Ahmadi and Gilakjani (2012, p. 2053), they asserted that reciprocal teaching is a scaffolding technique that is used in a small group of interaction to help the learners who have the problems with reading comprehension. The four metacognitive reading strategies, (predicting, questioning, clarifying, and summarizing) were taught in the instruction to activate the reading comprehension. The highlight of this technique is a teacher models enough practice four metacognitive reading strategies for the learners. Then the learners will take the role of the teacher to be the leader in a small group of interaction practicing. This technique is not only helping the learners to be comprehended readers, but it is also practicing the learners to be independent readers. The four metacognitive reading strategies are used to support the learners to understand the text in the reading process (Palinscsar & Brown, 1984 as cited in Alsaraireh & Hamid, 2016, pp. 73-74).

Both cognitive and metacognitive reading strategies are essential roles to practice reading comprehension skills with EFL learners, and reciprocal teaching is an interactive or socio-cognitive model of using four metacognitive reading strategies practiced to promote the reading comprehension with EFL learners in the EFL reading class to change the traditional way of reading instruction from the past.

Reciprocal Teaching and its Theoretical Framework: Sociocultural Theory

In this study, reciprocal teaching is based on sociocultural perspectives, in EFL reading instructions are highlighted with a hope to help EFL teachers and learners in the EFL

reading context. Sociocultural theory is viewed as a baseline to practice English language with EFL readers. In this context, there are three foundations of SCT perspectives that are used to help EFL learners in reading instructions, namely social interaction, the zone of proximal development (ZPD), and scaffolding.

Social Interaction: The sociocultural theory by Vygotsky (1978) explained that the learning and development occurred in the social situation through interaction with other persons (expert, teacher, or peers), objects and events in the collaborative environment (as cited in Dehqan & Samarb, 2013; Yang, 2013, p. 860). So, learning is not an individual process, and the learners need to learn in a social context with help from the experts or peers participating in the social setting. That is to say, one's cognitive development does not appear without the participation or interaction with others within the social environment.

There are similarities between sociocultural theory and cognitive theory in that they both emphasize on the cognitive development of individual learners. Both the sociocultural theory and cognitive theory were used as a guide to investigate development of individual cognitive processes. The cognitive theory focuses on predetermine before the learning process took place, whereas the sociocultural theory has emphasis on the learning that took place under the social milieu or using social as a factor first. Besides, underpinning the sociocultural theory, human cognitive process development has not happened without society on the social setting or in a cultural context (Dehqan & Samarb, 2014, p. 405).

Furthermore, the root of sociocultural theory is from constructivism that defined it as the knowledge that was constructed in the social setting, such as more a knowledgeable person sharing the experience or background knowledge from one's own to the other.

Human's cognitive development has four aspects from the social perspectives; mind, tools, ZPD, and community of practice. This cognitive process begins with a mind; a mind means the mental function that depends on the interaction of someone in the negotiation of meaning with others. Vygotsky viewed that adults affect the child's mental development by using cultural knowledge passed on to the child during interaction (Veraksa & Veraksa, 2018, p. 150). The factors that influence minds are the environment, the context, and history. All of these factors (environment, context, history) are made from one's knowledge called

schemata. The second are the psychology tools; a human created language, symbol system, work of art, maps, and also cultural for use as the cognitive mediation tools from Vygotsky's view. Next, the notion of mind and tools can develop the higher order thinking of human that is called the Zone of Proximal Development or ZPD. The Zone of Proximal Development of a child will take place through assistance from the other person who is more competent and has more experience. The learning process will take place before the child's developments under the milieu of his or her ZPD. The last aspect is the community of practice. When a child develops a cognitive knowledge that occurs in a social setting with assistance from teacher, expert, or capable peers by using psychological tools such as language to expand the zone of actual knowledge by a more knowledgeable person, all of them will share the schemata or background knowledge to the community that they have the same goal, and will have already been a part of a community (Yang, 2013, p. 860). That is to say; learning will take place under the social setting: therefore, social interaction is an essential role in the EFL learning situation to improve the learners' cognitive development to be a part of the learning process.

Zone of Proximal Development (ZPD): The Zone of Proximal Development (ZPD) is the central concept of the sociocultural theory. Vygotsky (1978) as cited in Hammond (2001) was the original person to define the meaning of the Zone of Proximal Development or ZPD. It is established as "the distance between the actual development levels as determined through 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, p. 86 as cited in Arshad & Chen 2009, p. 327).

To illustrate the zone of proximal development; it means every child has two zones; the first zone is called the zone of actual development (ZAD) and the second zone is called the zone of potential development (ZPD). Within the first zone, a child can solve the tasks or problems by their self, whereas; for the potential zone, a child needs help from their peers to reach the goal of the task. So, the zone of actual development will extend to the zone of potential development when the child has encountered the problems, and they receive help

from a more knowledgeable person, such as parents, teacher, and more capable peers (Yang, 2013, p. 860). Besides, the process of assistance from more knowledgeable persons, scaffolding technique was used as a bridge by an expert or adult to guide a child or less knowledgeable person to move from the ZAD to ZPD (Dehqan & Samar, 2013, p. 68). Focusing on the reading, while experts or adults guide a child, he or she will receive learning techniques under the mediation system such as using languages, pictures, and tools. The practicing and transmitting problems solved by adult's practice will transfer to a child to solve the reading tasks by self then, he or she becomes an independent reader.

Scaffolding in EFL Reading Contexts: The first persons who originated the scaffolding theory were Wood, Burner, and Ross (1976) as cited in Hammond (2001). The scholars explained that the learning process would take place under the zone of proximal development and when a child interacts with persons the learning process will take place and the bridge that links between the learning and the individual perception is called scaffolding. The critical concept of scaffolding shades light on the assistance with others based on the sociocultural theory by Vygotsky (1978). Wood, Burner and Ross (1976) used the term scaffolding as a metaphor to illustrate the adult's role to explain, participate, or help the child in problem solving in continual support in the learning process. Also, scaffolding was the type of learning assistance by offered support from a teacher and a more knowledgeable person (Hasan & Karim, 2019). The scaffolding aids or tools can be modeling, asking the question and others (Beishuizen, Van de Pol & Volman, 2010).

Focusing on scaffolding in reading instruction is used to support the learners in a learning process that occurs before, during, and after reading to improve the learners' reading ability. The scaffolding tools in reading instructions are pictures, charts, and graphic organizers. However, dialogue, none verbal modeling, conversation, and questioning are used to assist the learners in learning activities to reach the goal of the task in which they cannot manage by themselves. When the learners encounter with their reading problems, they need help from a more knowledgeable person to demonstrate or use some techniques to activate their ideas. After the learners get the idea or concept from the more knowledgeable

person, then they can complete the task by themselves. In the reading instruction, scaffolding could be investigated under three sections: pre-reading, during reading, and post-reading activities. Scaffolding is a set of teaching techniques that a teacher uses to engage the knowledge to the EFL learners in collaborative problem solving in reading activities, and teacher guiding is reduced when the learner can do the task by themselves (Richards & Schmidt, 2002, p. 466 as cited in Abdul-Majeed, 2015, p. 94).

The reciprocal teaching method in reading comprehension permits teacher and learners to assist and understand the meaning of the text together. The assistance from the teacher is called scaffolding manners from the expert in the reading comprehension activities. In the reading process, the teacher and learners will use the social situation by using modeling, think-aloud and discussion (Oczkus, 2010 as cited in Delaney-Beane, 2017, p. 11). So, scaffolding means a variety of instructional strategies that are used to guide learners by a teacher or a more knowledgeable person to assist in the learner's understanding. A teacher will provide assistance to the learners to reach the goal of the task that they cannot do by themselves and then the assistance will decrease until they can do the task alone. For sociocultural theory by Voygotsky (1978), Mahmood (2013) as cited in Salem (2017) asserted that reading involving learners' social skill in that they required interaction and active participation in a social setting. In the reading process, scaffolding is a crucial role because non-native English language teachers use it for developing reading comprehension skills (Salem, 2017).

In this context, reciprocal teaching in reading instruction has used the scaffold or support manners to the learners by teacher model of using the four multi-metacognitive reading strategies: predicting, questioning, clarifying, summarizing in the social environment until the learners can work independently and comprehend the text. When a teacher trains the learners in doing work by using four multi-metacognitive strategies in the reading process, the learners will have the opportunity to see all parts of scaffolding instruction, and then they will take turn of the role to be a scaffolder with their peers in a small group of

reading activities. Modeling and giving feedback are the primary steps of reciprocal teaching model (Oczkus, 2018, p. 33).

Related Previous Studies on Using RTM to Enhance Reading Comprehension

Previous Studies on Using RTM in Non-University Level

Previous studies on using RTM to enhance reading comprehension were conducted in non-university level, particularly in high school context. These previous studies revealed the positive links between the use of four main strategies of the RTM and students' reading comprehension development. On the ESL context, Ahmadi and Gilakjani (2012) reviewed the RTM contributed by Brown and Palincsar (1984) through using four strategies including predicting, questioning, clarifying, and summarizing. The finding of the study revealed that using these four main metacognitive reading strategies during RTM method could enhance EFL students' English reading comprehension. Similarly, Komariah, Ramadhona and Silviyanti (2015) studied the improvement of reading comprehension through the RTM within which the sample of the population consisted of a mix-level of twenty-four science learners. The results found that the learners were more active and productive in reading activities after the RTM section was trained, thereby leading to the learners' reading proficiency being improved. Later, Arif (2016) studied increasing the learners' reading comprehension by using RT strategies. In this study, the population consisted of two-hundred and forty Indonesian learners, but only forty learners were used for samples. The result of Arif's study (2016) indicated that the RTM had significantly increased the learners' reading comprehension ability and there was influence of the learners' reading comprehension when the effect size was categorized. On the seventh-grade level, Penny (2016) carried out action research on improving learners' reading comprehension on descriptive through the reciprocal teaching with four strategies including summarizing, questioning, clarifying, and predicting. The quantitative and qualitative were used to collect the data. The results showed that after reciprocal reading activities intervention the learners' reading comprehension improved. Therefore, using four strategies namely predicting, questioning, clarifying, and summarizing

provided EFL and ESL learners to engage in RTM activity and were promoted to acquire reading comprehension ability.

Previous Studies on Using RTM in EFL University Level

On the university level, Alsaraireh and Hamid (2016) conducted quasi-experiments with two groups of university first-year learners' consisting of ninety male and female learners in the experimental group and eighty-six male and female learners in the control group. This study aimed to investigate the impact of using RTM on first-year university students in Jordan through the RTM achievements in reading skill focusing on students' gender. Reciprocal teaching was taught in the experimental group, and traditional teaching was taught in the control group. The instruments in this study were reading comprehension achievement test (pre-test, and post-test). The result found that the first-year students who received the reciprocal teaching model had a positive effect on reading comprehension achievement and this method had significant benefits for both male and female students. Accordingly, Chou (2016) studied using reciprocal teaching with Taiwanese university students who took English-medium-instruction (EMI) courses. This study was a pilot study to examine the effectiveness of reciprocal teaching on students' academic performance. The participants were sixty-two students in Educational Psychology. They were taught first in traditional lecturing style (about two months) and later in reciprocal teaching (about two months). He collected the data in four periods (two in-class quizzes and two achievement tests). The results found that there was a significant difference between the score of the test before and after using reciprocal teaching intervention. A researcher suggested that the reciprocal reading activities might promote Taiwanese students in the learning of academic text and might help the EFL teacher for future studies with other EMI courses. Similarly, Ayun and Yunus (2017) carried out the efficacy of reciprocal teaching to improve reading comprehension with Indonesian EFL learners. The samples of this study consisted of forty-four learners divided into two groups; a control group with twenty-two learners and an experimental group with twenty-two learners. Pre-test and post-test were used as a tool for collecting the data. The results showed that the reciprocal teaching method had a significant differential effect on reading comprehension between the two groups.

The experimental group with reciprocal reading activities had a higher effect on reading comprehension than the control group with a conventional way of teaching.

In sum, the study of using reciprocal teaching method with EFL university learners, the research design was quasi-experimental compared between the group of learners with and without reciprocal teaching methods.

Previous Studies on Using RTM in Thai EFL Context

There are previous research studies in Thailand context about using reciprocal teaching method to improve reading comprehension with Thai learners. Yoosabai (2012) studied the effects of reciprocal teaching on Thai high-school learners' English reading comprehension ability. The samples consisted of sixty-six twelfth grade high-school learners in Bangkok, Thailand. They were divided into two groups: thirty learners in the experimental group with RT treatment and thirty-six learners in the control group with skill-based practice. The research design was mixed-method both quantitative and qualitative. The researcher used a reading comprehension test, metacognitive reading strategies questionnaire and in-depth interview as the research tools. She found the reciprocal teaching method (RT) had positive effects on the English reading comprehension of Thai high-school learners.

Also, it can enhance reading comprehension ability with proficient and less proficient learners. In the same way, the study of Gerada (2019) asserted that reciprocal teaching procedures had effects on student reading comprehension with the EFL learners at high school. The mixed method approach was used as the research design with one group pretest-posttest. The students joined the group discussion with four main strategies to make the comprehension. Similarly, Chanprasert (2018) investigated metacognitive reading strategies to improve reading comprehension and performance with forty fourth-year English majors in "Reading Business", class at Bangkok University Thailand. This sample was divided into two groups, twenty good readers and twenty poor readers. Observation, conversation interviews, and group discussion were used as the instruments. The result found that metacognitive reading strategies enabled learners to understand the reading text, and that their reading performance improved.

Previous Studies of Metacognitive Reading Strategies in EFL Reading Class

The example of previous studies on cognitive strategy used in the reading instructions by Mongkolrat, 2017. The results from the study showed a relevance of reading comprehension by explicit teaching of metacognitive or self-regulation for students that they could assist the students' monitoring and evaluate their reading comprehension. The process of modeling, verbal rehearsal, scaffolded instruction, guided and independent practice, and self-monitoring are the components of explicit instruction. The teaching of metacognitive components was able to support the students stress on the task as well as control and monitor their ability. In addition, reading comprehension involves collaborative strategic reading (CSR) which was combined with two instructional approaches: reading comprehension strategies and cooperative learning. The students work in small groups to help other readers by using four strategies: preview, click and clunk, get the gist and wrap-up in the reading process. Preview is used for reading each section to activate background knowledge about the topic and predict what the students will learn. Click and clunk is used to monitor the students reading comprehension and when the comprehension brakes down the student will use fix-up strategies. Get the gist is used to identify the most important idea in each section of text by using the student's own words to make sure they understand. Wrap-up is used for generating questions and memorization the reading text. Question-answer (QAR) was the cognitive strategy used to help students to recognize the information sources of the answer to comprehension questions. Likewise, the questions-answer relationship strategies that were practiced with the Vietnamese tenth-grade learners to promote the reading literature instruction was reported by Thuy and Huan (2018) with EFL students at high school level to improve reading comprehension. This was the experimental study of his reading strategy. The result showed that the use of questions-answer had a positive effect on EFL student's perception on the learning of contemporary literature and there were significant roles to improve reading comprehension ability. On the other hand, Wang (2016) studied the differences between more successful and less successful EFL readers on their comprehension

performance and abilities to use reading strategies through interaction with English texts by using the thinking aloud technique while reading in pairs. This researcher explained that reading strategies were the flexible control of particular awareness to retrieve, store, regulate, elaborate, and evaluate the goal of successfulness of reading by readers' self-directed learning. The strategies are cognitive mental processing and social nationally. Via the use of effective cognitive strategies, both mental and social, readers could enhance metacognitive awareness. First and second languages in reading were provided by the cognitive strategies: bottom up and top down for readers to look at the small unit of words such as sound letter, lexicon, and the syntax to the hold of the text. The categories of social strategies were "asking for clarification or verification", "cooperating with peers and proficient users of the new language", "developing cultural understanding", and "becoming aware of others' thoughts and feelings," were used as the useful strategies to increase the readers' target language comprehension (Oxford, 1990 as cited in Wang, 2016). Thus, verbal interaction and scaffold practice were provided for EFL students to solve reading comprehension problems through the thinking aloud technique. In contrast, Sari (2016) investigated the relationship between cognitive and metacognitive reading strategies used and reading comprehension performance of Indonesian EFL pre-service teachers. There was not a significant relationship between the use of cognitive and metacognitive reading strategies on their reading performance with pre-service Indonesian teachers.

However, this study was the only quantitative research using the reading test and cognitive and metacognitive reading questionnaire as the research instruments. The results showed that memory sub-strategy, comprehension and retrieval sub-strategies were used as the cognitive strategies and using planning, monitoring, and evaluating strategies were used as metacognitive strategies to practice reading comprehension with learners. In addition, Conversely, Channa, Nordin and Abassi (2018) investigated the development of engineering learners through metacognitive scaffolding in reading comprehension. Each class was comprised of a minimum of fifty learners and maximum seventy-five learners. The teachers used metacognitive strategies and scaffolding to support the learners' reading comprehension

in reading instruction. The researcher observed three classes in the read-aloud sessions of the metacognitive strategies used. The result indicated that using metacognitive strategies and scaffolding by the EFL teachers are essential tools for developing engineering learners' reading comprehension. Similarly, the overview of metacognitive strategies used in reading comprehension skill by Cakici (2017). The metacognitive reading strategies in reading processes were used as support for EFL learners in a classroom setting by the teachers. The systematic, explicit instruction and metacognitive reading strategies such as identifying the learning style, planning, organizing materials, arranging, monitoring, and evaluating can develop the reading comprehension for EFL. According to Ismaiel and Tawalbeh (2015) studies show the effectiveness of a metacognitive reading strategies program for improving low achieving EFL readers with female Saudi Arabia undergraduate learners. The sample was divided into two groups: an experimental group with ten girls and the control group with eleven girls by using quasi-experimental. This study showed that for the experimental group, with low achieving reading comprehensive learners, reading skills were improved after using metacognitive reading strategies intervention in the reading instruction. Likewise, Nor et al. (2017) investigated the metacognitive reading strategies used by fifty-four undergraduate learners in Malaysia while reading academic texts. The research instrument is a questionnaire adapted from the Metacognitive Awareness of Reading Strategies Inventory (MARSI). The three groups of metacognitive reading strategies are investigated: Global Reading Strategies, Problem-solving Reading Strategies, and Support Reading Strategies. The results found that when the learners encountered with comprehending the academic texts, they used more problem-solving reading strategies than global or support reading strategies. Also, the findings indicated that learners were not focusing on knowing the most effective metacognitive strategies, but they emphasized how to use strategies effectively and appropriately.

The Gap of the Previous Research Studies

From the previous research studies, even though reciprocal teaching was an effective method to improve reading comprehension, most of the studies targeted within the elementary or high-school learners' level. Furthermore, the reciprocal teaching method of dialogic instructional strategy was using four multi-metacognitive reading strategies such as predicting, questioning, clarifying, and summarizing to promote learners reading comprehension within the collaborative community. Nonetheless, there were few research studies that investigated the usage of four multi-metacognitive reading strategies to engage the use of many cognitive and metacognitive reading strategies to enhance the reading comprehension ability and metacognition of self-regulation with the difference proficiency EFL learners (advanced, intermediate, and novice) in EFL university context of Thailand.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the procedures for analyzing data by using reciprocal reading activities through multi-metacognitive reading strategies to enhance EFL undergraduate students' reading comprehension ability. Reciprocal teaching method was use as the theoretical framework for this research study (Palinscar & Brown, 1984). This chapter presents the research design, research population and sample, research instruments, data collection, and data analysis. Before the illustration, the table below shows the research study procedure and conduction of research; theoretical frameworks, research approach and research methodology of this research study.

Table 4 Research Study Procedure and Conduction of Research

Theoretical Framework			
Reciprocal Teaching Method			
(Palinscar & Brown, 1984)			
1. Predicting	2. Questioning	3. Clarifying	4. Summarizing
Sociocultural Theory			
(Vygotsky, 1978 as cited in Hammond, 2001)			
1. Zone of Proximal Development (ZPD)		2. Social interaction	3. Scaffolding
Research Approach: Mixed-method			
1. Experimental group with Reciprocal Teaching Method (RTM)			
2. Control group with Traditional Teaching Method (TTM)			

Table 4 (cont.)

Research Methodology			
Research Questions	Data Collection	Data Analysis	Analytical Framework
1. What are the achievements of the EFL undergraduate students between the group with reciprocal teaching method and traditional teaching method?	– Reading Comprehension Progress Test	– T–test – Means – Standard Deviation (S.D.) – Content Analysis	– SPSS Program for Windows
2. What are the achievements of the EFL undergraduate students with different language proficiency after engaged in reciprocal reading activities?	– Reading Comprehension Achievement Test – Reading Comprehension Progress Test	– T–test – Means – Standard Deviation (S.D.)	– SPSS Program for Windows
3. What are the multi–metacognitive strategies used by the different proficiency EFL students engaged in reciprocal reading activities?	– Observation Form of Cognitive and Metacognitive Reading Strategies and Characteristics	– Content Analysis – Frequency Analysis	– Cognitive and Metacognitive Reading Strategies and Characteristics
4. What are the opinions of the EFL undergraduate students after engaged in multi–metacognitive reading strategies?	– Semi–structured Interview	– Content Analysis	– Descriptive Statistic

Research Design: Mixed-method

The mixed-method was used as a research design of this current study. The researcher integrated both quantitative and qualitative data because they enhance validity, generate a comprehensive picture, and extend the complex nature of a real situation (Relton, 2017). In addition, to seek the answers to the research questions one and two, "What are the achievements of the EFL undergraduate students between the group with reciprocal teaching method and traditional teaching method?" and "What are the achievements of the EFL undergraduate students with different language proficiency after engaging in reciprocal reading activities?" A quasi-experiment with the quantitative data was used to find the answer to these research questions. Moreover, qualitative data was used to seek the answers to the research questions number three and four, "What are multi-metacognitive strategies used by the different proficiency EFL students engaged in reciprocal reading activities?" And "What are the opinions of the EFL undergraduate students after engaged in multi-metacognitive reading strategies?"

In this study, the description of the design process of reading was described in terms of the application of Reciprocal Teaching Method (RTM) with four multi-metacognitive reading strategies to enhance reading comprehension abilities with EFL learners. They were as follows.

Phrase I: Teacher instruction

The researcher, acting as the teacher, introduced the individual strategies and metacognitive reading strategies that could be used in the reading processes (pre-reading, during reading, and post-reading). Also, the teacher introduced the metacognitive reading strategies (self-monitoring) of planning, monitoring, and evaluation.

Phase II: Teacher modeling

This stage based on the assumption of cognitive apprenticeship. In this stage, the teacher was an expert and the EFL students were the apprentices. The teacher provided the explicit-instruction and taught four reading strategies: predicting, questioning, clarifying, and summarizing in depth (applying the four reading strategies with prompts).

Phase III: Teacher-student groups

The teacher led a discussion about texts and articles in a classroom situation using four strategies by promoting, maintaining support, and giving feedback. Then the Thai EFL students took turn to be a leader, and practiced the frequency using the four main strategies. The teacher gradually reduced assistance when the students became more proficient in using the reading strategies. Assistance from the teacher and peers would be provided depending on students' need. This scaffold process expanded the learners' knowledge, and it developed the students' comprehension by using the four reading strategies (Oczkus, 2003 as cited in Herlina, 2017).

Phase IIII: Student-led groups.

In this phase, students took turns to be the leader in each small group discussion, and they prompted their group members (four-six) to use the four strategies. During the discussion, students expressed their thoughts or gave feedback on the strategies used. Moreover, the students had the opportunity to exchange their ideas or exchange metacognitive reading strategies used with their peers through conversations or interactions, and the students' confidence would be developed. In this phrase, the teacher as the observer, observed the students' progression and provided help when the students needed it. During the next part of the study, the research instruments and their constructions were presented. The figure below shows a comprehensive picture of the design process of the reading stages by using a reciprocal teaching method.

Design Process of Reading Stages: Reciprocal Teaching Method (RTM)

Application of the RTM with Reciprocal Reading Strategies

Phrase 1 **Teacher Instruction**	1. Pre-reading (Planning) → Prediction

Phrase 2
Teacher Modelling
Teacher provides direct instruction and metacognitive reading strategies by explicit teaching (whole class).
1. Predicting
2. Questioning
3. Clarifying
4. Summarizing

Introducing Individual Strategies

2. During-reading (Monitoring) → Questioning

Clarifying

3. Post-reading (Evaluating) → Summarizing

Phrase 4
Student-student Group
Independent groups of students lead the discussion in a small group work. They use four multi metacognitive reading strategies by themselves.

Phrase 3
Teacher-students Group
Teacher practices students to frequent use of metacognitive reading strategies (predicting, questioning, clarifying, summarizing).

Groups of students take turns reading discussion by using four multi-metacognitive reading strategies in small group work (using reciprocal reading worksheet).
Teacher observes scaffolding behavior progress.

Teacher becomes expert scaffolder.
Students fill out helping worksheet act out using reciprocal reading in a group of work and they take turns to be the leader to practice four multi-metacognitive reading strategies.

Figure 1 Design Process of Reading with Reciprocal Teaching Method

Research Instruments

In this part of the study, the research instruments, and their constructions, were divided into four sections; Reading Comprehension Achievement (RCA) test, Reading Comprehension Progress (RCP) test from units 1-6 , observation form of cognitive and metacognitive reading strategies with their characteristics, semi-structured interviews, and instructional plans. There were as follows.

1. The Reading Comprehension Achievement (RCA) test adapted from the Oxford reading comprehension test was used to classify the EFL undergraduate students reading comprehension ability. This test composed of 25 items (Scanlon, 2015). The researcher presented the test to three experts to clarify the (see Index of Item-Objective Congruence: IOC) or Content Validity. The result from the experts found that 5 items of the test could not apply for testing the reading skills of the students because they were used to measure writing competency skills. The name of the three experts and the table of IOC of the Reading Comprehension Achievement (see Appendix A).

2. The Reading Comprehension Progress (RCP) test was used to compare the achievement of the EFL undergraduate students with different language proficiency after engaging in reciprocal reading activities and traditional teaching methods of reading. In addition, the RCP was used to compare the achievement of the EFL undergraduate students with different language proficiency (two advanced, two intermediate, and two novice) after engaging in reciprocal reading activities (to answer research questions one and two). The RCP test composed of 6 units with 12 items in each unit with four choices (a, b, c, d) and was based on the reading content of "Oxford English for Career: Technology Book 1". This RCP test was used twice before and after teaching by using the reciprocal teaching method and the traditional teaching method with two groups of EFL undergraduate students. The RCP test was constructed by using night potential reading comprehension factors as the analytical framework of (Dagostino et al., 2013; Davis, 1944 as cited in Pearson & Hamm, 2005, p. 21). Night potential reading comprehension factors included (1) word meaning, (2) word meaning in context, (3) follow passage organization, (4) main thought, (5) answer

specific text-based questions, (6) text-based questions with paraphrase, (7) draw interferences about context, (8) literacy devices, and (9) author's purpose (see Appendix B).

3. The cognitive and metacognitive reading strategies observation form with their characteristics (codes) was adapted from the studies of Oczkus (2018); Thampradit (2006); Wirotanan (2002). The purpose was to use this observation form to observe the different proficiency of EFL students' scaffolding behaviors when they used the cognitive and metacognitive reading strategies that engaged in reciprocal reading activities. Then both the qualitative and quantitative data obtained from this observation would be analyzed for qualitative data and percentage for quantitative data. This observation was also adapted from three experts' suggestion (see Appendix C).

4. The semi-structured interview was used to check the effectiveness of using reciprocal reading activities in a small group. The semi-structure interview questions consisted of four questions that the researcher adapted from the previous research studies by Komariah Ramadhona and Silviyanti (2015) and Relton (2017). Also, three experts gave the suggestions, after which they were used to interview six different proficiency EFL students (see Appendix D).

5. Instructional plans with reciprocal reading activities were constructed by the researcher based on the course syllabus. In addition, the information from the text book within six reading articles (e.g., vocabulary, grammar and language skill) were used to construct the instruction plans. Besides, reciprocal reading activities with four multi-metacognitive reading strategies (predicting, questioning, clarifying, and summarizing) were applied to the steps of teaching of reading process (pre-reading, during-reading and post-reading. In the same way, three specialists gave the suggestions to improve the instructional plans before teaching. The information below shows the topic of instructional plans in each week/section (see Appendix E).

Weeks	Topics
1	Introduction: Reciprocal reading activities
2	Unit 1: Technology and Society
3	Unit 2: Studying Technology
4	Unit 3: Design
5	Unit 4: Technology in Sport
6	Unit 5: Medical Technology
7	Unit 6: Careers in Technology

In addition, the textbook and practice file named "Oxford English for Careers: Technology Book 1" (Glendinning, 2007) and "Oxford English for Careers: Technology 1 Practice File" (Vallance, 2011) were required in the English program. These textbook and practice file were used as teaching material with the participants who registered in the course. This course was a compulsory subject for non-majoring EFL English learners who were studying Science and Technology Curriculum at Nakorn Sawan Rajabhat University (NSRU). The course description was "training English language skills of reading, writing, listening and speaking corresponding to the field of study that are related to technological, applied science, and computer science. It focuses on reading skills, communication, and analysis level such a vocabulary, reference, conjunction, text, main ideas, cause and effect, attitudes of the author and summarizing". There were six reading articles that a researcher selected from the reading articles practiced field. All of the reading articles involved the learners' field of study under the topics; Technology and Society, Studying Technology, Design, Technology in Sport, Medical Technology, and Career in Technology. These topics were selected by the researcher because they also involved the majoring of EFL learners' study. The majoring of the EFL learners who took this course were Biology, Chemistry, Computer Science, Computer Graphic Design, Information Technology, Public Health, and Occupational Health (see Appendix E). Following this, a reciprocal reading worksheet was adapted from Oczkus (2018, pp. 244–245). This worksheet was distributed to the EFL students in an experimental group with 4–6 people that engaged in the reciprocal reading

activities through four multi-metacognitive reading strategies including predicting, questioning, clarifying, and summarizing (see Appendix E).

The application of reciprocal teaching in reading instructional plan was applied in the stages of reading activities on many phrases (Alsaraireh & Hamid, 2016; Komariah, Ramadhona, & Silviyanti, 2015; Herlina, 2017) by the teacher. There were 6 instructional plans used with forty EFL undergraduate students to assist them in improving their reading comprehension ability. The researcher applied the stages of reciprocal teaching strategy into four phrases of the reading process contributed by Palinscar and Brown (1984), Hartman, (1994), Klingner, Vaughen & Boardman, (2007) as cited in Herlina (2017, p. 107) in reading instruction. Table 5 shows the stages of reciprocal teaching in the reading instructional plans.

Table 5 The Stages of Reciprocal Teaching in the Reading Instruction

Stages of reciprocal teaching in the reading comprehension instruction
Phase I: The teacher demonstrated the models of using four multi-metacognitive reading strategies, predicting, questioning, clarifying, and summarizing.
Phase II: Direct instruction, the teacher taught multi-metacognitive reading strategies, predicting, questioning, clarifying, and summarizing. by explicit instruction and teacher practiced the students to frequency use.
Phase III: Teacher-student groups, the teacher led a discussion about text or articles in classroom group using four strategies. Then the students took turns leading and practicing using the four multi-metacognitive reading strategies, predicting, questioning, clarifying, and summarizing.
Phase IIII: Student groups, the students took turns to be the leader of the discussion in each small group using four multi-metacognitive reading strategies, predicting, questioning, clarifying, and summarizing. During this phase, the teacher provided support as needed.

Population and Sample

The research population consisted of 164 EFL learners at Nakhon Sawan Rajabhat University, who registered in the course named "English for Technology" for the academic year 2019. In this semester, EFL students from five classes were taking this course, but only two classes (Public Health and Occupational Health) were first year undergraduate students participated in this study. Therefore, seventy-three EFL undergraduate participants were selected by purposive sampling. Another reason for choosing these classes was the fact that they studied the same curriculum design in the Faculty of Science and Technology. Thus, the experimental group with forty Public Health EFL undergraduate students were taught by using the Reciprocal Teaching Method (RTM). Meanwhile, the control group with thirty-three Occupational Health EFL undergraduate students were taught by using the Traditional Teaching Method (TTM).

Data Collection

A research strategy meant that specific methods were used to collect the data in the research study (Yawiloeng, 2013, p. 46). There were three types of specific methods used, such as, data collection strategies; observation forms, video and audio recordings, and semi-structured interviews. The purpose of using data collection strategies was also discussed.

1. **Observation Form**

The observation form was used as a data collection procedure to gain information from the context, special events, and behavior of participants. The form was used as the primary procedure because it was used to observe the real activities or real situation when the participants could do or could not do the task in the small group work (Merriam, 2009 as cited in Yawiloeng, 2013, p. 53). In this case, an observation form of metacognitive reading strategies was used to observe six different proficiency EFL undergraduate students' behaviors reading.

2. **Video and Audio Recording**

In line with the original reciprocal teaching method practice, a video and audio recording were used to monitor qualitative changes within the dialogue during the reciprocal reading activities intervention in the experimental group (Relton, 2017, p. 54). The researcher applied the video and audio recording with six different proficiency EFL undergraduate

students (classifying by Oxford reading comprehension achievement test) in the experimental group including two advanced, two intermediate, and two novice students. They observed the reading behaviors while they engaged in reciprocal reading activities.

3. Semi-structured Interview

A semi-structured interview was used to define the effectiveness of reciprocal teaching methods with four multi-metacognitive reading strategies (predicting, questioning, clarifying, and summarizing) with six different proficiency EFL learners (2 advanced, 2 intermediate, and 2 novice students). Before the interview, a researcher informed these six EFL undergraduate students of the purpose of the interview, duration, issues, and time and date appointment (Pilten, 2016, p. 237). An audio recording was also used to prevent data loss.

4. Instructional Plans

Table 6 shows the data collection from the instructional plans between two methods of teaching between EFL undergraduate students with the Reciprocal Teaching Method (RTM) and EFL undergraduate students with Traditional Teaching Method (TTM) in a nine-week duration of instruction.

Table 6 Data Collection of RTM and TTM

Reciprocal Teaching Method (RTM)	Traditional Teaching Method (TTM)
Week 1 (3 hours)	
The researcher introduced the research objectives and schedule with 40 participants. After that, the participants did the reading achievement test with 20 items to classify the students' language competency and to compare the reading achievement ability with the EFL undergraduate students who engaged in traditional teaching method. The scores	Thirty-three participants completed the reading achievement test with 20 items to compare the reading achievement ability before using the TTM.

Table 6 (cont.)

Reciprocal Teaching Method (RTM)	Traditional Teaching Method (TTM)
of this test were rearranged from maximum to minimum, therefore; six different proficiency EFL students (2 advanced, 2 intermediate, and 2 novice learners) were classified.	
Week 2 (3 hours): Introduction	
Before units 1 to 6 began, all participants were trained the using of four mains multi–metacognitive reading strategies.	A teacher distributed the course syllabus and gave some information about the course.
Weeks 3–8 (18 hours): Units 1 to 6	
Before the class start, forty participants did the reading comprehension progress test 12 items (units 1 to 6) in each week. Then, they were classified into small group work with 4 to 6 persons by using four multi–metacognitive reading strategies (predicting, questioning, clarifying, and summarizing). The participants took turns to be the leader in small groups and they were working with classmates through interaction. A teacher observed metacognitive reading strategies were used by different proficiency EFL students that engaged in reciprocal reading activities in small group work. After the participants finished learning in each unit, they did the reading comprehension progress test with 12 items again (weeks 3–8).	Before the class start, thirty-three participants did the reading comprehension progress test 12 items (units 1 to 6) in each week. Then, a teacher taught the students (units 1 to 6) by using teacher-centered, grammar-translation, and read-aloud in the reading process. After the participants finished learning in each unit, they did the reading comprehension progress test with 12 items again (weeks 3–8).

Table 6 (cont.)

Reciprocal Teaching Method (RTM)	Traditional Teaching Method (TTM)
Week 9 (3 hours)	
The researcher interviewed the opinions of six different proficiency EFL students with four semi-structured interview questions.	

Data Analysis

1. Quantitative Data: Research Questions Numbers One and Two

For the quantitative data, the Reading Comprehension Progress (RCP) test from units 1 to 6 was used to collect the quantitative data to compare the reading comprehension ability with six different proficiency EFL undergraduate students before and after using Reciprocal Teaching Method (RTM). SPSS program for Windows was used to find the t-test, mean score, and standard deviation (S.D.) with content analysis. Then the Reading Comprehension Progress (RCP) test from units 1 to 6 was used to compare the reading comprehension achievement between two groups of students with the RTM versus the TTM intervention.

2. Qualitative Data: Research Questions Numbers Three and Four

For qualitative data, an observation form (with the characters of cognitive and metacognitive reading behaviors) and semi-structured interview were conducted. The observation form was used to observe the participants' behavior and special events of cognitive and metacognitive reading strategies that were used by the different proficiency EFL students through reciprocal reading activities. The different proficiency EFL students used four multi-metacognitive reading strategies; predicting, questioning, clarifying, and summarizing in the reading activities. The observation form (with the characters of cognitive and metacognitive reading behaviors) was used to answer the research question three "What are multi-metacognitive strategies used by the different proficiency EFL students engaged in reciprocal reading activities?"

To interpret this qualitative data, content analysis was used. Besides, semi-structured interviews were used to find the qualitative data by using content analysis. The main reason for selecting the content analysis for semi-structured interviews was because it was used to find the conceptual construction of research question number four "What are the opinions of the EFL undergraduate students after engaged in multi-metacognitive reading strategies?".

Before any research data was collected, the Ethical Approval for conducting this study was obtained from the University of Phayao with the code 2/057/62. Then, the researcher met all participants (Experimental and Control Groups) during the start of second semester of 2019 academic year, gave the purpose of the study, and solicited them to participate. Also, all participants received invitation letters and signed the Consent Form to inform them that they were free to withdraw their consent and to discontinue participate at any time. After that, all participants decided to take part in this research study by signing their name and sending the Consent Form back to the researcher within a week (see Appendix G).
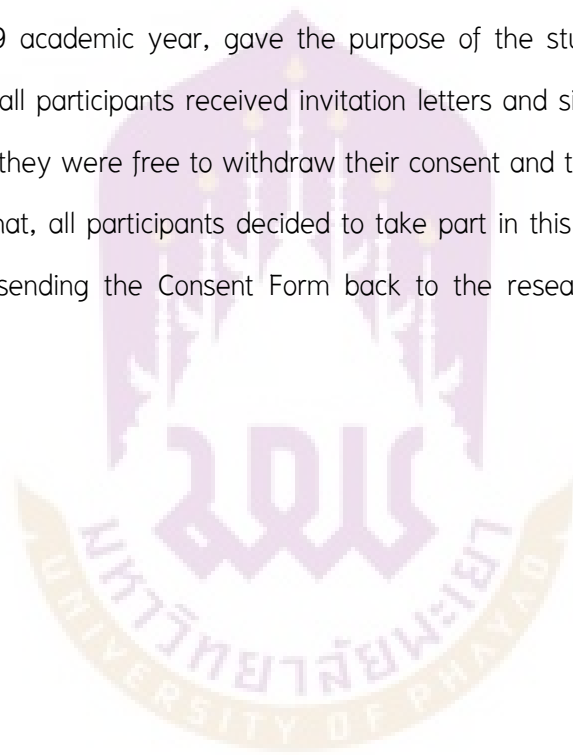
CHAPTER IV

RESULTS

This chapter presented the result of the study of the effectiveness of reciprocal reading activities enhancing Thai EFL undergraduate students' reading comprehension ability. To seek the answers to research questions 1) What are the achievements of the EFL undergraduate students between the group with reciprocal teaching method and traditional teaching method? 2) What are the achievements of the EFL undergraduate students after engaged in reciprocal reading activities? 3) What are metacognitive strategies used by the different proficiency EFL learners engaged in reciprocal reading activities? 4) What are the opinions of the EFL undergraduate students after engaged in multi-metacognitive reading strategies? Mixed-method both quantitative and qualitative (data collection) and data analysis will be presented by each objective.

Answer to Research Question 1:

Research Question 1) What are the achievements of the EFL undergraduate students between the group with reciprocal teaching method (RTM) and traditional teaching method?

The Achievement of the EFL Students after Engaged in the RTM

Reading Comprehension Progress (RCP) test units 1 to 6 (12 items in each unit) was used to compare between two groups of EFL undergraduate students who received Reciprocal Teaching Method (RTM) and Traditional Teaching Method (TTM). The t-test, means and standard deviation (S.D.) were used as the data analysis and SPSS program for Windows was used for the analysis. Table 7 shows the comparison of the pre-test and post-test scores between the experimental group with the RTM and the control group with the TTM.

Table 7 Comparison Pre-test and Post-test Scores of the Experimental Group
with the RTM and the Control Group with the TTM

Experimental Group		Mean	S.D.	t	df	Sig
40 participants	Pre-test	10.48	2.33	6.359**	39	0.000
	Post-test	13.50	1.88			
Control Group		Mean	S.D.	t	df	Sig
33 participants	Pre-test	9.64	2.28	2.430**	32	0.020
	Post-test	11.21	2.86			

Note: * Experimental Group Level of Significant at p<.05

* Control Group Level of significant at p<.05

Table 7 shows the pre-test and post-test scores gained by the experimental group with the RTM and control group with the TTM. For experimental group with the RTM, the mean score and the standard deviation of their pre-test and post-test illustrates the significant differences before and after using the RTM. To illustrate, the mean score of the pre-test done by EFL undergraduate students in the experimental group was 10.48 and the standard deviation was 2.33. Meanwhile, the mean score of the post-test was higher than the pre-test, that is, 13.50 and the standard deviation (S.D) as 1.88 after using the RTM intervention.

Regarding the control group with traditional teaching method, the result of pre-test and post-test scores in the control group with the TTM also, illustrates that there were significant differences in the mean score. The mean score of the pre-test was 9.64 and the S.D. was 2.28. Meanwhile, the mean score of the post-test was 11.21 and the standard deviation was 2.86.

In summary, both teaching methods were significant for EFL learners at .00 and at .01 levels. Importantly, this study was emphasized on the effectiveness of the use of the RTM to enhance the EFL undergraduate students' reading comprehension ability through the use of RTM, the students could engage by using four multi-metacognitive reading strategies (predicting, questioning, clarifying, summarizing) to assist in their reading comprehension.

Answer to Research Question 2:

Research Question 2) What are the achievements of the EFL undergraduate students after engaged in reciprocal reading activities?

The achievements of the EFL undergraduate students after engaged in reciprocal reading activities.

The reading comprehension achievement test which was that adapted from the Oxford reading comprehension test (Scanlon, 2015) with 20 items was used to classify the reading comprehension ability with the different proficiency EFL students engaged in reciprocal reading activities. These students were classified into three groups (advanced, intermediate, and novice). The reading comprehension progress test from units 1 to 6 with 12 items in each unit adapted from "Oxford English for Career: Technology Book 1" by (Glendinning, 2007) was used to compare the 6 different proficiency EFL undergraduate students (2 advanced, 2 intermediate, and 2 novice learners) before and after engaging in reciprocal reading activities in each unit. The figures below illustrate the bar chart of pre-test and post-score scores of the reading comprehension progress (RCP) test (units 1 to 6) before and after using reciprocal reading activities intervention with 6 different proficiency EFL undergraduate students (2 advanced, 2 intermediate and 2 novice) students.

Reading Comprehension Progress (RCP) Test of EFL Advanced Undergraduate Student Number One (AS1) Before and After Using Reciprocal Reading Activities
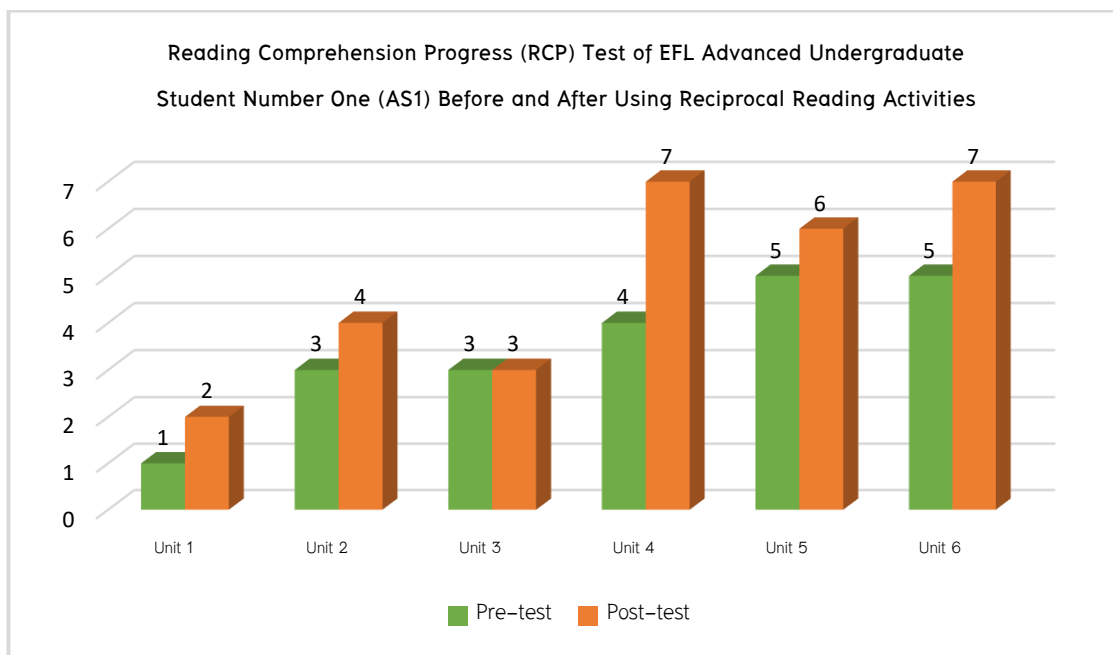
Figure 2 Scores of Reading Comprehension Progress Test AS1

Figure 2 illustrates the bar chart of the pre-test and post-test scores of the RCP test (total: 12 scores) from units 1 to 6 of advanced EFL undergraduate student number one (AS1). Overall, after engaging in the RTM, the AS1 student gained higher post-test scores in the RCP. According to the pre-test scores, the AS1 gained the lowest score in unit 1 (only 1 score) and the pre-test score increased to a score of 5 in unit 5 and unit 6. In comparison to the post-test, the AS1 student gained a score of 2 in the post-test score in unit 1 then the score rose to a score of 7 in unit 4 and unit 6. Therefore, after participating the reciprocal reading activities; the AS1 student's post-test score was higher than the pre-test score in most units except unit 3.

Reading Comprehension Progress (RCP) Test of EFL Advanced Undergraduate Student Number Two (AS2) Before and After Using Reciprocal Reading Activities
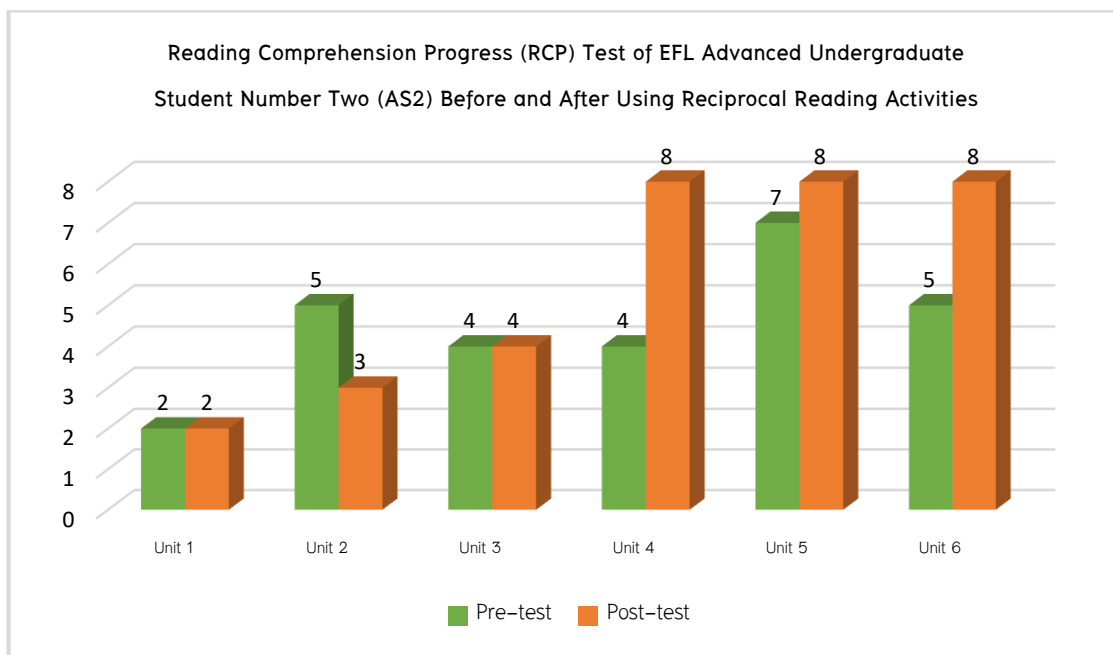
Figure 3 Scores of Reading Comprehension Progress Test AS2

Figure 3 illustrates the bar chart of the scores of pre-test and post-test of the RCP test (total: 12 scores) from units 1 to 6 of advanced EFL undergraduate student number two (AS2). Overall, the AS2 student gained the post-test scores higher than the pre-test scores after participating in the reciprocal reading activities. The pre-test scores of the AS2 student fluctuated, that the lowest score was 2 scores in unit 1; whereas the highest score was 7 scores in unit 5. After the AS2 student engaged in the RTM with teacher and peers, the post-test scores increased from 2 scores (unit 1) to the highest score with 8 scores (unit 4, 5, and 6). In sum, it seems that engaging reciprocal reading activities can help the AS2 student acquire reading comprehension ability in the EFL classroom.

Reading Comprehension Progress (RCP) Test of EFL Intermidate Undergraduate Student Number One (IS1) Before and After Using Reciprocal Reading Activities

Figure 4 Scores of Reading Comprehension Progress Test IS1

Figure 4 illustrates the bar chart of the pre–test and post–test scores of the RCP test (total: 12 scores) from units 1 to 6 of intermediate EFL undergraduate student number one (IS1). Overall, both pre–test and post–test scores of the IS1 student fluctuated from unit 1 to unit 6; however, the post–test scores were higher than the pretest scores. For the pre–test, the lowest score was a score of 4 (unit 2 and 4); whereas the highest pre–test score was a score of 6 (unit 1 and unit 5). After participating in the reciprocal reading activities, the intermediate EFL student's the highest post–test score was a score of 8 (unit 5). The result from Figure 4 reveals that the IS1 student' reading comprehension ability could be promoted after engaging in the reciprocal reading activities.

Reading Comprehension Progress Test of EFL Intermidate Undergraduate Student Number Two (IS2) Before and After Using Reciprocal Reading Activities
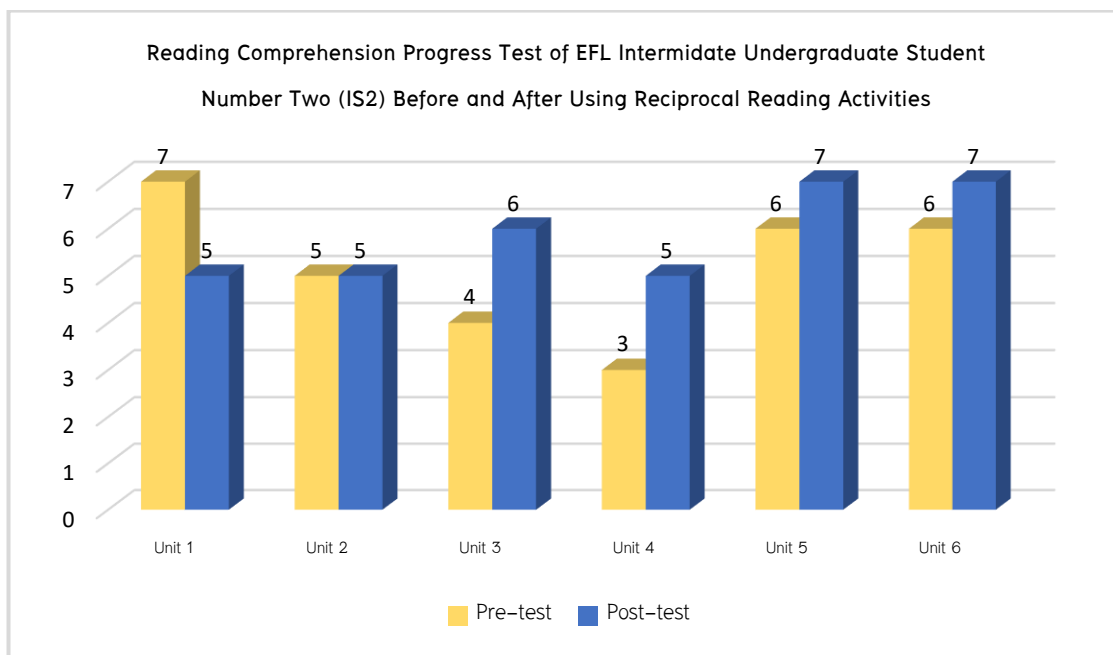
Figure 5 Scores of Reading Comprehension Progress Test IS2

Figure 5 illustrates the bar chart of the scores of pre-test and post-test of reading comprehension progress test (total: 12 scores) from units 1 to 6 of intermediate EFL learner number two (IS2). Overall, the pre-test scores of the IS2 student fluctuated. Regarding to the pre-test scores, the IS2 student gained 7 scores in unit 1, then the score slightly decreased to 6 scores in unit 5 and 6. After the IS2 students participated in the reciprocal reading activities, the post-test scores were higher than the pre-test scores in unit 3 to unit 6; the highest post-test score was 7 scores (unit 5 and 6). In sum, the IS2 student gained more understanding of reading in English after engaging in the reciprocal reading activities with teacher and peers.

Reading Comprehension Progress Test of EFL Novice Undergraduate Student Number One (NS1) Before and After Using Reciprocal Reading Activities
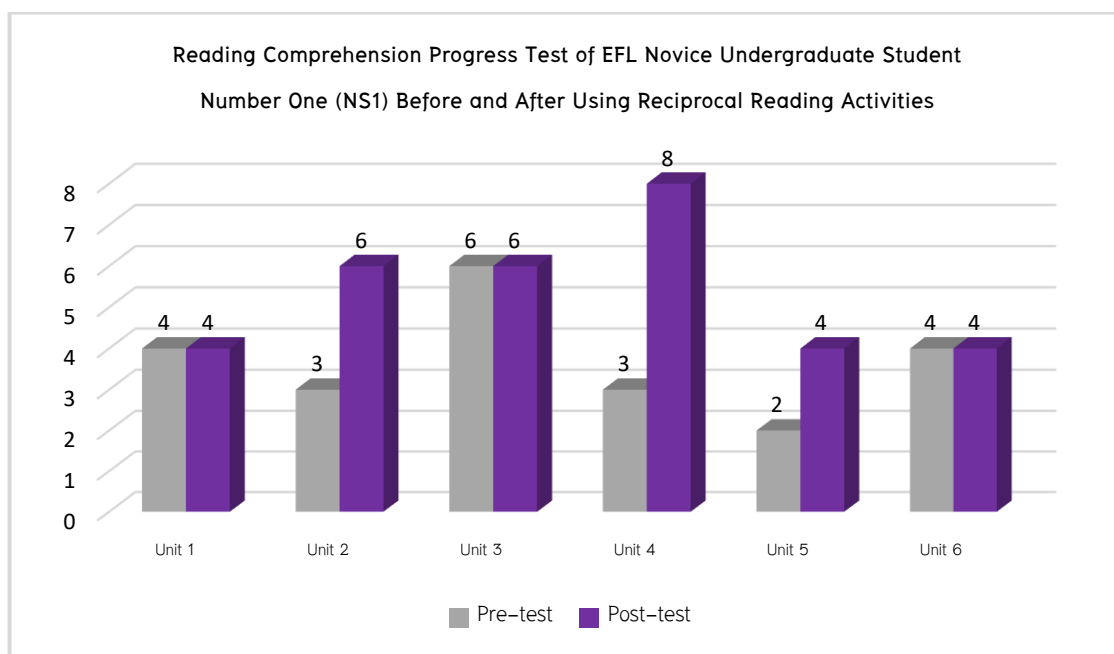
Figure 6 Scores of Reading Comprehension Progress Test NS1

Figure 6 illustrates the bar chart of the scores of pre-test and post-test of reading comprehension progress test (total: 12 scores) from unit 1 to 6 of the novice EFL undergraduate student number one (NS1). Overall, the NS1 student's pre-test and post-test scores fluctuated. According to the pre-test scores, the lowest score was 2 scores (unit 5) and the highest score was 6 scores (unit 3). Regarding to the post-test scores, the lowest score was a score of 3 (unit 2 and 4), whereas the highest score was a score of 8 (unit 4). Although the post-test scores increased and decreased, the EFL novice student received the post-test scores higher than the pre-test scores in unit 2, 4 and 5. In summary, after participating in the reciprocal reading activities, the EFL novice student gained assistance from teacher and peers that reading comprehension ability may be improved.

Reading Comprehension Progress Test of EFL Novice Undergraduate Student Number Two (NS2) Before and After Using Reciprocal Reading Activities
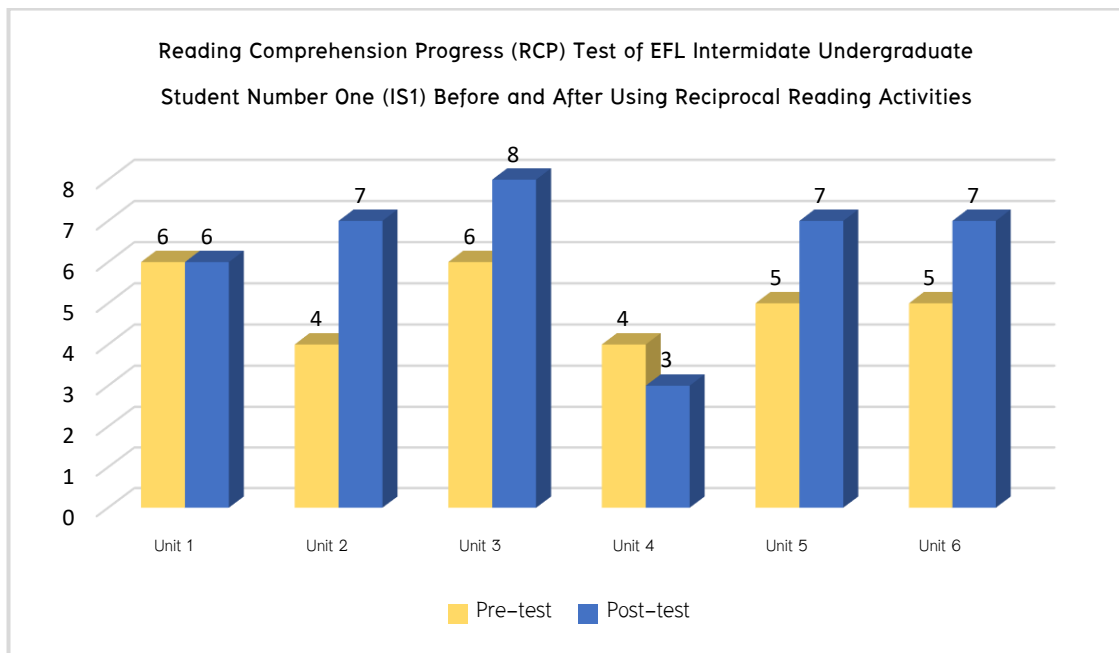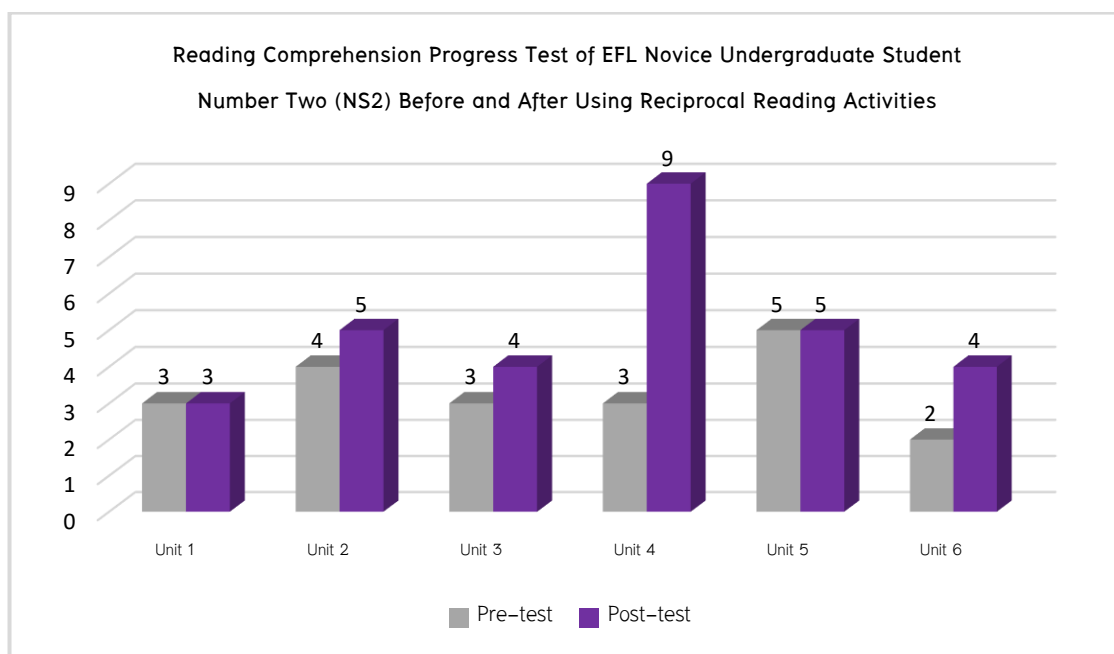
Figure 7 Scores of Reading Comprehension Progress Test NS2

Figure 7 illustrates the pre-test and post-test of the RCP test (total: 12 scores) of novice EFL undergraduate student number two (NS2). Overall, both pre-test and post-test scores fluctuated. The lowest pre-test score was 2 scores (unit 8); the highest pre-test score was 5 scores (unit 2 and 5). However, the NS2's post-tests score increased after participating in the RTM. This student gained the highest post-test score at 9 scores (unit 4).

Answer to Research Question 3:

Research Question 3) What are metacognitive strategies used by the different proficiency EFL students engaged in reciprocal reading activities?

The Metacognitive Strategies Used by the Different Proficiency EFL Students

To investigate how metacognitive reading strategies were used by the different proficiency EFL undergraduate students who participated the reciprocal reading activities using four multi-metacognitive strategies for reading comprehension. The observation form of cognitive and metacognitive reading strategies and characteristics were used as the data

collection. The figures below show cognitive and metacognitive reading strategies were used by six different proficiency EFL undergraduate students (2 advanced, 2 intermediate, 2 novice).

Metacognitive Strategies Used by Advanced EFL Undergraduate Students (AS1 & AS2) through the RTM	Frequency of Use

1. Pre-reading Process

Planning

(C30) Using dictionary[2]
(C4) Clarifying[1]
(C22) Predicting[1]

3 Types

EFL
AS1 +AS2

3. Post-reading Process

Evaluation

(C23) Questioning[1]
(C27) Summarizing[1]
(C30) Using dictionary[1]

3 Types

2. During-reading Process

Monitoring

(C23) Questioning[38]
(C17) Making a certain part of the text[6]
(C29) Translating[6]
(C24) Re-reading[5]
(C27) Summarizing[5]
(C4) Clarifying[3]
(C22) Predicting[1]
(C3) Breaking down larger phrases into smaller parts[1]
(M14) Working with classmates[1]

9 Types

Advanced EFL Students

(10 types)

Pre-reading: (3 types)
During-reading: (9 types)
Post-reading: (3 types)

The most frequent strategies
1. Questioning[39]
2. Making a certain part of text[6]
3. Translating[6]

Figure 8 Summary of Cognitive and Metacognitive Reading Strategies Used by Advanced EFL Undergraduate Students (AS1 and AS2)

Figure 8 illustrates the frequency of using cognitive and metacognitive reading strategies during reciprocal reading activities which advanced EFL students (AS1 and AS2) participated. *In the pre-reading process at stage of planning by using predicting strategy,*

AS1 and AS2 used 3 types of cognitive reading strategies; using dictionary (C30) for 2 times, clarifying (C4) for 1 time, and predicting (C22) for 1 time. *In the during-reding process at the stage of monitoring by using questioning and clarifying strategies*, the used 8 types of cognitive reading strategies and 1 type of metacognitive reading strategy. The cognitive reading strategies were questioning (C23) for 38 times, making certain part of the text (C17) for 6 times, translating (C29) for 6 times, re-reading (C24) for 5 times, summarizing (C27) for 5 times, clarifying (C4) for 3 times respectively. In this stage, there were some strategies were used only 1 time including predicting (C22), and breaking down larger phrases into smaller parts (C3) respectively. The advanced EFL students (AS1 and AS2) used metacognitive reading strategy at during-reading stage that is working with classmates (M14) for 1 time in order to enhance reading comprehension in a small group work. *In the post-reading process at the stage of evaluation by using summarizing strategy,* these advanced EFL students used 3 types of cognitive reading strategies only 1 time for each type including questioning (C23), summarizing (C27), and using dictionary (C30). In sum, during engaged in reciprocal reading strategies (predicting, questioning, clarifying, summarizing), AS1 and AS2 tended to focus on the during-reading stage that they used the cognitive and metacognitive reading strategies totally 9 strategies that questioning was their most preferable cognitive reading strategy.

Table 8 Examples of Cognitive and Metacognitive Reading Strategies that Mostly Used by Advanced EFL Undergraduate Students (AS1 and AS2)

Metacognitive Reading Strategies	Examples of Sentences	Keywords/Behaviors of Metacognitive Strategies
C23: Questioning (39 times)	AS1: ***What*** was marine engineering?	*"What"*
	AS1: Good! What was question number three?	
	Who created technology? And	*"Who"*
	Where did they work (Unit 1: Lines 5, 45)	*"Where"*

Table 8 (cont.)

Metacognitive Reading Strategies	Examples of Sentences	Keywords/Behaviors of Metacognitive Strategies
C17: Marking a certain part of text (6 times)	AS1: We had to different **_highlight_** the questions. What was question number one? (Unit 1: Line 36)	**_"highlight ..."_**
C29: Translating (6 times)	AS2: This sentence we could use to summarize. I found it. AS2: Ho! **_Translated_** it. (Unit 5: Line 20)	**_"translated..."_**
M14: Working with classmates (1 time)	Teacher: How did you clarify the word? AS1: Breaking the word, looking at the context clue, rereading, and **_asking friends_**. (Unit 4: Line 55)	**_"asking friend"_**

(see Appendix F)

Table 8 shows the evidences of cognitive and metacognitive strategies used by advanced EFL undergraduate students (AS1 and AS2) during engaged in the RTM. Mostly, the AS1 preferred to use questioning strategy using the questioning key words of the metacognitive strategy such as "what", "who", and "where". Importantly, there was an evidence that the AS1 and AS2 used metacognitive reading strategy while engaging in the during-reading stage through the use of working with classmate strategy (M14). The advanced EFL undergraduate students revealed that they worked with classmates (M14) by using a metacognitive strategy *"asking friends"* in order to clarify the word.

Metacognitive Strategies Used by Intermediate EFL Undergraduate Students (IS1 & IS2) through the RTM	Frequency of Use

1. Pre-reading Process

Planning

(C23) Questioning[4]
(C17) Marking a certain part of the text[1]
(C29) Translating[1]
(C31) Using the title[1]
(M14) Working with clatemates[1]

5 Types

EFL
IS1+IS2

3. Post-reading Process

Evaluation

(C27) Summarizing[2]
1 Type

2. During-reading Process

Monitoring

(C23) Questioning[39]
(C22) Predicting[5]
(C29) Translating[4]
(C24) Re-reading[3]
(M13) Vocabulary listing[3]
(M14) Working with classmates[2]
(C16) Looking for main ideas[2]
(C4) Clarifying[1]

8 Types

Intermediate EFL Students

(11 types)

Pre-reading: (5 types)
During-reading: (8 types)
Post-reading: (1 type)

The most frequent strategies

1. Questioning[43]
2. Predicting[5]
3. Translating[5]

Figure 9 Summary of Cognitive and Metacognitive Reading Strategies Used by Intermediate EFL Undergraduate Students (IS1 and IS2)

Figure 9 illustrates the frequency of using cognitive and metacognitive reading strategies during reciprocal reading activities which intermediate EFL undergraduate students (IS1 and IS2) participated. *In the pre-reading process at stage of planning by using predicting strategy,* the intermediated EFL students used 4 types of cognitive reading strategies: questioning (C23) for 4 times, making a certain part of text (C17), translating (C29), and using the title (C31) were used only for 1 time. In this planning stage, the intermediated EFL students also used metacognitive reading strategy namely working with classmate (M14) for 1 time. *In the during-reding process at the stage of monitoring by using questioning and*

clarifying strategies, the intermediated EFL students used 6 types of cognitive reading strategies. In this stage, questioning strategy (C23) was used mostly for 39 times followed by predicting (22) for 5 times, translating (C29) for 4 times, re-reading (C24) for 3 times, looking for main ideas (C16) for 2 times, whereas clarifying (C4) was used for 1 time respectively. Importantly, during reading stage, the intermediated EFL students also used two metacognitive reading strategies, namely 'vocabulary listing' (M13) for 3 times and 'working with classmates' (M14) for 2 times. *In the post-reading process at the stage of evaluation by using summarizing strategy,* only summarizing (C27) was used for 2 times as cognitive reading strategy. In brief, during engaged in reciprocal reading strategies, the intermediated EFL students tended to focus on the during-reading stage as they used the cognitive and metacognitive reading strategies totally for 8 types, and questioning was the most preferable cognitive reading strategy.

Table 9 Examples of Cognitive and Metacognitive Reading Strategies that Mostly Used by Intermediate EFL Students (IS1 and IS2)

Metacognitive Reading Strategies	Examples of Sentences	Keywords/Behaviors of Metacognitive Strategies
C23: Questioning (43 times)	IS2: ___*Who*___ designed and produced technology? (Unit 1: Line 25) IS1: ___*What*___ was about studying? Peer2: It had differences between technician, technology, and engineer. IS1: So, we could make the question "___*How long*___ did the technologist train?" (Unit 2: Lines 80, 129)	**"Who"** **"What"** **"How long"**

Table 9 (cont.)

Metacognitive Reading Strategies	Examples of Sentences	Keywords/Behaviors of Metacognitive Strategies
C22: Prediction (5 times)	IS1: … (please wrote)… "_**I thought I learnt**_ about the qualification of studying and when the students finished the course, they could do…" (Unit 2: Line 100)	**"I thought I learnt…"**
C29: Translating (5 times)	Peer1: We found the difficult word while reading. If we saw the difficult word, we would write it or find the meaning while reading. IS1: I _**translated text into Thai**_ too. (Unit 4: Line 36)	**"…translated text into Thai…"**
M13: Vocabulary listing (3 times)	IS1: Also, we could **compare between technical, technologist, and engineer.** What were they different? IS1: We had to give some information…. Talking about **education, training, and future career.** (Unit 2: Lines 34, 75) Peer3: There were two careers, that right? IS1: Hum…there was a paragraph that the writer talked about **engineer,**	This learner makes list and compares the relevant vocabulary to prepare for new reading (Thampradit, 2006).

Table 9 (cont.)

Metacognitive Reading Strategies	Examples of Sentences		Keywords/Behaviors of Metacognitive Strategies
	technician, environmental engineer, petroleum engineer (the word list of occupations...		
		(Unit 6: Line 29)	
M14: Working with classmates (2 times)	Peer1:	How was the CT Scan usefulness? This word "replacement" was difficult.	To get the meaning of "replacement", this learner assisted from peer to get the meaning of this word.
	Teacher:	How did you get the meaning of this word? "replacement"	
	Peer1 and IS1: *We **asked Pattarawarin**.*		
		(Unit 5: Line 40)	

(see Appendix F)

Table 9 shows some samples evidences of cognitive and metacognitive reading strategies were used by intermediate EFL undergraduate students (IS1 and IS2) while engaged in reciprocal reading activities. These EFL intermediate students mostly used questioning cognitive reading strategy (C23) which was used for 43 times through the use of key words such as "who", "what", and "how long". In this stage, the intermediate EFL students used 2 types of metacognitive reading strategies that were vocabulary listing (M13) and working with classmates (M14) while engaging in the pre-reading and during-reading processes in the reciprocal reading activities. During vocabulary listing (3 times), the intermediate learners tried to list the English words that they learned and compared the

words such as *"Also, we could compare between 'technical', 'technologist', and 'engineer'"*. Particularly, the metacognitive reading strategy namely "working with classmate" (M14) also used by the intermediate EFL students by reflecting that they were working with classmates to gain understanding of word meaning such as "we asked Pattarawarin.".

Metacognitive Strategies Used by the Novice EFL Undergraduate Students (NS1 & NS2) through the RTM	Frequency of Use

1. Pre-reading Process
Planning

(C23) Questioning[11]
(C4) Clarifying[5]
(C22) Predicting[4]
(C29) Translating[3]
(M14) Working with classmates[3]
(C24) Re-reading[2]
(C31) Using the title[1]
(C11) Finding the mainidea[1]
(C17) Making a certain part of the text[1]

EFL NS1+NS2

9 Types

Novice EFL Students
(13 types)

Pre-reading: (9 types)
During-reading: (12 types)
Post-reading: (2 types)

The most frequency strategies
1. Questioning[128]
2. Clarifying[19]
3. Translating[7]

3. Post-reading Process
Evaluation

(C23) Questioning[5]
(C27) Summarizing[2]

2 Types

2. During-reading Process
Monitoring

(C23) Questioning[112]
(C4) Clarifying[14]
(M14) Working with classmates[4]
(C11) Finding the main idea[4]
(C24) Re-reading[4]
(C27) Summarizing[4]
(C29) Translating[4]
(C30) Using a dictionary[3]
(C22) Predicting[2]
(C16) Looking for main ideas[1]
(C17) Marking a certain part of the text[1]
(C31) Using the title[1]

12 Types

Figure 10 Summary of Cognitive and Metacognitive Reading Strategies Used by Novice EFL Undergraduate Students (NS1 and NS2)

Figure 10 illustrates the frequency of using cognitive and metacognitive reading strategies during reciprocal reading activities which the novice EFL undergraduate students (NS1 and NS2) participated. *In the pre-reading process at stage of planning by using predicting strategy,* the novice EFL undergraduate students used 8 types of cognitive reading strategies namely questioning (C23) for 11 times, clarifying (C4) for 5 times, predicting (C22) for 4 times, translating (C29) for 3 times, re-reading (C22) for 2 times. Moreover, some cognitive strategies were used by EFL novice students only for 1 time including using the title (C31), finding the main idea (C11), and making a certain part of the text (C17). Surprisingly, in the pre-reading stage, metacognitive reading strategy was used by EFL undergraduate students (NS1 and NS2) for 3 times that was working with classmate. *In the during-reding process at the stage of monitoring by using questioning and clarifying strategies,* the novice EFL undergraduate students used totally 11 types of cognitive reading strategies that engaged in reciprocal reading activities, there were questioning (C23) for 112 times and clarifying (C4) for 14 times. In addition, the novice EFL undergraduate students used these following strategies for 4 times including finding the main idea (C11), re-reading (C24), summarizing (C27), and translating (C29). Furthermore, some cognitive reading strategies were used by the novice EFL undergraduate students only few times; using a dictionary (C30) for 3 times, predicting (C22) for 2 times, looking for main ideas (C16) for 1 time, making a certain part of the text (C17) for 1 time and using the tittle (C31) for 1 time. One metacognitive strategy was used by novice EFL undergraduate students in during-reading stage that was working with classmate (M14) for 4 times. *In the post-reading process at the stage of evaluation by using summarizing strategy,* the novice EFL undergraduate students (NS1 and NS2) used 2 types of cognitive reading strategies; questioning (C23) for 5 times and summarizing (C27) for 1 time. In sum, during engaged in reciprocal reading activities, NS1 and NS2 tended to focuses on pre-reading and during-reading stages that they used cognitive and metacognitive reading strategies totally 9 and 12 respectively. Surprisingly, questioning was the most preferable cognitive reading strategy for these novice EFL students.

Table 10 Examples of Cognitive and Metacognitive Reading Strategies that Mostly Used by Novice EFL Undergraduate Students

Metacognitive Reading Strategies	Examples of Sentences	Keywords/behaviors of (Meta)cognitive Strategies
C23: Questioning (128 times)	NS1: If you said that this story was about engineering. ***How*** did I write? NS1: ***What*** was this story about? (Unit 1: Lines 61, 117) NS1: ...and the other one asked "***How many*** sport equipment were there? Was it different? (Unit 4: Line 95) NS1: ***What*** artificial heart was made from? (Unit 5: Line 26)	"How" "What" "How many"
C4: Clarifying (19 times)	NS1: ***What was*** the property? NS1: Asked the meaning of this word) (Unit 4: Line 60)	"What was..."
C29: Predicting (6 times)	NS1: ***This topic was about***... NS2: ...was about technology in sport. Right? It could resistant... (I translated!) (Unit 4: Line 22)	"This topic was about..."
M14: Working with classmate (8 times)	NS1: I had just made the questions. ***Which part did we use to make the questions? Friends!*** Ok! I would tell you about some information to make questions.	This situation NL1 could make the question by asking Peer 1. He/she asked for helping by giving information,

Table 10 (cont.)

Metacognitive Reading Strategies	Examples of Sentences	Keywords/behaviors of (Meta)cognitive Strategies
	NS1: Engineers and technicians had to have qualifications and had to be responsibilities for their duty. They did work under the principles and theories. Peer1: Ok! You could ask "What did the engineers have to have/be? (qualification/principles to do work) NS1: _Ok! I got it_. (Unit 6: Lines 82–93)	After NL1 assisted from his/her Peer1, this NL1 could make the question and understand this part by the self.

(see Appendix F)

Table 10 shows the evidences of cognitive and metacognitive reading strategies were used by novice EFL undergraduate students (NS1 and NS2) while engaged in reciprocal reading activities. Questioning, the most preferable cognitive reading strategy was used by novice undergraduate students for 128 times through the key words of cognitive strategies such as "how", "what", and "how many". For the clarifying strategy, the key words were used by the novice students such as "what was...?" Moreover, the predicting strategy was used through the key words "This topic was about...?" Significantly, the metacognitive reading strategy namely "working with classmates" (M14) was used for 8 times during the NS1 and NS2 attempted to construct Wh-questions by using the key statement such as _"which part did we use to make the questions?"_ and _"OK! I got it."_

Answer to Research Question 4:

Research Question 4) What are the opinions of the EFL undergraduate students after engaged in multi-metacognitive reading strategies?

The Opinion of the EFL Students after Engaged in the Multi-Metacognitive Reading Strategies

To investigate the opinions of the EFL undergraduate students with different language proficiency after engaged in multi-metacognitive reading strategies. The semi-structured interview was used to interview the opinions of the EFL undergraduate students with different language proficiency after engaged in multi-metacognitive reading strategies (predicting, questioning, clarifying, summarizing). There were four questions: 1) What was the effects of using reciprocal reading activities in reading comprehension skill? 2) Which strategy did you most prefer and why? 3) Which strategy was too difficult for you? Why? 4) Would you prefer to use the reciprocal teaching method instead of the traditional method of reading? Why or why not? The descriptive analysis was discussed.

To analyze the qualitative data from the semi-structure interview to answer this research objective, the analytical framework was adapted from Davis's potential factors of reading comprehension (1944 cited in Pearson, 2005, p. 21). This reading comprehension factors included word meanings, word meanings in context, follow passage organization, main thought, answer specific text-based questions, text-based questions with paraphrase, draw interferences about context, literacy devices, and author's purpose (Davis, 1944 as cited in Pearson, 2005, p. 21), weaving together ideas in the context, recognizing the author's tone/ mood/ purpose, and following the structure of the content (Davis, 1944 as cited in Pearson, 2005, p. 22).

Interview question number 1: What were the effects of using reciprocal reading activities in reading comprehension skill?

Table 11 Effects of Reciprocal Teaching in Reading Comprehension Abilities

The EFL Students	The Interview Data	Effects of the RTM	
Advanced EFL Student 1	"…When I used this method, I knew the new word[1] from predicting by using title, made the Wh-question from questioning[2], guessed the meaning by using context clues[1] from clarifying, and summarized my main idea[3] from summarizing."	Predicting:	1. Words meaning in the context
		Questioning:	2. Text-based questions with paraphrase
			3. Weaving together ideas in the content
Advanced EFL Student 2	"I learned to guess the topic from title and picture from the predicting[1], using the new word to make the Wh-questions from the questioning[2], finding and asking the meaning of new words in a small group of work from clarifying[3], summarizing my understanding (words) from summarizing[4.]"	Clarifying:	1. Draw inference about the content
			2. Text-based questions with paraphrase
			3. Word meanings in context
		Summarizing:	4. Weaving together ideas in the content
Intermediate EFL Student 1	"I shared my idea and my experience with my friends in this teaching method (the RTM)"	Predicting:	–
		Questioning:	–
Intermediate EFL Student 2	"In the reciprocal teaching method, I exchanged my idea with friends and helped each other in small group of work. (It was not fixing the idea.)"	Clarifying:	–
		Summarizing:	–
Novice EFL Student 1	"I learned the new vocabulary from this method [1], and I could predict the title from headline or picture[2]. I learned the grammar from my friends[3] in the group to make the questions[4]. I learned prefix and suffix in the clarifying strategy[3]. In the summarizing strategy, I must ask my friends' ideas in the group to summarize[5]. (helping together)"	Predicting:	1. Word meanings in the context
			2. Draw inferences about the content
		Questioning:	3. Literary devices
			4.Text-based questions with paraphrase
Novice EFL Student 2	"I got learning the new vocabulary with my friend[1] and doing the group work in predicting. My idea liked my friend (EFL novice learner A) in questioning, clarifying, and summarizing strategies."	Clarifying:	–
		Summarizing:	5. Weaving together ideas in the content

According to Table 11, the result shows the effects of reciprocal teaching method in reading comprehension skills of six different proficiency EFL undergraduate students. First, the effects of the RTM in *the advanced EFL students*' reading comprehension abilities included learning word meanings in the context (3 evidences), constructing Wh-questions by using text-based questions with paraphrase (2 evidences), summarizing main ideas by weaving

together ideas in the content (2 evidences), and guessing reading topics by drawing inference about the content (1 evidence). Second, using the RTM also effected the *novice EFL students'* reading comprehension abilities in terms of learning word meaning in the context (2 evidences), learning literacy devices with peers to gain grammatical comprehension such as prefix and suffix (2 evidences), predicting reading titles by drawing inferences about the content (1 evidence), constructing Wh–question through text–based questions with paraphrase with peers (1 evidence), and summarizing what they learnt by weaving together ideas in the content (1 evidence). In sum, engaging in the RTM through four mains reading strategies provided positive effects to these EFL undergraduate students' reading comprehension abilities.

Interview question number 2: Which strategy did you most prefer and why?

Table 12 EFL Students' Preferences towards Multi–metacognitive Reading Strategies

The EFL Students	The Interview Data	Scaffolding Strategy Preferences	Reasons
Advanced EFL Student 1	"I liked summarizing the most because I could select the important part of the text for making my sentences."	Summarizing	–To make own sentences
Advanced EFL Student 2	"My favorite strategy was summarizing because I tried to summarize my own understanding to make the short paragraph by myself. Also, I could ask my teacher to help."	Summarizing	–To help own understanding of paragraph reading –To ask teacher for help
Intermediate EFL Student 1	"I liked summarizing the most because I practiced summarizing the main idea in short sentences. Also, this strategy linked to make questions and grammar practice."	Summarizing	–To summarize main idea –To set question and grammar practice
Intermediate EFL Student 2	"Questioning was the most strategy that I preferred because if I did not know the main idea of the text, I could not make the questions. Besides, I could find the examples of the Wh–questions from Google website."	Questioning	–To know the main idea –To find the Wh– question example from Google

Table 12 (cont.)

The EFL Students	The Interview Data	Scaffolding Strategy Preferences	Reasons
Novice EFL Student 1	"Predicting was my favorite strategy because I could look from the title or vocabulary that I got the meaning so, I knew what I learned."	Predicting	–To understand word meaning
Novice EFL Student 2	"I liked clarifying. I could open a dictionary when I did not know the difficult vocabulary. Also, I could ask my friend to help."	Clarifying	–To clarify difficult vocabulary meaning

According to Table 12, the result shows that different proficiency EFL students preferred different scaffolding strategies. The *advanced EFL students* preferred using summarizing out of four multi–metacognitive reading strategies because they could make own sentences, understand the paragraph reading, and ask for helping from teacher. In addition, *intermediate EFL students* preferred questioning and summarizing in order to understand main idea and write them. Lastly, *novice EFL students* preferred predicting and clarifying since they focused on vocabulary level. The novice students seek to understand and clarify word meaning.

Interview question number 3: Which strategy was too difficult for you and why?

Table 13 The Most Difficult Multi−metacognitive Reading Strategy and Reasons

The EFL Students	The Interview Data	The Most Difficult Strategy	Reason
Advanced EFL Student 1	"Summarizing was the most difficult because I had known or understood the context first. Then I could summarize my sentences."	Summarizing	– Gained insufficient understanding of reading from the context.
Advanced EFL Student 2	"Summarizing was the most difficult because I had known the lots of vocabulary, made the meaning, used translating strategy to support, used the background of grammar to make the suitable sentences by self."	Summarizing	– Struggled to construct sentences with correct grammar by the self.
Intermediate EFL Student 1	"Summarizing was the most ambitious strategy because some reading topics introduced a little bit detail…"	Summarizing	– Gained few details in some reading texts
Intermediate EFL Student 2	"Summarizing was the most difficult strategy because there were lots of information or detail in the reading text…"	Summarizing	– Had lot of information and details for summarizing
Novice EFL Student 1	"Summarizing is the most difficult because I would understand the exact main idea of the text and vocabulary to make the clear summarizing."	Summarizing	– Lacked of understanding of main idea and vocabulary for summarizing
Novice EFL Student 2	"Summarizing was the most difficult because I did not know the main idea of the text to summarize my sentences and I did not know the conjunctions and grammar to make the summarizing."	Summarizing	–Lacked of knowledge about main ideas and grammar for summarizing

According to Table 13, the result shows that advanced, intermediate, and novice EFL students indicated that summarizing was the most difficult scaffolding strategy. According to Table 16, *the advanced EFL students* struggled with summarizing because they lacked of understanding of the reading context, and could not write in a sentence level individually. *For intermediate EFL students,* summarizing was difficult for them since they faced with

problems in terms of few details from the reading text and overload information for summarize. Finally, *the novice EFL students* found that summarizing was difficult because of their lack of knowledge of vocabulary, main idea, and grammar.

Interview question number 4: Would you prefer to use the reciprocal teaching method instead of the traditional teaching method of reading? Why or why not?

Table 14 The EFL Students' Reciprocal Teaching Method (RTM) Preferences

The EFL Students	The Interview Data	Teaching Method Preference (RTM)
Advanced EFL Student 1	"I preferred the reciprocal teaching method because I could do reading activities with my friend and share my opinion in my group. I was not anxious."	–To participate group activity with friends –To overcome anxiety
Advanced EFL Student 2	"I thought reciprocal teaching method was good because I could share the idea with my friend and did the reading activities in group work."	–To share idea with friends –To do reading activities in a group work
Intermediate EFL Student 1	"…I would gain more understand than reciprocal teaching method because the teacher had a deep understanding of the reading text to explain. …I could share the opinion and knowledge with friends, and I was active when I did the group work."	–Teacher can explain deeper understanding –Student can share opinion with friends and do reading activities in a group work
Intermediate EFL Student 2	"I prefer reciprocal teaching method because I was enthusiastic and consulted my peers. Besides, a teacher could assist me when I had the problems."	–To consult with peers –To receive assistance from teacher
Novice EFL Student 1	"I preferred reciprocal teaching method than traditional way because I had practiced thinking with other people in a small group and learned from others to make my understanding. Moreover, it was a permanent role to practice a reading skill. (It was not only remembering practicing skill)."	–To practice thinking skill with other students in small group work –To practice reading skill
Novice EFL Student 2	"I liked the reciprocal teaching method because it was easy to understand. (There was the step by step to practice.)"	–Easy to understand

According to Table 14, the result from the interview shows that most EFL students preferred the RTM with their peers. The *advanced EFL students* reflected that they preferred the RTM because they could learn reading with peers and teacher in order to participate

reading activity in a group work with peers, to share ideas with peers, and to overcome anxiety while reading in English. Similarly, the *intermediate EFL students* indicated that they preferred the RTM because they could gain more understanding and assistances from the teacher as well as gain more opportunities to share opinions and consults with peer in group works of reading activity. For *the novice EFL students,* they preferred the RTM because of opportunities to practice reading skill and thinking skill with peers and to learn reading in English easily in small group works.

Conclusion

The main presented throughout this chapter from both quantitative and qualitative data. The quantitative results showed that overall the experimental group gained higher scores than the control group in the post-test after engaged in the RTM. The qualitative results showed that most of the EFL students paid attention on the during-reading stage while engaged in the RTM. Clearly, the cognitive reading strategies were used by these the EFL students rather the metacognitive strategies. The most preferable cognitive reading strategies were questioning and clarifying. Although the EFL students had different proficiency, the advanced, intermediate, and novice groups focused on the during-reading process and preferred to use 'questioning' as their reading strategy. The reasons for using 'questioning' cognitive reading strategy were in order to overcome reading problems in terms of understanding of titles and main ideas, asking for helps from peers and teacher about word meanings, more information of reading text, word pronunciation, and translation.

Significantly, two types of metacognitive reading strategy were used namely 'working with classmates' and 'vocabulary listing'. According to the results, the EFL students mentioned that the effects of 'working with classmates' metacognitive reading strategies were to gain opportunities to ask for helps from peers in order to solve problems of vocabulary meaning, vocabulary translation, and main idea understanding. For 'vocabulary listing', the EFL students used this metacognitive reading strategy in order to compare word meaning and to answer Wh-questions given in the RTM. These key results require detailed discussion, which is offered in the next chapter.

CHAPTER V

CONCLUSION

This chapter aims to summarize the main findings of this study based upon the research questions in terms of (1) the effectiveness of reciprocal teaching method (RTM) in enhancing EFL learners' reading comprehension between experimental and control group, (2) metacognitive strategies used by the different proficiency EFL readers engaged in reciprocal reading activities, (3) the readers' reading comprehension achievements based on reciprocal reading activities through metacognitive strategies and (4) the opinions of the EFL students. At last, recommendations for the future research study are presented.

Conclusion Research Question 1:

The Achievements of the EFL Undergraduate Students between the Group with Reciprocal Teaching Method (RTM) and Traditional Teaching Method (TTM)

Based upon the research question number one, the findings of this study show that the scores of the Reading Comprehensive Progress (RCP) post-test of the EFL learners in the experimental group using the RTM were higher than those of the EFL learners who participated in the control group using the TTM. The finding reflects that the use of RTM is able to enhance the reading comprehension ability of the EFL learners. This echoes the work of Arif (2016) and Komariah, Ramadhona and Silviyanti (2015) in that the use of RTM could enhance the reading comprehension ability with EFL university learners and this method promoted learners to be active, work cooperatively and gain confident. The evidence also supports the study of using RT can improve reading comprehension ability with the two group of EFL learners taught with and without the RTM intervention. The experimental group taught by the RTM gained a greater effect on reading comprehension than the group without it (Ayun & Yunus, 2017). Besides, the investigation by Navaie (2018) indicated that there was a significant difference between two groups of the intermediate EFL learners. After treatment the group with the Reciprocal Teaching Procedure (RTP), the post-test score of the EFL learners was higher than a group with Traditional Teaching Method (TTM). In addition, the

study of using the RTM to enhance reading comprehension ability by Alsaraireh and Hamid (2016) confirmed that reciprocal teaching had a positive effect on the reading comprehension achievement for both male and female EFL university learners. Thus, the findings of this current study along with the previous studies indicated that the reciprocal teaching method (RTM) provide positive effects in terms of reading comprehension ability achievement of different proficiency EFL learners.

The evidence from the previous research study, reciprocal teaching was the teaching aid to assist the EFL learners to improve the reading comprehension. Also, all EFL learners who trailed with the use of reciprocal teaching activities in the reading instruction, demonstrated their reading reading comprehension ability was improved. Research from Raslie, Mikeng and Ting (2015) indicated that the reciprocal teaching was the positive effect on struggling readers' comprehension of the narrative text and it was positive effect to their reading comprehension skills. In addition, Ahmadi and Gilakjani (2016) studied the effects of reciprocal teaching strategy on reading comprehension, motivation and metacognition among Iranian EFL university learners. The result found that reciprocal teaching is a significant has positive effect on reading comprehension, reading motivation and reading meta-cognition. In the same way, Yawisah, (2017) emphasized that reciprocal teaching was the cognitive and metacognitive domains that enable learners to manage the stages of planning, monitoring, and evaluation for their learning activities. Also, it could enhance the readers' thinking process through four multi- metacognitive reading strategies: predicting, questioning, clarifying, and summarizing. Also, reciprocal teaching was able to improve EFL learners' reading comprehension and EFL learners' attitude (Pudjobroto, Purwoko & Setyaningsih, 2014). Furthermore, the study of Marquis (2017) also found that there was a significant difference between groups with and without reciprocal teaching on the incorporate online forum course, A group with reciprocal teaching method was higher level of thinking than a group without.

Conclusion Research Question 2:

The Achievement of the EFL Undergraduate Students after Engaged in Reciprocal Reading Activities

Regarding the research question number two, "What are the achievements of the EFL undergraduate students after engaging in reciprocal reading activities?", the finding of this current study uncovered that the EFL undergraduate students gained higher post-test scores after engaging in the reciprocal reading activities. From the findings, it seems to be clear that the reciprocal reading activity can enhance reading comprehension ability through the reciprocal reading instructions. That is, reciprocal reading activity plays an important role in helping the EFL students to encounter in the early stage of reading comprehension through four main RT strategies namely predicting, questioning, clarifying, and summarizing. The findings of this study also revealed that the use of these four main strategies can help the EFL learners to overcome reading problems while engaging in the reading activities with teacher and peers, consequently their reading comprehension ability seemed to be improved.

Findings from the framework of this study of reciprocal teaching are based upon the Sociocultural Theory (SCT) contributed by Vygotsky (1978) as cited in Hammond (2001). There was some evidence that found from this research that within 'the teacher to learners' or 'learner to learner' interacted with promoted understanding within the social setting. Besides, when the different proficient EFL learners interact with the different knowledgeable person (e.g., teacher and classmate) then the learners' reading comprehension was improved by the assistance from the other. This situation could extend the zone of actual develop to the zone of proximal development. The examples that found from previous research studies would be supported these notions and this research finding as the following discussion.

Reciprocal reading activities allow the EFL students to gain more opportunities to develop reading comprehension ability while engaging in small group work with teacher and peers. That is, when a learners' potential ability to learn with help from an expert or a more capable peer, it is so called **"the zone of proximal development or ZPD"** (Ahmadi & Gilakjani, 2012, p. 2057). Hence, engaging in the ZPD with experts such as teacher or more knowledgeable peers, "learners can push themselves from the actual development level to the potential level or learn beyond their actual development level with explicit scaffolding through social interaction

until they internalize the strategies (Rosenshine & Meister, 1994 as cited in Ahmadi & Gilakjani, 2012, p. 2057). The findings of this current study is also in line with a study of Dehqan and Samar (2013) which conducted underpin the sociocultural perspective that learners can move from the Zone of Actual Development level or (ZAD) that learners can solve the reading problems by themselves to the Zone of Proximal Development or (ZPD) or that readers need help from other persons to solve the problems. In essence, reciprocal reading strategies could assist EFL learners to improve both reading comprehension ability and metacognitive strategy.

Regarding the **Sociocultural Theory**'s perspective, learning to read through the reciprocal reading activities with teacher and peers provides evidence that the EFL learners gained more opportunities to engage in *'social interaction'* with teacher and peers, to practice reading in English step by step through the meaningful social context, to solve reading problems by themselves after teacher scaffolding and peer scaffolding and finally to read by themselves with less assistance from teacher and peers. This finding is in line with the previous study of Yoosabai (2009) which revealed that "social interaction in reciprocal teaching starts from the teacher as an expert and is directed at the students. Then through the working groups, it transfers to student-to-student interaction" (p. 110). In learning to read through reciprocal teaching, learners gained the opportunity for planning before reading, controlling their own idea, organizing their own rules, and evaluating themselves after learning in the reading processes. (Ahmadi & Gilakjani, 2012). Consequently, after gaining more chances to plan, monitor, and evaluate their reading problem solving, thereby "reciprocal teaching develops reading comprehension and promotes readers to be better in reading and helps them reach the most important goal of reciprocal teaching, becoming independent readers" (Ahmadi & Gilakjani, 2012, p. 2054).

The finding of this study reveals that the reciprocal reading activity can provide explicit reading instruction and that the EFL learners gain opportunities to gain **scaffolding** from both teacher and peers. This finding is in accordance with a study of Delaney-Beane (2017) which revealed that reciprocal teaching can scaffold reading comprehension of non-fiction text. To gain reading comprehension through dialogue, Delaney-Beane (2017) suggested that students received scaffolding through the reciprocal teaching. Leaning to write through conversations

with teacher and peers, *'scaffold comprehension'* emerged since "the use of the four strategies, predicting, clarifying, questioning, and summarizing, provided opportunities for the students to think about what they were reading. Therefore, the strategies led to a better understanding or comprehension of the text" (pp. 45–46). In addition, this finding confirms a study of Yoosabai (2009) which uncovered that "reciprocal teaching provides scaffolding through explicit instruction involving the modeling and explanation of the four main strategies, guided practice, independent practice, and the application of the strategies by the students themselves" (p. 30).

Conclusion Research Question 3:

Metacognitive Strategies Used by the Different Proficiency EFL Readers Engaging in Reciprocal Reading Activities

With regards the research question number three, this finding shows that cognitive and metacognitive reading strategies were used by the different proficiency EFL readers who engaged in reciprocal reading activities. Figure 11 illustrates the types of cognitive and metacognitive reading strategies used by three different proficiency EFL readers engaged in reciprocal reading activities.

1. Pre-reading Process

Planning

Cognitive Reading Strategies

(C23) Questioning[15]

(C4) Clarifying[5]

(C22) Predicting[5]

(C29) Translating[4]

(C31) Using the title[4]

(C24) Re-reading[2]

(C17) Making a certain part of the text[2]

(C11) Finding the main idea[1]

Metacognitive Reading Strategies

(M14) Working with classmates[4]

Different

Proficiency

EFL Readers

3. Post-reading Process

Evaluation

Cognitive Reading Strategies

(C27) Summarizing[4]

(C23) Questioning[3]

(C30) Using dictionary[1]

2. During-reading Process

Monitoring

Cognitive Reading Strategies

(C23) Questioning[189]

(C4) Clarifying[16]

(C29) Translating[14]

(C24) Re-reading[12]

(C27) Summarizing[9]

(C22) Predicting[8]

(C17) Marking a certain part of the text[7]

(C11) Finding the main idea[4]

(C30) Using a dictionary[3]

(C16) Looking for main ideas[3]

(C31) Using the title[1]

(C3) Breaking down larger phrases into smaller parts[1]

Metacognitive Reading Strategies

(M14) Working with classmates[8]

(M13) Vocabulary listing[3]

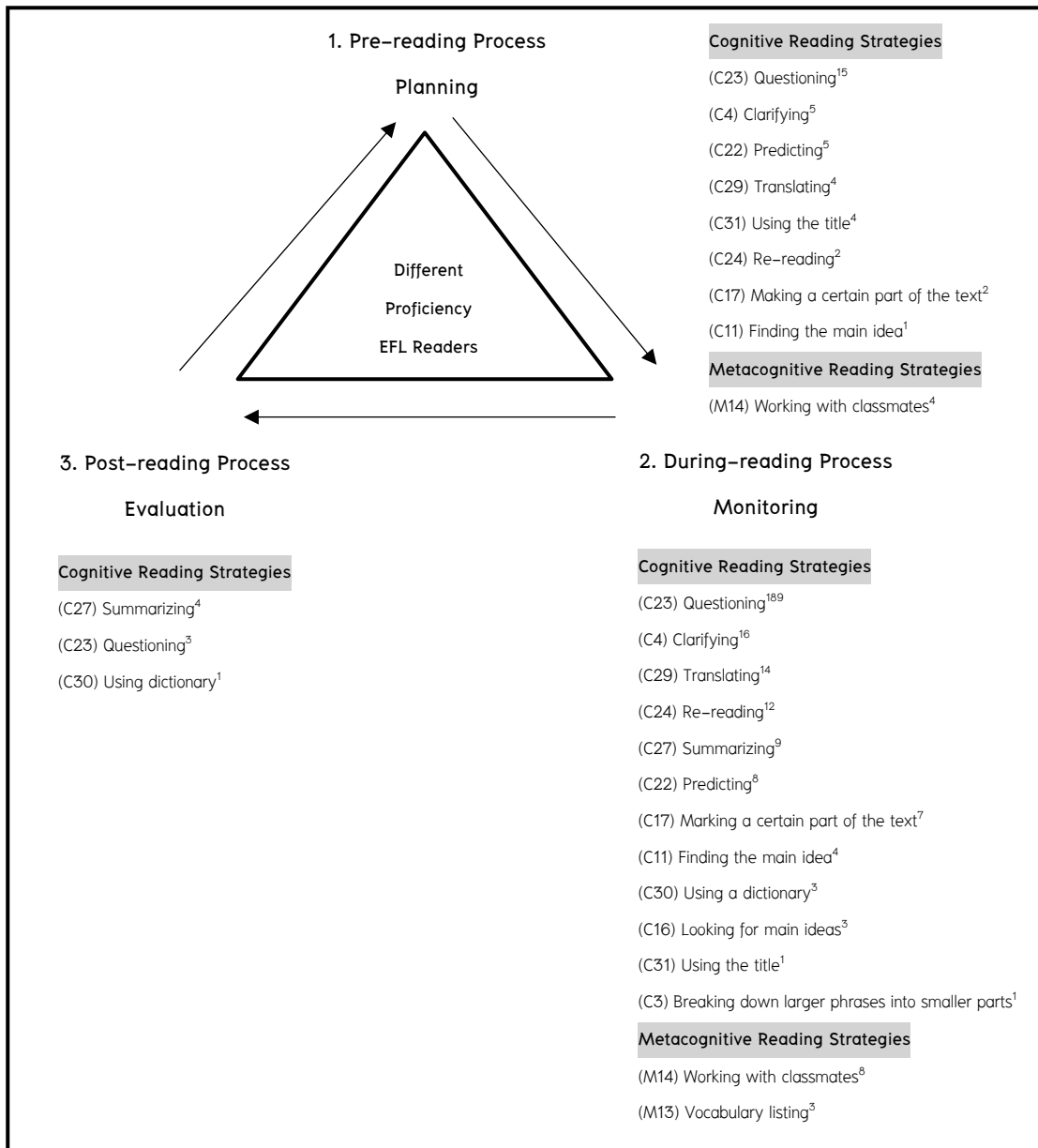Figure 11 Metacognitive Reading Strategies Used by Different EFL Proficiency

Readers through Reciprocal Reading Activities

Cognitive Reading Strategies Used by the EFL Students While Engaged

in the RTM

Questioning

The findings of this study show that the advanced, intermediate, and novice EFL learners mostly used cognitive reading strategy namely 'questioning'. This finding is similar

to the result of the study conducted by Awada and Plana (2018). These two researchers found that the use of questioning strategy in the reading comprehension was 100% effective because this strategy encouraged EFL learners to discuss with their peers in small groups work and it improved oral fluency and reading comprehension ability among these EFL learners. In addition, in the EFL reading class, EFL learners tried to make the meaning of questions by using new words and when EFL learners made their own questions they expected to get the answers from the discussion with their friends (Prastyo & Rodli, 2017).

Clarifying

The finding of this study reveals that clarifying strategy was used to identify the unknown and difficult words in the part of sentence by asking peers or using dictionary, echoing a study of Palincsar and Brown (1984 as cited in Mongkolrat, 2017). This study found that the clarifying strategy was used by the novice EFL learner to find the meaning of the difficult words while participating in the reciprocal reading activity at pre-reading and during reading process. According to the current, the EFL novice learner used the dictionary to assist his/ her own learning whithin the small group of the reading activities. He/She found the meaning of the difficult words or interpreted the meaning. This finding also agrees with Maharani, Rosnija and Sudarsono (2019), they found that when EFL learners did reading activities in a group work they were critically evaluating the meaning of unknown words and phrases.

Translating

Based on the research finding of this study, translating strategy was used by different proficient EFL learners to translate difficult words, phrases or paragraphs in the reading activities through reciprocal reading activities at pre-reading and during reading processes. In the same way, this finding is in line with a study of (Mollaei, Sadighi & Taghinezhad, 2017) which revealed that translating was used as a strategy in EFL classroom both teaching and learning grammar, sentence, and vocabulary. Moreover, the finding of this study also supported that translation was used to support readers to understand the content of the source text for reading comprehension (Reid, 1993 as cited in Farahani, Rezaei & Masoomzadeh, 2019). In addition, a study conducted by Sakurai (2015) revealed that EFL learners in Japan used translation strategy to translate English into Japanese language to promote their understanding.

Sakurai (2015) claimed that stopping translation caused the amount of reading growth to slow (e.g., grammar practicing, words recognition and amount of readings). Thus, all the findings above indicated that translation strategy was a good reading strategy for the EFL learners as a basement to get the meaning of the reading text.

Re-reading

Re-reading was used by the EFL learners that participated in this study as a cognitive reading strategy while engaging in pre-reading and during reading processes in order to get the meaning of new words, understand text meaning, and summarize the main idea that employed by EFL reading instruction. Similarly, the previous study of Ozek and Civelek (2006) collected data from questionnaires and found that re-reading was frequently used by EFL fourth year learners (77%) because re-reading could help them to develop the academic text. However, EFL first year learners needed to develop re-reading strategy because when this strategy was employed by them, they were uncertain about using it to cope with the demands of the academic study. According to the finding from this current study, re-reading was used by three different proficiency EFL learners. For advanced and intermediate EFL learners used re-reading only at the during-reading, similarly novice EFL learners also used re-reading at the pre-reading and during-reading processes. Therefore, re-reading cognitive strategy plays an important role for these EFL readers throughout the pre-reading and during-reading process in order to help them to focus on the reading text with a hope to gain reading comprehension.

Metacognitive Reading Strategies Used by the EFL Undergraduate Students

Working with Classmate

The findings of this study uncover that working with classmates and vocabulary listing as metacognitive reading strategies were used by the EFL learners. Working with classmates was used as a metacognitive reading strategy by the advanced, intermediate and novice EFL learners. Particularly, the novice EFL learners mostly used 'working with classmates' more often than the advanced and intermediate learners. These novice learners preferred to use the "working with classmates" strategy with an aim to ask for helps from

their peers in regards to *vocabulary meaning, vocabulary translation, and main idea understanding* during pre-reading and during-reading processes. This finding was supported by Thampradit (2006) that working with classmates and vocabulary listing were the metacognitive reading strategy. They were used by Thai Engineering EFL learners while they read an expository text. Engineering EFL learners used working with classmate to help them developed their reading skill. In addition, they used vocabulary listing to make a list of relevant vocabulary to prepare for new reading. This study found vocabulary listing was used 3.61% and working with classmate was use 3.20%.

Vocabulary Listing

Vocabulary listing was used as metacognitive reading strategy while the intermediate EFL learner engaged in during-reading processes in order to compare word meanings and to answer Wh-questions. According to the evidence from the qualitative data, the intermediate EFL learner who used vocabulary listing strategies may be because the learner wanted to monitor himself/herself in order to pay attention on clarifying word meanings and to answer the reading question while engaging in during-reading process. This finding is in accordance to the study of Ho and Kuo (2012) which found that word list strategy helped EFL learners' retention the studying, discovering the meaning of the unknown words and quickly skimming the words for testing.

Metacognitive Strategies as a Scaffolding Strategy to Enhance Reading Comprehension

Metacognitive strategies were used by the EFL students when they were confronted with reading difficulties while participating in reading activities with their peers. During the reciprocal reading activities, the learners used metacognitive strategies, namely working with classmates and vocabulary listing, when they struggled to understand reading text during pre-reading and during-reading processes. This use of metacognitive strategies as a scaffolding strategy seems to link to reading comprehension when the students could solve reading problems while working with their peers during reciprocal reading activities. This finding also echoes the statement of Dabarera, Renandya, and Zang (2014) who viewed that "explicit teaching strategies could promote better metacognition and reading comprehension" (p. 463).

Dabarea and colleagues (2014) revealed that metacognitive strategy instruction was effective in increasing metacognitive awareness, and was linked to statistically significant reading comprehension gains (p. 471). Similarly, Abdul-Majeed (2015) also viewed that developing the metacognitive strategy was linked to reading comprehension. The researcher claimed that "metacognitive strategy of scaffolding, i.e., the explicit teaching of strategies enabled the students to complete the reading tasks independently and confidently" (Abdul-Majeed, 2015, p. 107). In brief, the finding of this study reflected that metacognitive reading strategies were used as scaffolding strategy that could assist both novice and advanced EFL learners to improve their reading comprehension by "giving EFL learners a chance to discover and understand by themselves, i.e., to be active and independent learners" (Abdul-Majeed, 2015, p. 106).

Metacognitive Reading Strategies to Enhance Self-Regulation

The findings of this study revealed some evidence of the link between metacognitive reading strategies and self-regulation of the EFL leaners while they participated in reciprocal reading activities. Based on the social cognitive learning theory, Zimmerman (1989, p. 1) defines self-regulation as the degree to which learners are "metacognitively, motivationally, and behaviorally active participants in their own learning process" (as cited in Maftoon & Tasnimi, 2014, p. 4). According to Zimmerman (1989, p. 6), metacognitive decision-making these processes involve planning and controlling, during these processes, "students' effectiveness in planning and controlling their use of personal, behavioral and environmental strategies to learn is one of the most visible signs of their degree of self-regulation" (as cited Maftoon & Tasnimi, 2014, p. 5). The findings this study also revealed that after Thai EFL students entered into planning and controlling (or monitoring) reading processes during write the worksheet, they entered into the use of metacognitive reading strategies in order to achieve self-regulation. The evidences of self-regulation strategies were relevant to the use of self-questioning (i.e. 'what did I write?' and self-monitoring (i.e. of novice EFL learners while they attempted to monitor themselves during-reading stage. Similarly, the study of Berkeley, Marshak, Mastropieri and Scruggs (2011) also recovered the effectiveness of self-questioning strategies for improving students reading comprehension. In the same way,

Chandio and colleagues (2015) pointed out that self-regulated behavior needs monitoring as a strategy to identify reading comprehension ability while reading. They indicated that teaching questioning strategy (as a metacognitive reading strategy) was the positive effects for training students to be the strategic readers. Also, it could enhance the readers' reading comprehension. Likewise, the study of Berkeley, Marshak, Mastropieri and Scruggs (2011) also uncovered the effectiveness of self-questioning strategies for improving students reading comprehension. To sum-up, using metacognitive reading strategies, as a self-regulation, while confronted with reading difficulties assist EFL learners to plan, monitor and evaluate themselves, thereby leading them to reach on early stage of reading comprehension.

Conclusion Research Question 4:

The Opinions of the EFL Undergraduate Students after Engaging in Multi-metacognitive reading strategies?

Multi-metacognitive Strategies Used by the EFL Undergraduate Students during the RTM

Four multi-metacognitive strategies namely predicting, questioning, clarifying and summarizing were used as metacognitive reading strategies to encourage comprehensible input among the EFL learners while engaged in reading activities. The findings from the qualitative data by using four semi-structured interview questions are discussed as follows:

Predicting

The predicting strategy was used by advanced and novice EFL learners in order to gain reading comprehension while they engaged in pre-reading processes. According to the findings of this study, the advanced EFL learners and novice EFL learners tend to use predicting as a multi-metacognitive reading strategy since they tried to understand the reading title through predicting new words and pictures. This finding was similar to a study of Pudjbroto, Purwoko and Setyaningsth (2014) which revealed that the EFL students predicted the content of text based on the reading title. In addition, Palinscar (1986) stated that by using predicting strategy, learners were able to guess what the content was about through title and picture as cited in Ayun and Yunus (2017).

Questioning

The metacognitive reading strategy observation form and the use of audio recordings as the qualitative data collection strategy revealed that novice, advanced, and intermediate learners used questioning strategy respectively during they were participating in pre-reading, during-reading, and post-reading processes with their peers. Firstly, questioning strategy was mostly used by the novice EFL learners in order to clarify understanding of reading titles, reading main ideas, and to ask for helps from peers how to answer the given Wh-questions in the reading activities. Secondly, the advanced EFL learners used questioning as a cognitive reading strategy as the second group, less than the novice EFL groups, to restate the Wh-question for own understanding, to clarify the given questions, to ask peers for word meaning, more information about reading text, word pronunciation, and translation. Thirdly, the intermediate EFL leaners used the least questioning strategy with the aims to make Wh-questions with peers, restate Wh-questions that were made, reread Wh-questions to share with peers, and to check answers that they have made. These findings were similar to a study of Pilten (2016), this researcher investigated the effects of reciprocal teaching in comprehending expository texts with the students at the primary school. Pilten (2016) found that the learners needed to make questions, consequently they were active to write questions and also paid more attention on the content of writing text. Similarly, Prastyo and Rodli (2017) studied the applying reciprocal teaching method in teaching reading, these researchers supported that learners using content of the text or reread to confirm the correct form of making questions in a group work.

Clarifying

Clarifying strategy was used by the advanced and novice EFL learners in order to gain reading comprehension while they confronted with problems during-reading activities. Similarly, according to King and Johnson (1999), clarifying is defined as a strategy that readers used while participated in the comprehension monitoring process with the purpose to overcome confuse and reading problems (as cited in Alsaraireh, 2016). Based on the findings of this current study, the novice EFL learners used the clarifying strategy during monitoring stage at during reading process in order to clarify word and phrase meanings that were very difficult for them, or they were not familiar with the ambiguous words or phrases.

This finding is in accordance to the finding of Ledagree (2002) which revealed that readers monitored their comprehension when they found out the extent of reading comprehension (as cited in Alsaraireh, 2016). Moreover, these results support the finding by Pudjbroto, Purwoko and Setyaningsth (2014) which revealed that the EFL students guessed the clues (clarifying) that was given by peers and teacher in the reading instruction. In brief, the EFL learners tended to use clarifying strategy when they were confronted with reading problems in terms of unfamiliar or difficult vocabulary when they wrote questions or answers during reading activities.

Summarizing

Summarizing strategy was used by advance and novice EFL learners in order to gain reading comprehension by focusing on main ideas, new words and shared ideas with peers. Advanced EFL learners mentioned that they preferred summarizing strategy with the purposes to make their own sentences, to enhance understanding of paragraph reading. In addition, intermediate EFL learners viewed that summarizing supported learners to gain opportunities to make Wh-questions and to engage in grammar practice. However, EFL novice learners indicated that they did not prefer summarizing. Although, summarizing was the preferred reading strategy among EFL learners, the Thai EFL learners claimed that summarizing was the most difficult strategy for them. To this point, intermediate EFL learners mentioned that lack of details and information could cause them to struggle in a summarizing stage. For novice EFL learners, summarizing was difficult for them because they did not understand the main ideas and lacked of grammatical knowledge. In addition, the findings from this study indicated that the summarizing strategy was the most preferred strategy; however, summarizing was viewed that it was the most difficult strategy for the EFL learners. Furthermore, the study of Khoshsima and Rezaeian (2014) supported that summarizing strategy had a significant effect on intermediate EFL learners' reading comprehension. These researchers regarded summarizing as an effective strategy for reading instruction. Based on the findings from Kabgani and Zafarani (2014), the study of summarization strategy training and reading comprehension for EFL learners, they found that summarizing strategy was trained for EFL learners, it was the effective strategy in enhancing EFL learners' reading comprehension. Additionally, summarizing strategy could improve long-term memory and the use of effective mental skill (Özdemir, 2018).

Both Quantitative and Qualitative Data Conclusion

The conclusion from quantitative data shows that reciprocal reading activities affect the reading comprehension ability with different proficiency EFL learners when we look at the score of the Reading Comprehension Progress (RCP) test from units 1 to 6. In addition, the result from qualitative data concluded that reciprocal reading activities (using four multi-metacognitive reading strategies) could enhance reading comprehension ability with different proficient EFL learners. *Predicting* could help the different proficient EFL leaners to predict the tittle, also it could help them to use many metacognitive reading strategies (e.g., questioning, clarifying, predicting, translating, using the title, re-reading, making a certain part of text, finding a main idea, and working with classmate) in the pre-reading process. *Questioning* could help the different proficient EFL leaners to make the meaning of questions and clarifying could help them to clarify the difficult vocabulary meaning. These strategies assisted the different proficiency EFL learners to use many metacognitive reading strategies (e.g., questioning, clarifying, translating, re-reading, summarizing, predicting, making a certain part of text, finding the main idea, using a dictionary, looking for main idea, using the title, braking down larger phrases into smaller parts, working with classmate, and vocabulary listing) in the during-reading process. Also, *summarizing* could help the different proficiency EFL learners to use (meta)cognitive reading strategies (e.g., summarizing, questioning, using dictionary) in the post-reading process. Furthermore, based on Palinscar and Brown (1984) as cited in Ahmadi & Gilakjani, 2012) reciprocal reading method through a small group of interaction with others could engage the learning process with the other different proficiency EFL learners. It was surprising that novice EFL learners used many metacognitive reading strategies to comprehension the text through assisted from others. This finding is different from others finding that, good readers used more metacognitive reading strategies than poor readers.

In summary, reciprocal reading activities through four multi-metacognitive reading strategies namely predicting, questioning, clarifying, and summarizing were effective teaching strategies for EFL learners' reading comprehension ability achievements and they could engage different proficiency EFL leaners to use metacognitive reading strategies to

comprehend the text. Therefore, these activities should be regarded as the effective teaching method in the EFL reading instruction for EFL classroom.

Recommendations

Based on the findings from this research study, the recommendations are offered as follows.

1. Follow up the use of reciprocal reading activities (predicting, questioning, clarifying, summarizing) with other subjects and skills which should be investigated using both quantitative and qualitative data (questionnaire and interview).

2. For the participants in this research, summarizing is the most challenging strategy. So, the future research study should investigate the effects of summarizing how this strategy affects the reading comprehension ability or investigate the other teaching methods that support summarizing strategies with the different proficiency EFL learners. Also, all of EFL learner's frequency use questioning as a cognitive reading strategy at the Planning and Monitoring reading stages in the pre-reading and during-reading processes. Thus, the questioning strategy should be investigated with emphasis for the future study.

3. From Reading Comprehension Progress (RCP) test, all EFL students mostly gained the score of post-tests higher that the score of pre-tests. The researcher should investigate the sustainability of using reciprocal teaching method intervention with others language skills.

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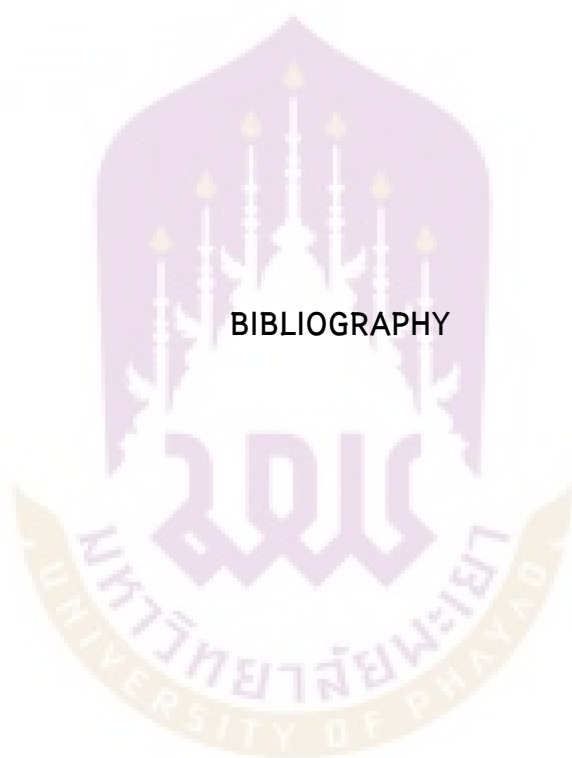
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APPENDIX

Appendix A Reading Comprehension Achievement Test

The lists name of experts who gave the recommendations and suggestions for this dissertation are as follows. (1) Asst. Prof. Dr. Khomkrit Tachom, (2) Asst. Prof. Dr. Sukanya Kaowiwattanakul and (3) Assistant Professor Dr. Chittima Kaweera. All of them work at School of Liberal Arts University of Phayao.

Table A Index of Item Objective Congruence (IOC) and Content Validity of Reading Comprehension Achievement Test

Units and Items	Content Validity Index of Item Objective Congruence (IOC) $IC = \frac{\sum R}{N} > 0.5$				
	Specialist A (+1, 0, −1)	Specialist B (+1, 0, −1)	Specialist C (+1, 0, −1)	IOC > 0.5	Improving
1	1	1	1	1	–
2	1	1	1	1	–
3	1	1	1	1	–
4	1	1	1	1	–
5	1	1	1	1	–
6	1	1	1	1	–
7	1	1	1	1	–
8	1	1	1	1	–
9	1	1	1	1	–
10	−1	−1	−1	0	Deleted
11	−1	−1	−1	0	Deleted
12	−1	−1	−1	0	Deleted
13	−1	−1	−1	0	Deleted
14	1	1	1	1	–
15	1	1	1	1	–
16	1	1	1	1	–
17	1	1	1	1	–
18	1	1	1	1	–
19	1	1	1	1	–
20	1	1	1	1	–
21	1	1	1	1	–
22	1	1	1	1	–
23	1	1	1	1	–
24	1	1	1	1	–
25	−1	−1	−1	0	Deleted

Reading Comprehension Progress Test

Why Are Social Networking Sites So Popular?

1 Social networking sites become more and more popular every day, and they are popular all around the world. In Japan, the top site is Mixi. In Europe, it is Bebo. The most popular site in Latin America is Orkut. In the United States, the top site is Facebook. In fact, Facebook is one of the most popular social networking sites in the world. A Harvard University student started Facebook in 2004, and it spread to more than 400 million users in just a few years.

2 Why is the social networking trend spreading so rapidly? One reason that these websites are popular is because people are social. We like to communicate with other people. We make friends with people in school, at work, and online. Most people like to stay closely connected to their friends and family. We use cell phones, email, instant messaging, and websites to learn what our friends are doing. The Internet is a good way to socialize and communicate, and social networking sites allow people to do this in many ways.

3 Social networking sites are interactive and personal. People can share photographs of themselves and of others. They can tell people what they are doing at any moment and keep in touch. They can post a link to a site with their favorite writer. They can join groups with others who share their interests. Many people post videos of themselves on sites like YouTube. Other users can comment on these photos and videos. This interaction makes these websites become more popular.

Complete the sentence. Choose A, B, or C.

1. According to the passage, the most popular social networking site in Latin America is _____.

        A. Mixi   B. Facebook   C. Orkut

2 According to the reading, _____ is one of the most popular social networking sites in the world.

        A. Mixi   B. YouTube   C. Facebook

3. According to the author, the social networking trend is spreading rapidly because people _____.

        A. enjoy communicating with each other

        B. prefer using their cell phones

        C. like making a lot of friends

4. According to the passage, people stay connected with each other by _____.

        A. communicating at work

        B. socializing at school

        C. sending email messages

Politeness in American Culture

1 In every country there are rules about how to behave. But most of these rules are not written down. Some of these unwritten rules have to do with the space around you. For example, what is a comfortable distance to stand when you are talking to another person? In the United States, the distance is about the length of one arm. But in some countries, the distance is much closer. This makes Americans uncomfortable.

2 People in the U.S. like to think that they have an invisible "personal space" around them. If you come into their personal space, they will be unhappy. Even on crowded buses, subways, or elevators, people in the U.S. try not to touch people that they don't know. If you get on a bus or train and there are many empty seats, you shouldn't sit right next to someone.

3 In a public place like a library, the personal space gets even bigger. There it includes a person's books, papers, and other personal items. Another person should not come into the space where those things are. Another person should not touch those items without being told that it is OK. This feeling about personal items is also true of roommates. If you live with an American roommate, you should not use their things without asking.

4 Another idea about personal space has to do with noise. It is not polite to be very loud in a public place. You should be careful not to be too noisy in a place like a restaurant. It can even be rude to be noisy outside, especially if it is late at night or early in the morning. This includes talking loudly or shouting, playing loud music, or make loud noises with a car.

5 Other countries may have different ideas about politeness and personal space. But if you visit the U.S., be sure to give other people lots of room!

Read the sentence. Is it a main idea, a detail or a conclusion?

5. Another person should not touch those items without being told that it is OK.

        A. main idea   B. detail   C. conclusion

6. In every country there are rules about how to behave.

        A. main idea   B. detail   C. conclusion

7. Another idea about personal space has to do with noise.

        A. main idea   B. detail   C. conclusion

8. You should be careful not to be too noisy in a place like a restaurant.

        A. main idea   B. detail   C. conclusion

Read the paragraph. Choose the best topic sentence for the paragraph.

9. More and more things are being done by computer these days. Job applications, banking, and travel reservations can all be done by computer. Most jobs require a person to know how to use a computer. Also, people are using computers more and more to socialize and connect with other people. Email, instant messaging, and social networking sites like Facebook are all examples of how people are using computers to connect.

        A. It is very important to learn how to use a computer.

        B. You can download and play music and videos on the computer.

        C. Most people know how to use a computer today.

A Homework Story

1 You never know what you will learn when you do your homework, and you may be smarter than you think. My friend told me this interesting story about a math student. One day, the student, George, arrived late for a university math class. When he went in and sat at his desk, he saw that there were two math problems written on the board. He thought that these were homework problems, so he quickly wrote them down. Later, at home, he worked very hard to solve these math problems. They were very difficult and it took him several

days. Finally, he took his completed homework to the professor's office. He apologized for finishing so late. The professor just said to put the homework on his desk.

2 Early on a Sunday morning about six weeks later, George heard a knock on his front door. It was the professor! He was very excited, and was shouting, "Congratulations!" George was very confused. Finally, he understood what happened. The two problems that were on the board in class were not for homework. They were two famous problems in statistics that no one ever solved! The professor only wrote them on the board as examples of unsolved problems.

3 Because George was late to class, he didn't know that the problems were unsolved, and he didn't think they were impossible. He thought there must be a solution, so he worked until he found it. Of course, the professor was very impressed by George's intelligence. His solutions to the problems were later published. I think the lesson in this story is to always do your homework!

Choose the best response.

10. How many math problems did George solve?

  A.one   B. two   C. four

11. Where did George work on the problems?

  A. at his professor's office   B. in class   C. at home

12. How long did it take George to solve the problems?

  A. a few days   B. a few weeks   C. a month

13. What didn't George know about the problems?

  A. They were very difficult.

  B. They were previously unsolved.

  C. They were impossible.

Professional E-mail Etiquette

1 Even though e-mail has become a common form of communication, there are still many people who do not follow some basic rules, or etiquette, when they compose e-mails. E-mail etiquette is especially important in formal situations, such as at work or school. Good etiquette can get you positive results, but bad etiquette can leave a bad impression on others. Being professional when you write e-mails means following certain standards.

2 First of all, a formal e-mail should be complete. Always put a subject in the subject line, and try to make it as specific as possible so the other person knows the purpose of your e-mail. Writing "information" isn't enough, but "information about your interview process" is. There should always be a greeting in formal e-mails, such as those to teachers. When students don't use an instructor's formal name, they could offend him or her. "Dear Prof. Winters" is preferred to "Teacher" or nothing at all.

3 Formal e-mails also need to have correct grammar, spelling, and punctuation. After you have finished writing an e-mail, read it from beginning to end to edit your sentences. Missing commas or periods might demonstrate to others that you are not careful, which could lead to a bad impression. Use the "spell check" feature to check your spelling before sending, and avoid using slang or abbreviations like LOL (laugh out loud) or BTW (by the way). Using abbreviations might be okay for friends, but they might make a bad first impression in work or school settings.

4 Schools and businesses require more formal writing, and they expect people to use proper e-mail etiquette. Following some simple rules can help you write more professional e-mails. When you are careful about how you write, you can leave a good first impression on others.

Choose the best response.

14. Which is an example of an informal situation?

     A. writing to your boss

     B. writing to a friend

     C. writing to a teacher at school

15. What is NOT correct about writing a subject line for a formal email?

      A. The subject line should be as general as possible.

      B. The subject line should be as specific as possible.

      C. There should always be a subject in the subject line.

16. What could result in a bad impression?

      A. using the "spell check" feature

      B. using a formal greeting

      C. missing commas or periods

17. What is the article's main idea about professional email etiquette?

      A. It is not important because today's culture is informal.

      B. It is important because email is a common form of communication.

      C. It is important for leaving a good first impression.

Read the article. Then choose the best response.

Cleaner Air for Phoenix

1 In the 1960s, many people moved to Phoenix, Arizona for its clean, dry, desert air. This was the place to go if you had lung problems, such as severe allergies or asthma. By the 1990s, however, this quality had changed. The city's fast growth brought a lot of construction and many more cars. Dust particles in the air and pollution from the cars created what is called the "brown cloud" that sits over the city. Part of the problem is the location of the city, which is in a desert valley. At night, the cool air traps the pollutants, so they can't escape into the atmosphere. In 2009, Phoenix was listed as one of the worst cities in the U.S. for air pollution. Asthma rates in Phoenix have increased significantly. Residents of the area all agree that the air quality in Phoenix must be improved.

2 One-way Phoenix has begun to approach the air quality problem is by creating a new law to control emissions***** from cars. The law requires residents to have their cars checked

regularly to ensure that they are not releasing high levels of air pollutants. Drivers who don't follow this requirement must pay a fine. In addition, people are encouraged to carpool (ride in groups) and telecommute (work from home).

3 A second way the city is cutting down on air pollution is by controlling the use of wood stoves and outdoor wood-burning ovens. The law limits when these kinds of stoves can be used. People are encouraged to replace these with other kinds of stoves that use different sources of energy, such as natural gas. Arizona has created "burn-free" days to address this growing problem.

4 Finally, perhaps the most important solution to Phoenix's air quality problem is the construction of a light rail (train) system. This system was completed in 2008. It provides transportation within the city of Phoenix, and it also connects Phoenix with the cities of Tempe and Mesa. People can easily reach downtown Phoenix to work or socialize. The number of people using the light rail system is increasing. Its original goal was to carry 26,000 passengers daily, but within the first year the number reached 35,000 riders each weekday. People are beginning to change their lifestyles in order to take the train instead of their cars. With fewer cars in the downtown areas, there will be less pollution and the air quality will improve.

5 Phoenix still has a long way to go before the clean air returns completely. Hopefully, though, with all of the regulations and changes in lifestyle, the pollution will eventually decrease to a level that is healthy for its residents.

* smoke and other particles released from the exhaust of automobiles

Choose the best response.

18. What is the article's main idea?

      A. Phoenix has dirty air.

      B. Phoenix is working to improve its air quality.

      C. People with lung problems should not move to Phoenix.

19. How does the city's location in a desert valley affect its pollution?

    A. The cool air at night holds in the pollutants and they cannot leave the area.

    B. Pollutants escape into the atmosphere when the air is cool at night,

    C. The hot air results in many more people using air conditioning.

20. What fact proves the success of the light rail system?

    A. It connects three cities: Phoenix, Tempe, and Mesa.

    B. The number of daily rides is equal to the original goal.

    C. The number of daily riders is greater than the original goal.
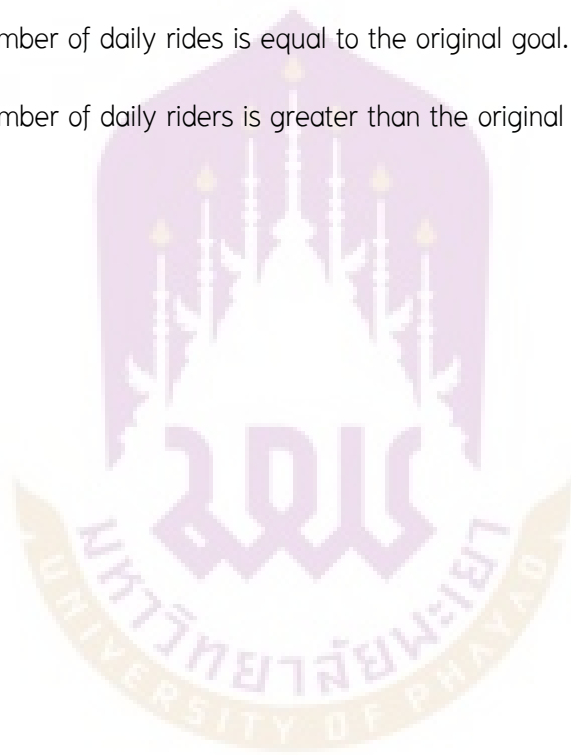
Appendix B Reading Comprehension Progress Test

Table B Index of Item Objective Congruence (IOC) and Content Validity of Reading Comprehension Progress Test

Units and Items	Content Validity Index of Item Objective Congruence (IOC) $IC = \dfrac{\sum R}{N} > 0.5$				
	Specialist A (+1, 0, −1)	Specialist B (+1, 0, −1)	Specialist C (+1, 0, −1)	IOC > 0.5	Improving
1 Technology and Society					
1	1	1	1	1	
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	1	1	1	1	
6	1	−1	1	0.6	✓
7	1	1	1	1	
8	1	1	1	1	
9	1	−1	1	0.6	✓
10	1	−1	1	0.6	✓
11	1	−1	1	0.6	✓
12	1	1	1	1	
2 Studying Technology					
1	1	−1	1	0.6	✓
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	−1	1	1	0.6	✓
6	1	−1	1	0.6	✓
7	1	1	1	1	
8	1	1	1	1	
9	1	1	1	1	
10	1	1	1	1	
11	−1	−1	1	0.3	✓
12	1	−1	1	0.6	✓

Table B (cont.)

Units and Items	Content Validity Index of Item Objective Congruence (IOC) $IC = \frac{\sum R}{N} > 0.5$				
	Specialist A (+1, 0, −1)	Specialist B (+1, 0, −1)	Specialist C (+1, 0, −1)	IOC > 0.5	Improving
3 Design					
1	1	−1	1	0.6	✓
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	1	1	1	1	
6	1	1	1	1	
7	1	1	1	1	
8	1	1	1	1	
9	1	1	1	1	
10	−1	1	1	0.6	✓
11	−1	−1	1	0.3	✓
12	−1	1	1	0.6	✓
4 Technology					
1	1	−1	1	0.6	✓
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	1	1	1	1	
6	1	1	1	1	
7	1	−1	1	0.6	✓
8	1	1	1	1	
9	1	1	1	1	
10	1	1	1	1	
11	1	−1	1	0.6	✓
12	−1	1	1	0.6	✓

Table B (cont.)

Units and Items	Content Validity Index of Item Objective Congruence (IOC) $IC = \dfrac{\sum R}{N} > 0.5$				
	Specialist A (+1, 0, −1)	Specialist B (+1, 0, −1)	Specialist C (+1, 0, −1)	IOC > 0.5	Improving
5 Medical Technology					
1	1	−1	1	0.6	✓
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	1	−1	1	0.6	✓
6	1	1	1	1	
7	1	−1	1	0.6	✓
8	1	1	1	1	
9	1	1	1	1	
10	1	1	1	1	
11	1	1	1	1	
12	1	1	1	1	
6 Careers in Technology					
1	1	1	1	1	
2	1	1	1	1	
3	1	1	1	1	
4	1	1	1	1	
5	1	−1	1	0.6	✓
6	−1	1	1	0.6	✓
7	1	−1	1	0.6	✓
8	1	1	1	1	
9	1	−1	1	0.6	✓
10	1	1	1	1	
11	1	1	1	1	
12	−1	1	1	0.6	✓

Table C Item Difficulty Index Reading Comprehension Pre-test and Post-test Units 1 to 6

Units and Items	R
	# who answered an item
	correctly = 30
		N
		Total # tested
		= 30
			P
			(Item difficulty)
			0–1
				Revise
				or
				Retain

(P = R/N) P = Item difficulty R = # who answered an item correctly N = Total # tested				
0.80–1.00 above = Very Easy (to be discarded) 0.60–0.79 = Easy (to be revise)				
0.30–0.59 = Moderate (very good items) 0.20–0.39 = Difficult (to be revise)				
0.20 below = Very Difficult (to be discarded)				
1 Technology and Society				
1	6	30	0.20	Retain
2	6	30	0.20	Retain
3	6	30	0.20	Retain
4	10	30	0.33	Retain
5	6	30	0.2	Retain
6	17	30	0.56	Retain
7	9	30	0.30	Retain
8	12	30	0.40	Retain
9	11	30	0.36	Retain
10	7	30	0.23	Retain
11	8	30	0.26	Retain
12	15	30	0.50	Retain
2 Studying Technology				
1	9	30	0.30	Retain
2	16	30	0.53	Retain
3	15	30	0.50	Retain
4	8	30	0.26	Retain
5	8	30	0.26	Retain
6	12	30	0.40	Retain
7	6	30	0.20	Retain
8	6	30	0.20	Retain
9	9	30	0.30	Retain
10	6	30	0.20	Retain
11	8	30	0.26	Retain
12	9	30	0.30	Retain

Table C (cont.)

Units and Items	R
	# who answered an item
	correctly = 30
		N
		Total # tested
		30
			P
			(Item difficulty)
			0–1
				Revise
				or
				Retain

(P = R/N) P = Item difficulty **R** = # who answered an item correctly **N** = Total # tested				
0.80–1.00 above = Very Easy (to be discarded) **0.60–0.79** = Easy (to be revise)				
0.30–0.59 = Moderate (very good items) **0.20–0.39** = Difficult (to be revise)				
0.20 below = Very Difficult (to be discarded)				
3 Design				
1	7	30	0.23	Retain
2	12	30	0.40	Retain
3	9	30	0.30	Retain
4	9	30	0.30	Retain
5	11	30	0.36	Retain
6	6	30	0.20	Retain
7	9	30	0.30	Retain
8	9	30	0.30	Retain
9	8	30	0.30	Retain
10	11	30	0.26	Retain
11	12	30	0.4	Retain
12	7	30	0.23	Retain
4 Technology in Sport				
1	17	30	0.56	Retain
2	10	30	0.33	Retain
3	9	30	0,30	Retain
4	7	30	0.23	Retain
5	6	30	0.20	Retain
6	7	30	0.23	Retain
7	9	30	0.30	Retain
8	7	30	0.23	Retain
9	9	30	0.30	Retain
10	10	30	0.33	Retain
11	10	30	0.33	Retain
12	8	30	0.26	Retain

Table C (cont.)

Units and Items	R # who answered an item correctly = 30	N Total # tested 30	P (Item difficulty) 0–1	Revise or Retain
(P = R/N) P = Item difficulty R = # who answered an item correctly N = Total # tested				
0.80–1.00 above = Very Easy (to be discarded) 0.60–0.79 = Easy (to be revise)				
0.30–0.59 = Moderate (very good items) 0.20–0.39 = Difficult (to be revise)				
0.20 below = Very Difficult (to be discarded)				
5 Medical Technology				
1	9	30	0.30	Retain
2	13	30	0.43	Retain
3	9	30	0.30	Retain
4	10	30	0.33	Retain
5	6	30	0.20	Retain
6	9	30	0.30	Retain
7	22	30	0.70	Retain
8	14	30	0.40	Retain
9	10	30	0.33	Retain
10	9	30	0.30	Retain
11	11	30	0.36	Retain
12	12	30	0.40	Retain
6 Career in Technology				
1	20	30	0.66	Retain
2	10	30	0.33	Retain
3	7	30	0.23	Retain
4	9	30	0.30	Retain
5	12	30	0.40	Retain
6	12	30	0.40	Retain
7	15	30	0.50	Retain
8	13	30	0.43	Retain
9	12	30	0.40	Retain
10	6	30	0.20	Retain
11	16	30	0.53	Retain
12	13	30	0.43	Retain

<div align="center">

Reading Comprehension Progress Test

Unit 1: Technology and Society

</div>

Direction: There are four people describing the effect of technology on their work. Read the descriptions below then choose the best answers (1–6).

[1.]**Vera:** I can get patients' lab results–blood and biochemistry–through the Health Service intranet. No delays, no need to wait for paper copies. It's much faster.

Christine: My learners can use the Internet to practice their German. They exchange emails with German learners–half the time in English, half in German. It's more realistic. And I can use the Web to get up-to-date material in German. I have a satellite receiver at home so I can watch German TV and record programs for using in class.

[7.]**Gupta:** People pay with plastic. Now it's more cards than cash. It's safer

because there's less money in the shop but I have to pay the card companies each time. And I don't get my money if someone uses a stolen card.

[10.]**Anton:** It's not good. My sales are much worse. Instead of buying CDs, people download individual tracks from the internet (Bonamy, 2007, p. 6).

1. What is the meaning of "patients"?

    a. A person who is giving health service.

    b. A person who is receiving medical care.

    c. A person who is using technology in the curing.

    d. A person who is taking care the illness.

2. What is the main idea of this passage?

    a. The distinguishing effects of technology to society

    b. The describing positive effect of technology

    c. The interpreting negative effect of technology

    d. The identifying effects of technology to the jobs

3. Identify the result of Anton work?

    a. Technology is applied for positive effect to his work.

    b. Technology is identified as a negative effect to his work.

    c. People can organize the track by download instate of buying CDs.

    d. If people download the track from the internet his sale is worse.

4. How can you classify the positive effects of technology on four people work?

    a. The positive effects of technology can be contrasted with the negative effects.

    b. The positive effects of technology discover by four people.

    c. The positive effects of technology can be classified by doctor and teacher.

    d. The positive effects of technology can be analyzed into three way.

5. Do you think technology is a good or bad thing?

    a. Technology is influenced to many works.

    b. Technology can be judged the different kind of works.

    c. Technology is used to evaluate the kind of works.

    d. Technology is used for supporting many works.

6. Predict the outcome of technology on the works.

a. Technology can improve the negative effects on the jobs in the future into the positive ways.

b. Technology can build the effectiveness on the works and human in the future will comfort and safe.

c. In the future, technology can solve many problems with many jobs.

d. Technology combines the positive and negative effect on many works, so technologists should increase the positive effects and reduce the negative effects on their using.

Direction: Read the passage then choose the best answer (7–12).

[1]Computer today are more powerful. They operate faster and they have much larger memories. Because they contain more electronics, the cases have become bigger but the fat-screen monitors are less heavy and fit into a smaller space on your desk. Computers are also cheaper. The price is lower now than in the past. The programs too are better. They [5]are more sophisticated and you can work much more efficiently.

7. What is "sophisticated" in line 5?

a. working or operating quickly and effectively in an organized way

b. the scientific study of electric current and the technology that uses it

c. intelligent or made in a complicated way and therefore able to do complicated tasks

d. an electronic machine that is used for storing, organizing, and finding words, numbers, and pictures, for doing calculations, and for controlling other machines

8. How would you identify the main idea of this passage?

      a. describing about the computer today and in the past

      b. interpreting the using of computes on the works

      c. classifying between the using of computer from the past to the present

      d. summarizing the computer systems on the works

9. How would you use computer programs in your job?

      a. I apply computer programs to complete my job.

      b. I choose computer programs to solve many problems.

      c. I select many computer programs to organize the idea.

      d. I implement computer programs for my searching a lot of information in my
studying.

10. Identify the results of using computer.

      a. The computer at the present is more effective than in the past.

      b. The computer is completed in human life from the past to the present.

      c. Computer today is applied for helping human to do work more efficiency than
in the past.

      d. Computer is developed from the past

11. What idea justifies the conclusion?

      a. Computer is effect to everyone from the past to the present.

      b. Choosing computer is the best way for workers and officers.

      c. Computer today is low price and it should be better than the past.

      d. Computer today is cheaper, more powerful and more efficient than in the past.

12. How would you elaborate on the reason for choose a computer?

  a. There are many ways to choose computer (e.g., large memories, big cases, light flat screen monitors, low price and efficient programs).

  b. There are three ways; choosing from memories, monitors, and price.

  c. I will recommend you in three ways; memories, screen, and price.

  d. We can combine the larger memories, cases, flat screen monitors, price and programs together.

Reading Comprehension Progress Test

Unit 2: Studying Technology

Reading comprehension

Direction1: Read the course description of Alec Hammond, a technology learner from Scotland then choose the best answer (1-6).

Civil engineering, HND

Ideal for students who want to follow a career in Civil Engineering.

Duration

Two years full-time, starting in September

Overview

The construction industry needs well-trained and qualified managers, technologists, and technicians. This course is designed to teach you the skills necessary for a managerial role in this industry. You will learn the latest construction practices and be given the opportunity to specialize in one area.

Course content

You study core units in:

- CAD
- Communications
- Construction technology
- Construction technology
- Civil engineering materials
- Drawing and design
- Fluid mechanics
- Geotechnics
- IT
- Match
- Mechanics and structure

You can take additional units in:

- Advanced structural design
- Advanced surveying
- Highway engineering
- Quality assurance
- A foreign language

What can I do next?

On successful completion of the course, you may progress to a range of degree-level courses. Some students progress to employment as Civil engineering technicians / technologists.

Retrieved from: (Glendinning, 2007, p. 10)

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1. What is the meaning of "duration"?

    a. the length of time that something lasts

    b. two-year and full time

    c. ideal for students who want to study

    d. Civil engineering starting in September

2. How would you identify the important point?

    a. The classifying of idea for students who want to be a Civil Engineering.

    b. The construction industry needs well-trained and qualified managers.

    c. The students will demonstrate additional units in a foreign language.

    d. The students will progress to a range of degree-level courses.

3. What do you think could have happened next?

    a. The students who want to be a Civil Engineering will apply this course.

    b. This course will be examined by many students.

    c. Teacher will practice students to be a Civil Engineering

    d. This course will organize by teacher and students who are taking.

4. What is fact?

    a. When the students completed this course, they must be Civil Engineering.

    b. Higher National Diploma or HND is designed for the students who want to take a degree course.

    c. The students who want to take this course must take part in the practical skills that necessary for managerial role.

    d. The core and additional units are for students who practice degree level.

5. How can you verify this course description?

a. This course is important for students who want to be an engineering, technician, and technology.

b. This course influents for student who to be an employer in the field of only technologist.

c. This course supports students who want to be a manager in a specific area.

d. All of them above.

6. How would you estimate the results for the students who complete this course?

a. The students who complete this can be a manager in a specific area and they will get high salary.

b. The students who complete this cause will apply the core units and additional units in teaching their colleagues.

c. The students who complete this course will be progress in employers in the field of technologists and technicians and also, they can study a degree level.

d. The students who complete this course will be provided themselves to be the Civil Engineering in a big company.

Direction2: Read to part of the interview. Then answer questions (7-12).

I = Interviewer, A = Alec

I   You're doing an HND in civil engineering. How long does that last?

A   It's a two-year course.

I   What stage are you at now?

A   I'm in the second semester of the first year.

I   How many learners are in the group?

A   There are eight, all men.

I   Why did you decide to do this course?

A   I left school at seventeen and started off as an

Architectural Technician and....

I   What did that involve, being an Architectural Technician?

A   Doing all the technical drawings for the architects, things like that. We used a program calls AutoCAD.

I   And what took you into that line of business?

A   Well, I was interested in architecture. My best subject at school, the one I enjoyed most, was Graphic Communication. I decided to try to get a career using that. So, I went into an architect's office and was there for four years before I decided to start my HND.

Retrieved from: (Glendinning, 2007, p. 124)

7. What is "HND"?

    a. a course of study at a college or university, or the qualification given to a student after he or she has completed his or her studies

    b. an official document that states that the information on it is true, and that is given to someone as proof that they are, have, or own something, or have permission to do something

    c. a qualification, especially in a scientific or technical subject, that is studied for at a British college

    d. a school for children who are about 15 to 18 years old that is usually divided into grades nine through twelve or ten through twelve

8. How would you express the Alex's reason for studying this course?

      a. He practiced to be architecture, and then he decided to study.

      b. He loved Graphic Communication, and then he decided to get the career.

      c. He wanted to be a Civil engineering, the he decided to study HND.

      d. He was interested in architecture and he loved Graphic Communication. Then he studied the HND course to get the involve career.

9. Identify the results of interview.

      a. After the interview, it can be classified the students' characteristic to be a part of the studying.

      b. After the interview, it can practice the skill to be the students in the HND curriculum.

      c. After the interview, the interviewer will develop the questions to ask the interviewees in the next time.

      d. After the interview, the interviewees will develop themselves when they are studying in the HND course.

10. How can you classify the core of interview?

      a. To examine a quality of person

      b. To manage the course for the learners

      c. To ask the questions for the interviewer

      d. To evaluate the quality of person to take part in the course

11. How would you justify the decision of interviewer to select the interviewee?

     a. An interviewer selects the interviewee to study the course from the capacities.

     b. An interviewer argues the interviewee when they are encountered.

     c. An interviewer supports the interviewee answers when he cannot answer the question.

     d. An interviewer critiques the interviewee and gives the suggestion.

12. What does the question do your design for engineering interview?

     a. Why do you like this job?

     b. What state are you at now?

     c. Why do you decide to do this course?

     d. If you finish this course, what do you hope to do?
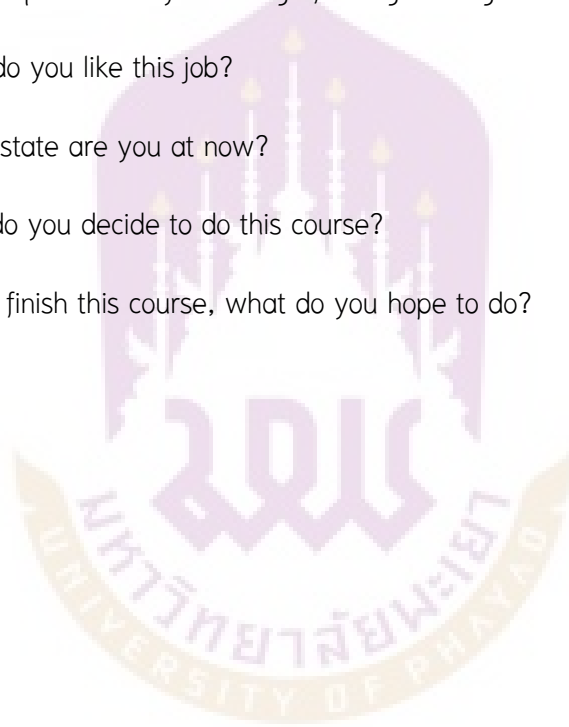
Reading Comprehension Progress Test

Unit 3: Design

Reading comprehension

Direction 1: Read the passage then answer the questions (1–6).

[1.]I start with a design brief – a description of the problem I'm going to solve. In this case, it's to design a backpack for cross – country skiers. Then I investigate, and do some research about cross – country skiers, the things they need to carry and the weigh they find comfortable. I also think about the best choice of material – waterproof, hard – wearing, easy to work with. Next, I [5.]sketch different shapes for the backpack and choose what I think is the best solution. I transfer my sketch to a computer to make a proper drawing with all the dimensions in place. Then, I ask a company to realize it and make up some prototypes to test how well it works. Finally, I compare the product with the brief. I evaluate it by asking questions like: Does it meet all the requirements? Can I make it any better, or improve it somehow?

Retrieved from: (Glendinning, 2007, p. 125)

1. What is the meaning of "prototypes" in line 7?

    a. a measurement of something in a particular direction

    b. to make a soft substance have a particular shape

    c. to make a sketch of something

    d. the first example of something

2. How would you identify the important point?

    a. This passage is about design process for making backpack.

    b. A sketch is the heart of design process.

    c. Cross – country skiers need a waterproof backpack.

    d. There are many stages for making backpack.

3. Identify the result of design process?

     a. A designer builds the products looking good for a company.

     b. A designer develops the products in the design process by self.

     c. A designer examines the quality of the products before selling.

     d. A designer selects the suitable materials for the next produce.

4. How can you classify the quality of the product before you selling?

     a. I can send the prototype to a company to analyze it.

     b. I will test it by myself.

     c. I can compare the product with other company.

     d. I will distinguish between good and bad points.

5. Do you think the customer investigation is good or bad thing?

     a. It is bad because we cannot justify our products.

     b. It is bad because we cannot justify the need of the customers.

     c. It is good because we can determine what the products look like.

     d. It is good because we will know the exactly need of the costumer.

6. What alternative would you suggest for the designer in the design process?

     a. A designer should develop the products with other company.

     b. A designer should test a prototype before making the mass-produce products.

     c. A designer should discuss the quality of the products with the molding company.

     d. A designer should compare the products and evaluate the questions by asking the customers.

Direction 2: Read the furniture design then answer the question (7–12).

Kenneth Blake

Furniture Designer

I decided to use plastic because it's durable. You can make it in a lot of colours and it's easy to mass– produce plastic items.

I went to the local garden center to examine the chairs other companies made, the rival products, and to find out their cost—about 20. I bought three different models. I wanted a chair without arms so I cut the arms off one. This made the back too work too weak so I added vertical supports to make the back stronger.

I sketched my designs on paper, and form these I produced technical drawings with all the dimensions. I made a full–scale model to make sure the chair looked good and was comfortable. Then I transferred my drawings to a 3–D computer modeling program, and sent a copy by file transfer to the molding company. They made a mould and sent me a prototype chair. I added more supports to the back and the chair was ready to produce (Glendinning, 2007, 19).

7. How are the steps of the furniture design?

a. examines the chairs price, sketch the design on paper, and produce the products

b. chooses materials to do, examine the price, sketch designs, use 3–D computer program to make mould, make a prototype, and produce the products

c. examines the price, choose the material, sketch design, make a prototype, use 3–D program, produce the products

d. chooses the materials to do, sketch designs, make a prototype, produce the products

8. How can you describe the designer going to the garden center?

  a. To examine the chair price

  b. To investigate the problems and solution

  c. To contact with the molding company

  d. To sketch the designs

9. How could you develop the product (chair)?

  a. Sketching many shapes on paper b. Moulding a prototype

  c. Identifying the product look d. Interviewing the users

10. How does the designer examine the product?

  a. He examines his designs first and then makes finished drawing.

  b. He compares the designs brief and evaluate it by asking the questions.

  c. He produces technical drawings, transferred the drawings to a 3-D moulding company.

  d. He examines the product by sending a proper drawing to the moulding company to make a prototype.

11. How could you verify the suitable materials to make a product?

  a. The designer should investigate the suitable materials and do some research before he makes a product.

  b. The designer should ask the questions with the users and he can choose suitable materials by self.

  c. The designer should develop the alternative solutions to make the product before he chooses the suitable materials.

  d. The designer should buy the example of different models in many different materials.

12. If you had access to all resources how would you deal with a furniture design?

      a. I will ask the company to keep the low price.

      b. I will make the comfortable chairs in a lot of colors.

      c. I will formulate the chair by using computer 3-D program.

      d. I will develop alternative solutions to make the chair looks good (e.g., do some research and assemble chairs every three months).

Reading Comprehension Progress Test

Unit 4: Technology in Sport

Reading comprehension

Direction 1: Read about Pedro Fernandez, a Bike Maker then answer the questions (1–6).

Pedro Fernandez: Bike Maker

[1.]When I choose a material for a bike frame, I have to think about the <u>properties</u> of the materials. How elastic is it? If you bend or stretch it, will it back to its original shape? If it does, it has high elasticity. How strong is it? There are two kind of strength. The first is how much force you need to bend it to point where it can't go back to its original shape. The second is the amount of force you need to break it.

[6.]Steel is the least expensive choice. There's a wide range of standard gauge tubes available. It's strong and it has good elasticity but it's heavy.

Aluminum is light and strong but it's flexible. The more it bends, the quicker it breaks. So aluminum bike frames use large diameter tubes. That limits the amount of bending.

[10.]Titanium has a great strength–to–weight ratio. It's got good elasticity so when it bends it tends to return to its original shape. It's corrosion–resistant so you don't need to pant it. But it's expensive–fifteen times the price of steel!

The professionals use carbon fiber. It's very light and it's very strong. You can shape it any way you like. But carbon–fiber frames are hand–made so they're very expensive.

Retrieved from: (Glendinning, 2007, p. 23)

1. What is the meaning of "properties" in line 1?

       a. the ability to stretch

       b. the first one made and not a copy

       c. a quality in a substance or material

       d. a physical substance that things can be made from

2. How would you identify the main ides of this text?

       a. A bike maker name is Pedro Fernandez.

       b. Pedro Fernandez is choosing titanium for making a bike frame.

       c. Aluminum is the suitable material to make a bike.

       d. The kind of materials are used to make bike frame by Pedro Fernandez.

3. Identify the result for using only aluminum to do a bike frame.

       a. The bike frame is strong and corrosion-resistant.

       b. The bike frame might be flexible, but it is light and strong.

       c. The bike frame might be light and strong and it can bend.

       d. The bike frame is very light and it's very strong, but it flexible.

4. What is the conclusion?

       a. The reason for choosing materials for making a bike frame is to make the good quality for sport equipment.

       b. If the bikers make the bike frame, they must think about the properties of the suitable materials.

       c. Choosing suitable materials for making a bike frame is to make a bicycle look good.

       d. The professionals use carbon fiber because it is very light and it's very strong.

5. How would you justify the using of material for making the bike?

    a. Steel, aluminum, titanium, and carbon fiber are using for making a bike frame.

    b. A bike maker should select the materials to do the bike frame depending on the price.

    c. There are four main materials that they are using for making a bike frame.

    d. When a bike maker makes a bike frame, he should evaluate a good or bad point of using materials.

6. Predict the outcome of carbon fiber bicycle frame.

    a. It is inexpensive, flexible, and elastic.

    b. It is corrosion-resistant, expensive, and elastic.

    c. It is light, strong, corrosion-resistant, inexpensive and flexible.

    d. It is durable, elastic, corrosion-resistant, and expensive.

Direction 2: Read about the passage then answer the questions (7–12).

Properties and Uses of Materials

Sports equipment is often made from nylon because nylon is very strong but not hard, heavy or expensive. It is also tough, wear resistant and elastic, so it is used for making sports clothing, such as cycling shorts, for example. It is stronger than steel, flexible and light, so it is good for fishing lines, ropes and tennis racket strings. Nylon is also used for sports bags and camping equipment, like tents, because it is tough, durable, easy to carry and cheap.

Retrieved from: (Glendinning, 2007)

7. What does the word "flexible" mean?

     a. able to bend or to be bent easily without breaking

     b. able to last a long time without becoming damaged

     c. strong; not easily broken or made weaker or defeated

     d. able to stretch and be returned to its original shape or size

8. How can you describe using of nylon to make the sport equipment?

     a. It is used to make only sport clothing because it is durable, wear resistant and elastic.

     b. It is used make sports clothing and bags because very strong and inexpensive.

     c. It is used make sports clothing and bags because it is durable, wear resistant and elastic.

     d. It is also used for sports bags and camping equipment because it is durable, wear resistant and elastic.

9. Illustrate the properties and uses of materials to make sport equipment?

     a. Designers are able to select the suitable properties of materials to make sport equipment depending on the functions.

     b. Designers should only identify the properties of material that they are suitable for making the sport equipment.

     c. Designers can choose nylon to make the sport equipment if they need the strong and tough properties.

     d. Designers are able to select the material to make the sport equipment depending on desirable.

10. What is the conclusion?

      a. Sport equipment and sport clothing are made from nylon.

      b. Sport equipment and sport clothing are the properties of materials.

      c. The properties of sports equipment and cloths that they are made from nylon.

      d. There are many properties (e.g., wear resistant and elastic) to make sports equipment.

11. How would you support the choosing of materials to make the sport equipment?

      a. Nylon can be justified to make sport equipment and sports clothing.

      b. Sports equipment defines as the materials to use in competition.

      c. Nylon is the best choice for using to make the sports equipment and clothing.

      d. There are many materials for using to make the sports equipment e.g., rubber, steel, fiberglass. It depends on a designer choosing.

12. How would you develop the alternative choice for making sport equipment and sport clothing instead of using nylon?

      a. We should compare the nylon properties with other materials.

      b. We should assemble many types of materials, especially durable materials.

      c. We should investigate the properties of the other materials that they have the same properties of nylon.

      d. We should choose only nylon to make the sport equipment and sport clothing.

Reading Comprehension Progress Test

Unit 5: Medical Technology

Reading comprehension

Direction 1: Read the text then answer the questions (1–6).

AbioCor Artificial Heart

The AbioCor <u>artificial</u> heart made of titanium and plastic. It is for patients with very serious heart problems who are waiting for a heart transplant. It contains a hydraulic pump and a valve which lets the hydraulic fluid move from one side of the heart to other. When the fluid moves to the left, blood is pumped to the rest of body. The system has two batteries: one internal, inside the patient's body, and one external. The external battery lasts up to forty minutes. This is long enough for the patient to have a shower or to change the external battery. The external battery lasts four to five hours. The external battery provides power using a wireless energy transfer system. A coil on the patient's skin includes power in a coil inside the body. This operates the controller and charges the internal battery. The controller contains a microprocessor which decides that best heart rate for the patient at any time. Retrieved from: (Glendinning, 2007, p.74).

1. What is the meaning of "artificial"?

    a. inside an object or building

    b. made by people, often as a copy of something natural

    c. coming from outside a company, organization, or country

    d. operated by water pressure or by pressure from another liquid

2. How would you identify the main idea?

      a. The main idea is about the system of AbioCor artificial heart.

      b. A heart transplant in the human body is the main idea.

      c. A writer explains hydraulic pump batteries.

      d. A heart microprocessor for the patient who is heart attract.

3. How would you explain AbioCor artificial heart for?

      a. AbioCor artificial heart is for general patients who are ills.

      b. AbioCor artificial heart is for the patients who have heart problems.

      c. AbioCor artificial heart is for the patients who have very serious problems.

      d. AbioCor artificial heart is for the patients who have heart problems and they are waiting for heart transplant.

4. What is the conclusion?

      a. AbioCor artificial heart has two batteries: one internal, inside the patient's body, and one external.

      b. The external battery provides power using a wireless energy transfer system. A coil on the patient's skin includes power in a coil inside the body.

      c. The controller contains a microprocessor which decides that best heart rate for the patient at any time.

      d. AbioCor artificial heart is made from titanium and plastic and it is for patients with very serious heart problems who are waiting for a heart transplant.

5. How could you argue with a patient who has a heart transplant?

      a. The patient who has a heart transplant will not die.

      b. The patient who has a heart transplant are still seeing the doctor.

      c. Not only, the patient sees the doctor, but everyone is also.

      d. The patient who has a heart transplant spends lots of money, but it is not confirm that she/he has a long life.

6. Predict the outcome of patients who has heart transparent by using AbioCor artificial heart.

      a. The patients will be the strong person.

      b. The patients will have a chance to alive.

      c. The patients will make an artificial heart for the other patients.

      d. The patients will improve the innovation for the other patients' heart problems.

Direction 2: Reading the article and answers the questions (7–12).

It's my job.

[1.]My special area is electronic assistive technology, or EAT for short. I work for a company which makes equipment to help severely disabled people. I mean people who can't walk, people who have limited movement–perhaps they can move only their head.

We make equipment which helps these people to lives as independently as possible. By moving their chin, by blowing down a tube, or simply by speaking, they can send an email, adjust the temperature in the room, or operate TV.

[7.]In this kind of work, you need knowledge of <u>mechatronics</u>. That's where mechanics, electronics, and software engineering meet. Take a page–turner, for example. It's device which turns the pages of a book or magazine. The input can be a pneumatic switch–that's a switch–that's switch worked by air pressure. You operate it by sucking or blowing down a tube. These signals are interpreted by a microprocessor which controls the

mechanism which turns the pages. That mechanism uses electrical and mechanical devices. All three branches of engineering combine to make it work.

[14.]It's an exciting job. Each development in technology means new possibilities for disabled people.

Retrieved from: (Glendinning, 2007, p. 127)

7. What does the word "mechatronics" mean?

a. he necessary items for a particular purpose

b. technology combining electronics and mechanical engineering

c. a system of parts working together in a machine; a piece of machinery

d. an integrated circuit that contains all the functions of a central processing unit of a computer

8. How can you describe three ways in which severely disable people can operate equipment?

a. Working with company, meeting engineer, sending email

b. Turning a book, working with company, or speaking

c. Moving their chin, blowing down a tube, or speaking

d. Sending email, speaking, or moving their chin

9. How would you develop electronic assistive technology to present for disabled people?

a. I would like the technologists or engineers develop many devices to support the disable people (e.g., wheel chair, hearing aid, education software, and etc.)

b. I would like the technologists or engineers develop a company to make the devices to support the disable people (e.g., wheel chair, hearing aid, education software, and etc.)

c. I would like the technologists or engineers develop mechatronics to support the disable people (e.g., wheel chair, hearing aid, education software, and etc.)

d. I would like the technologists or engineers develop electrical and mechanical devices to support the disable people (e.g., wheel chair, hearing aid, education software, and etc.)

10. What can you infer from the passage?

a. The knowledge of mechatronics is important to develop electronic assistive technology.

b. Mechanics, electronics, and software engineering are working together to develop disabled peoples' devices.

c. Mechatronics is an equipment which helps disable people to lives as independently as possible.

d. This job is exciting form everyone because it can develop the technology for disabled people.

11. Do you think electronic assistive technology is a good or bad thing?

        a. It is a good thing because it is used to support the disable people for comfortable.

        b. It is a good thing because it can justify the achievement of the company.

        c. It is a bad thing because it can help only the people who cannot walk.

        d. It is a bad thing because it is a boring job and I do not interesting.

12. How would you elaborate on the reason using knowledge of mechatronics to support this job?

        a. The reason for using the knowledge of mechatronics is to create the devices by many engineers.

        b. The reason for using the knowledge of mechatronics is to combine mechanical principles with electrical engineering together to create the efficient assistive technology.

        c. The reason for using the knowledge of mechatronics is to design the many device for disable people.

        d. The reason for using the knowledge of mechatronics is all of the reasons above.

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Reading Comprehension Progress Test

Unit 6: Careers in Technology

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Reading comprehension

Direction1: Read the job descriptions (A–B) and then answer the questions (1–6).

A: CIVIL ENGINEER

You could work in any of these fields at any point from the design to the completion of the structure;

Construction	buildings, sports stadiums, shopping centers
Transport	railways, roads, bridges
Power	hydro–electric schemes, dams, pipelines
Hydraulics	the movement of water from one area to another
Maritime	the construction and development of docks and harbors
Public health	waste disposal and sewage treatment plants

You might work both in offices and on site. Site work can be in difficult areas far from any town or city.

REQUIREMENTS

Essential:	degree or diploma in civil engineering
	ability to think creatively
Desirable:	look at things in a practical way
	enjoy problem solving good team worker

B: Telecommunications Technician

Your work could involve

– Making, testing, and checking components

– Assembling equipment

– Installing, setting up, testing and repairing equipment

– Laying and connecting cables

– Installing radio equipment and mounting antennas on buildings or on masts

You could work indoors in a factory or outside working in all weather conditions. Your work could involve lifting and working at heights

REQUIREMENTS

Essential: degree or diploma in IT

physical fitness

Desirable: good communication skills

good team worker

Retrieved from: (Glendinning, 2007, p. 99)

1. What are the job titles?

a. Two job descriptions

b. Civil Engineering and Telecommunications Technician

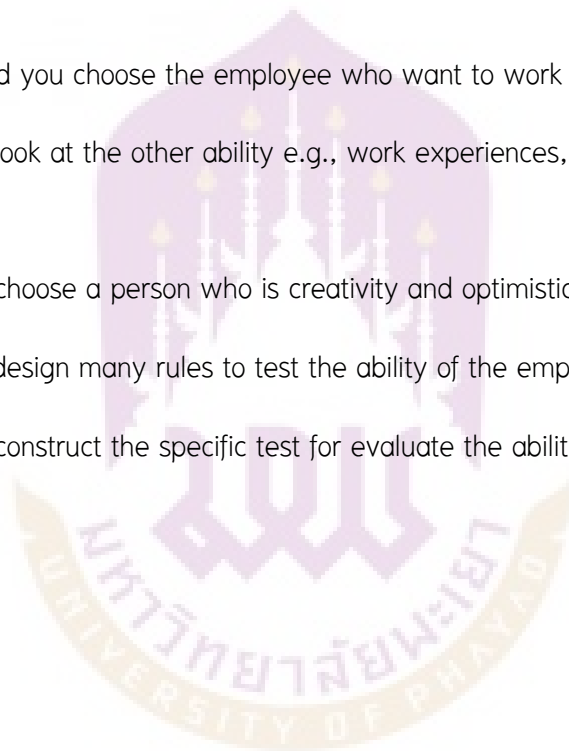c. Requirements of two job

d. The scope of two job titles

2. How can you describe the main idea of these jobs?

     a. The main ideas of these jobs are the essential and desirable of the job tittle.

     b. The main ideas of these jobs are the job descriptions.

     c. The main ideas of these jobs are interpreting the types of jobs.

     d. The main ideas of these jobs are classifying the job titles.

3. What questions would you ask in an interview with the applicants when they apply these jobs?

     a. What do you see yourself and what is the most value in your life?

     b. Which subject do you appeal most at your college and why do you like it?

     c. What qualification did you get from your college and can you work in an irregular hour?

     d. What did you do after you complete the course and why do you want to be an engineer?

4. What idea justifies the conclusion?

     a. The idea for person who wants to take part in the engineering occupation.

     b. The two occupations were distinguished by the writer.

     c. The list of occupations was offered by the engineer.

     d. The descriptions of two occupations were classified by the writer.

5. How could you verify the other requirements for the employer to consider the employee?

  a. Employers judge the employee from the good health.

  b. If you are the candidate to apply the job, you will be a good person.

  c. None smoking is a primary basic behavior for employers classify the employee.

  d. Work experiences are important requirement to qualify a person who gets the job.

6. How else would you choose the employee who want to work with your company?

  a. I will look at the other ability e.g., work experiences, grade level, and responsibility.

  b. I will choose a person who is creativity and optimistic.

  c. I will design many rules to test the ability of the employers.

  d. I will construct the specific test for evaluate the ability of my employers.

Direction2: Read the CV then answer the questions (7–12).

PERSONAL INFORMATION	
Name	Aisha Q. Chetty
Address	7 Linden Crescent
	Edinburgh, EH3 7DP,
	United Kingdom
Phone	(+44) 131 123 4567
Email	aishachetty@hotmail.com
Nationality	British
Date of birth	30.05.1984
WORK EXPERIENCE	
Dates	September 2003 to present
Employer	Western IT, 11 Randolph Road,
	Edinburgh, EH 16 2NY, UK
Position held	Computing Support Officer
Main activities and responsibilities	Providing support in the field to a wide range of companies
EDUCATION AND TRAINING	
Dates	September 2000 to August 2003
Organization	Simpson College, Glasgow, UK
Qualification	Higher National Diploma
Main subjects' skills covered	Computing (Technical support), Operating systems, Hardware installation and maintenance, Network building and maintenance
PERSONAL SKILLS AND COMPETENCES	
Mother tongue	English–excellent communicator
Other languages	Good spoken French, some Hindi
Social skills	My work involves communicating with a wide range of clients with computing problems who often need help urgently. I work well under pressure.
Organizational skills	At college I organized a class visit to France Telecom.
Technical skills and competences	Familiar with most current operating systems, Novell, and Windows networks
ADDITIONAL INFORMATION	
– Clean driving license	
– Personal interests include rock climbing and cycling	

Retrieved from: (Glendinning, 2007, p. 101)

7. What is "CV"?

      a. knowledge or skill that is obtained from doing, seeing, or feeling things

      b. a short written description of your education, qualifications, previous jobs

      c. a group of people who work together in an organized way for a shared purpose

      d. the process of teaching or learning, especially in a school or college, or the knowledge that you get from this

8. How can you describe the main idea?

      a. The main idea describes the personal information.

      b. The education and training are the main idea.

      c. Additional information is an important point.

      d. Work experience explains a person's responsibilities.

9. If you are the employer, what approach would you use to select the candidate from the CV form?

      a. I will look at the previous experience and the edges.

      b. I will choose form the personal activities, such as rock climbing and cycling

      c. I will call the candidates who have the same quality and give them the interview questions to classify the personal quality again.

      d. I will select the candidates who have many essential skills e.g., a degree, experiences, and language competency

10. How would you explain the CV?

   a. CV is used to develop oneself to apply the job.

   b. CV is used to illustrate the special information by the job applicants.

   c. CV shows the personal information of a person who want to be engineering.

   d. CV can classify personal information of someone with the other job candidates.

11. Do you think verifying personal information in the CV is a good or bad thing?

   a. It's good because it can evaluate my past experience, my education, and my competency.

   b. It's good because it can support my competency through the writing personal information (e.g., experience, education background, and etc.) when I have opportunity to do work.

   c. It's bad because it just only gives the basic information about the personal information. Actually, I need to write more.

   d. It's bad because if a company doesn't have an interview part, I won't show my real competency through the talk.

12. How else would you conjecture a person who has a good profiled in CV?

   a. That person will get a good job.

   b. That person will have a great opportunity to be a part of a work.

   c. That person will get high salary when he/she does work.

   d. That person will consider to be a boss.

Appendix C Cognitive and Metacognitive Reading Strategies Observation Form

Cognitive and Metacognitive Reading Strategies Observation Form

Unit: _____ Tittle: _____	Type of EFL Learners' Proficiency ◯ Advanced ◯ Intermediate ◯ Novice Name_____
Reciprocal Reading Activities	**(Meta)cognitive Reading Strategies (Codes)** Cognitive Reading Strategies: Codes (C1–C31) Metacognitive Reading Strategies: Codes (M1–M14)

Before Reading: (Planning)
1. Predicting
When predicting, students
_____ use the language of prediction such as
   • I predict.......
   • I think.......
   • I will bet.......
_____ use clues from the text to help from prediction and evidence from the text and/ or illustrations to support predictions.
   • I predict_____ because_____.
_____ use prior knowledge about the topic or from experience to help make logical predictions.
   • I predict_____ because_____.
_____ check predictions after reading to see if they make sense.	

During Reading: (Monitoring) **2. Questioning** When questioning, the students _____ use the language of questioning with question words such as *who, what, when, where, why, or how*. _____ ask logical "wonders" before reading based on from the text. • I wonder....... _____ ask literal and higher-level thinking questions after reading.	

3. Clarifying When clarifying, students _____ use the language of clarifying • I didn't get _____ (confusion), so I _____ (strategy used to repair comprehension). _____ identify word that are difficult to pronounce or understand _____ use a variety of strategies to understand the words, including finding "chunks" they know. Sounding out the words, using syllables and, rereading. _____ tell how they clarified a difficult word. _____ identify sentences, pages, or ideas that need clarifying. _____ use a variety of strategies to understand the parts, such as rereading on, or talking to someone to figure out the parts of text that confused them. _____ identify confusion (words, parts, or ideas) and the strategies that they used to repair comprehension.	
Post-Reading: (Evaluation) **4. Summarizing** When summarizing, students _____ use the language of summarizing • This part is about....... • The most important ideas in this text are....... _____ reread to summarize main events or important idea from the text. _____ include only main events or important idea. _____ tell main events or important ideas in order. _____ use some vocabulary from the text.	

Adapted from: (Oczkus, 2018; Thampradit, 2006; Wirotanan, 2002)

Cognitive and Metacognitive Reading Strategies: Characteristics (Codes)

Codes	Cognitive Reading Strategies
C1	**Applying grammar rules to understand the language:** The readers refer to the grammar rules to help them understand the structure and meaning of each sentence.
C2	**Analyzing theme, style, and connections:** The readers analyze theme, style, and connections to improve their comprehension.
C3	**Break down larger phrases into smaller parts:** The readers break down larger phrases into smaller parts to help them understand difficult passages.
C4	**Clarifying**: The readers identify the unknown word(s), phrase(s) or sentence(s) by using context clues, re-reading or using a dictionary and other resources.
C5	**Considering the purpose of the text:** The readers consider what kind of message the text offers.
C6	**Considering tasks being assigned with the text:** The readers refer to the task and think of how they will read to get the answers.
C7	**Creating graphic organizers:** The readers create a map, diagram, or draw the related ideas to enable them to understand the relationships between words and ideas.
C8	**Distinguishing between opinions and facts:** The readers distinguish between opinions and facts to aid in understand reading.
C9	**Elaborating:** The readers read the text carefully and try to get the meaning out of it.
C10	**Expanding vocabulary and grammar:** The readers expand vocabulary and grammar to help increasing reading.
C11	**Finding the main idea:** The readers identify the main idea to comprehend the entire reading.
C12	**Grammar concentration:** The readers concentrate on grammar to help understanding unfamiliar construction.

C13	**Guessing meanings from context:** The readers guess meanings of unfamiliar words or phrases to let them use what they already know about English.
C14	**Identifying key words and phrases:** The reader is able to identify key words or phrases that in her perspective are important for the comprehension of the text.
C15	**Looking at diagram, chart, and map:** The readers refer to the diagram, chart, and map in the text to help them understand the content of the text.
C16	**Looking for main ideas:** The readers try to find the main idea in each paragraph.
C17	**Marking a certain part of the text:** The readers underline, highlight, or circle certain parts of the passage they think are important.
C18	**Making an inference or drawing conclusions:** The readers infer meaning or draw conclusion from the passage.
C19	**Outlining:** The readers organize the pattern of the text.
C20	**Paraphrasing:** The readers paraphrase the passage by using their own words.
C21	**Previewing the text:** The readers examine heading and sub-headings of the text.
C22	**Predicting:** The readers predict the content of an upcoming passage or section of the text by using titles, heading, and picture.
C23	**Questioning:** The readers ask the questions by using wh-questions to generate their concept. "Does it make sense?"
C24	**Re-reading:** The reader rereads the passage or sentence in the tale to improve or re-establish comprehension. **Rereading previous text:** The readers reread the previous sentences or paragraphs to increase their comprehension.

C25	**Referring to previous passages:** The readers refer to messages in previous passage that they read to help increase their comprehension in the current passage.
C26	**Skimming or scanning:** The readers skim the whole passage to comprehend a general idea of the passage or scan the passage to get a specific detail.
C27	**Summarizing:** The readers summarize main ideas of the passage or identify the important information, such as the main idea, supporting detail in the clear terms of the readers' own sentences, statements or a single paragraph.
C28	**Taking notes:** The readers take notes of what they think is important in the passage.
C29	**Translating:** The readers translate the passage from English to Thai to increase their comprehension. / The reader translates the text into her mother language.
C30	**Using a dictionary:** The reader explains how sing a dictionary would improve her reading.
C31	**Using the title:** The reader uses the tittle as a starting point to construction meaning out of text.
Metacognitive Reading Strategies	
M1	**Assimilating personal experience:** The readers use their personal experiences to help them understand the passage.
M2	**Concentrating:** The readers concentrate more while reading.
M3	**Evaluating:** The readers evaluate what they have learned and how well they are doing to help them focus their reading.
M4	**Evaluating the content of the text:** The readers evaluate the content of the passage.
M5	**Finding an author's intention:** The readers think of an author's intention in writing the passage in order to comprehend the passage.
M6	**Forming hypotheses:** The readers form a hypothesis about the content of the passage.

M7	**Monitoring comprehension:** The readers read the passage and ask themselves if they comprehend or not. If they do not comprehend, they change reading strategies to the ones that are effective in increasing their comprehension.
M8	**Recognizing loss of concentration:** The readers realize that they lose concentration.
M9	**Reviewing:** The readers take opportunities to practice what they have already know to keep progress steady.
M10	**Self-questioning:** The readers ask themselves questions about the passage to help their comprehension.
M11	**Setting goals:** The readers have purposes in reading to help them improving the important areas of their reading.
M12	**Using prior knowledge:** The readers use their background knowledge, which means knowledge that they gain from sources other than their personal experience, to help them comprehend the passage.
M13	**Vocabulary listing:** The readers make lists of relevant vocabulary to prepare for new reading.
M14	**Working with classmates:** The readers work with classmates to help them develop their reading skills.

Retrieved from: (Oczkus, 2018; Thampradit, 2006; Wirotanan, 2002)

Appendix D Semi-structured Interview

Semi-Structured Interview Questions

1. What are the effects of using reciprocal reading activities in reading comprehension skill?

2. Which strategy do you most prefer and why?

3. Which strategy is too difficult for you and why?

4. Would you prefer to use the reciprocal teaching method (active way) instead of the

 traditional method of reading? Why or why not?

Adapted from: (Komariah, Ramadhona & Silviyanti, 2015; Relton, 2017)
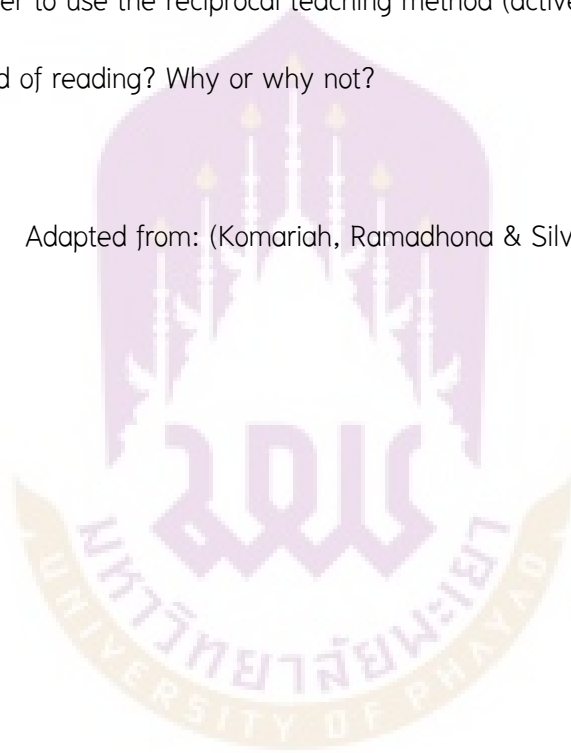
Instructional Plan

Subject: English for Technology   Code: 2313704

Introduction: Reciprocal reading activities   Time: 3 hours

1. Instruction

Before the units (1-6) beginning the learners know about the concept of using reciprocal teaching in the reading activities. The key elements of the reciprocal in the reading activities are using four mains strategies; **predicting, questioning, clarifying,** and **summarizing** in a small group of work. In addition, teacher activates the using of these four main strategies with metacognitive strategies of planning, monitoring, and evaluation in the reading process (pre-reading, during-reading, and post-reading). Also, teacher activates the learners to use (meta)cognitive reading strategies when they do a small group work (e.g., using a dictionary, translating, and working with friend).

2. Language focus/ Reading (meta)cognitive strategies

Language focus: –

Reading strategies: Four main multi-metacognitive reading strategies (predicting, questioning, clarifying, summarizing)

3. Activities

Before the activities beginning, teacher describes the definitions of reciprocal teaching in the reading activities:

Reciprocal teaching is a discussion between teacher-learners and learners-learners in a small group of interaction. The goal of this discussion is to comprehend or understand the meaning from the text (Palincsar & Brown, 1984 as cited in Magnuson, 2009). So, the social interaction is the crucial role to improve reading comprehension with the learners and it can help the higher order thinking with the learners in the assistance from your member in a small group. The learner can have opportunity to work together collaboratively and cooperatively (Williams, 2018, p. 3). The meaning of reciprocal teaching in the reading activities are as follows:

1. Predicting is a smart guess to hypotheses the text concern. It combines readers' background knowledge and new knowledge to confirm or revise the prediction by using titles, heading, and picture.

2. Questioning is the strategy to identify the topic and main idea. The readers will ask the questions by using wh-questions to generate their concept. "Does it make sense?" This is an important learners' self-monitoring role to warrant farther consideration.

3. Clarifying is a strategy to identify the unknown word(s), phrase(s) or sentence(s) by using context clues, re-reading or using a dictionary and other resources.

4. Summarizing is an identification of the important information, such as the main idea, supporting detail in the clear terms of the readers' own sentences, statements or a single paragraph.

There are the three stages of using the reciprocal teaching in the reading activities. They are as follows.

Stage I: Pre-reading as a planning strategy

Using predicting

• Teacher explains or demonstrates the using of predicting with the example text. The sentence will be provided by using dialogue for examples:

Today, I think I will learn about ……………… because I look at the ……………….

I predict that……………………………….……………because ………………………………….

I think the next section will be about ………………………because ………………………

• A teacher suggests the technique to predict the text by telling the learners look at the topic, tittle, and using or activate background knowledge to support this strategy.

• Also, the teacher suggests the (meta)cognitive reading strategies that the learners can use in the pre reading stage (e.g., guessing the meaning from context, skimming or scanning, and finding the main idea).

Stage II: During-reading as a monitoring strategy

Using questioning

• Teacher explains or explicit teaching of questioning in the reading activities. For examples:

• Teacher activates the learners to ask the questions about the text that they read. Some are answered in the reading text, and others are inferred.

I wonder...

Who? What? When? Where? Why? How? (What is the purpose of the writer? / Why do you think.................? What happened next?

What............(word).........means?

• Teacher gives the examples of how learners figure out hard words and ideas. I didn't get the [word, part, idea], so I.................... reread/ look at the surrounding words/ talk with friends in the group/ sounded words out/ etc.

Using clarifying

• Teacher explains or explicit teaching of clarifying in the reading activities. For examples:

• I don't get the [word, sentence, part, visual, chapter], so I [use fix-up strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection].

I am not sure about ...., but then I ....

This is a tricky word because ....

I am having trouble pronouncing ....

• Also, the teacher suggests the (meta)cognitive reading strategies that the learners can use in the pre reading stage (e.g., guessing the meaning from context, skimming or scanning, and finding the main idea).

Stage III: Post reading as the evaluating strategy

Using summarizing

• Teacher explains or makes explicit teaching of summarizing in the reading activities. For examples:

The most important idea in the text are..

This part is mostly about..

This article is about ....

First ....

Next ....

Then ……………………………………………………………………………………………………..

Finally ……………………………………………………………………………………………………..

In the beginning/ middle/end.

• Also, the teacher suggests the (meta)cognitive reading strategies that the learners can use in the pre reading stage (e.g., guessing the meaning from context, skimming or scanning, and finding the main idea).

* A teacher must find the examples of the others articles that they are differences from the reading articles from units 1 to 6.

Instructional Plan

Subject: English for Technology   **Code:** 2313704

Unit 1: Technology and Society   **Time:** 3 hours

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1. Terminal Objectives:

1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of technology and society.

1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

After the learners complete the unit, they are able to;

2.1 make prediction.

2.2 make questioning and clarifying the new word under the topic of technology and society.

2.3 make summarizing by using the own words.

2.4 answer the comprehension questions.

3. Language Contents:

3.1 Language skill: Reading comprehension

3.2 Grammar: Present simple

3.3 Vocabularies: environment, technologists, scientific, mechanical, electrical, electronic, technologists and etc.

4. Materials and Teaching Aids:

4.1 Reciprocal reading worksheet

4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using of (meta)cognitive reading strategy) by short note.	−Teacher activates the learners in a small group work by looking at the reading article (using predicting strategy). −Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. −Teacher gives the sentence frame "I think I will learn .... because........................... .	**Planning** −Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. −Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. −Learners write the prediction on the reciprocal reading worksheet.
During-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	−Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. −Teacher activates the learners in a small group work to make the questions (using wh-questions) by asking the guideline question. For examples: "What is the purpose of technology?" "What is the difference between technology and technologist?	**Monitoring** −Learners talk with their friend in a small group work by emphasized on the reading article. They use the wh-questions to make the questions. −Learners make the questions by themselves and share their own questions with their friends in a small group. − Learners use the (meta)cognitive reading strategies by themselves in a small group of work. −Learners write their own questions in the reciprocal reading worksheet.
3. Clarifying A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	−Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For examples: I can't figure out "technologist", so I look for word parts that I know. Others examples: •I don't get the [word, sentence, part, visual, chapter], so I [use fix-up	−Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection]. •I am not sure about ..., but then I .... This is a tricky word because .... •I am having trouble pronouncing	
Post–reading **4. Summarizing** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners using text structure (e.g., present simple tense) to summarize the main idea and details, sequence, causes and effects, and problem and solution. –Teacher activates learners observing (e.g., table of contents, headings) to summarize the text. For example: The most important idea in the text are...*the effects of technology to the society...... They are both positive and negative effects. The positive effects of technology are..............* Others examples: The most important idea in the text are...................., This part is mostly about................., This article is about ...., First......., Next,............., Then................, Finally..............., and In the beginning/middle/end.	**Evaluation** –Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. – They also use the (meta)cognitive reading strategies to summarize the reading text while they work with their friend and they used reciprocal reading worksheet.

6. Evaluation:

6.1 Reding comprehension per–test and post–test

6.2 Reciprocal reading worksheet (see Appendix E)

6.3 Observation from of cognitive and metacognitive reading strategies engaged in reciprocal reading activities (see Appendix C)

Instructional Plan

Subject: English for Technology   **Code:** 2313704

Unit 2: Studying Technology   **Time:** 3 hours

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1. Terminal Objectives:

      1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of studying technology.

      1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

      After the learners complete the unit, they are able to:

      2.1 make prediction.

      2.2 make questioning and clarifying the new word(s) under the topic studying technology.

      2.3 make summarizing by using the own words.

      2.4 answer the comprehension questions.

3. Language Contents:

      3.1 Language skill: Reading comprehension

      3.2 Grammar: Present simple and present continuous

      3.3 Vocabularies: diploma, certificate, Construction Surveying, Geotechnics, Communication, Fluid mechanics, Computer-Assisted Design and etc.

4. Materials and Teaching Aids:

      4.1 Reciprocal reading worksheet

      4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group work by looking at the reading article (using predicting strategy). –Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. –Teacher gives the sentence frame "I think I will learn .... because..........................."	**Planning** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
During-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies by short note.	–Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. –Teacher activates the learners in a small group to make the questions (using wh-questions) by asking the guideline question. For examples: "What is design?" "How many stages are there in the design process?"	**Monitoring** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
3. Clarifying A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For example: I can't figure out "durability", so I talk to friend or I look up the word in the index or dictionary. Others examples:	–Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	•I don't get the [word, sentence, part, visual, chapter], so I [use fix-up strategies, reread, read on, break the word into parts, visualized, skips it, asks a friend, think about my connection]. •I am not sure about ..., but then I ... This is a tricky word because .... •I am having trouble pronouncing	
Post-reading **4. Summarizing** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners use text structure (e.g., present simple tense) to summarize the main idea and details, sequence, causes and effects, and problem and solution. –Teacher activates learners observing (e.g. table of contents, headings) to summarize the text. For example: The most important ideas in the text are...*the qualifications of studying to be an engineer ...... The technician is studding for two years to complete the HND course.* Others examples: The most important idea in the text are..................., This part is mostly about................, This article is about ...., First......., Next,............, Then................., Finally..............., and In the beginning/ middle/end.	**Evaluation** –Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. – They also use the (meta)cognitive reading strategies to summarize the reading text while they work with their friend and they used reciprocal reading worksheet.

6. Evaluation:

6.1 Reding comprehension per-test and post-test

6.2 Reciprocal reading worksheet (see Appendix E)

6.3 Observation from of cognitive and metacognitive reading strategies engaged in reciprocal reading activities (see Appendix C)

Instructional Plan

Subject: English for Technology   **Code:** 2313704

Unit 3: Design   **Time:** 3 hours

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1. Terminal Objectives:

      1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of design.

      1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

After the learners complete the unit, they are able to:

      2.1 make prediction.

      2.2 make questioning and clarifying the new word(s) under the topic design.

      2.3 make summarizing by using the own words.

      2.4 answer the comprehension questions.

3. Language Contents:

      3.1 Language skill: Reading comprehension

      3.2 Grammar: Question types

      3.3 Vocabularies: design, stage, properties, sketches, prototype, durability, and etc.

4. Materials and Teaching Aids:

      4.1 Reciprocal reading worksheet

      4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group work by looking at the reading article (using predicting strategy). –Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. –Teacher gives the sentence frame to the learners. "I think I will learn .... because.............................."	**Planning** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
During-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note. **3. Clarifying** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. –Teacher activates the learners in a small group to make the questions (using wh–questions) by asking the guideline questions. For examples: "What is design?" "How many stages are there in the design process?" –Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For examples: I can't figure out "durability", so I talk to friend or I look up the word in the index or dictionary. Others examples: •I don't get the [word, sentence, part, visual, chapter], so I [use fix-up	**Monitoring** –Learners talk with their friend in a small group by looking at the text. They use the wh–questions –Learners make the questions by themselves and share the own questions with their friend in a small group. – Learners use the (meta)cognitive reading strategies by themselves in a small group of work. –Learners write their own questions in the reciprocal reading worksheet. –Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection]. •I am not sure about ......, but then I .... This is a tricky word because .... •I am having trouble pronouncing	
Post-reading **4. Summarizing** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	**-Teacher provides the learners use text structure (e.g., present simple tense) to summarize the main idea and details, sequence, causes and effects, and problem and solution.** -Teacher activates learners observing (e.g. table of contents, headings) to summarize the text. For example: The most important idea in the text is...*the design process..... (How many stages are there in the design process?) There are seven stage in the design process, first stage is.........., second stage is.........., and final stage is............* Others examples: The most important idea in the text are..................., This part is mostly about................, This article is about ...., First......., Next,............., Then................, Finally.............., and In the beginning/middle/end.	**Evaluation** -Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. - They also use the (meta)cognitive reading strategies to summarize the reading text while they work with their friends and they used reciprocal reading worksheet.

6. Evaluation:

6.1 Reading comprehension per-test and post-test

6.2 Reciprocal reading worksheet (see Appendix E)

6.3 Observation from of cognitive and metacognitive reading strategies engaged in reciprocal reading activities (see Appendix C)

Instructional Plan

Subject: English for Technology   **Code:** 2313704

Unit 4: Technology in Sport   **Time:** 3 hours

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1. Terminal Objectives:

1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of technology in sport.

1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

After the learners complete the unit, they are able to:

2.1 make prediction.

2.2 make questioning and clarifying the new word(s) under the topic technology in sport.

2.3 make summarizing by using the own words.

2.4 answer the comprehension questions.

3. Language Contents:

3.1 Language skill: Reading comprehension

3.2 Grammar: used to, used for, made of, and made from

3.3 Vocabularies: plastics fibers, composite, laminate, metals, aluminum, corrosion resistance, and etc.

4. Materials and Teaching Aids:

4.1 Reciprocal reading worksheet

4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using the (meta)cognitive reading strategy) by short note.	–Teacher activates the learners in a small group work by looking at the reading article (using predicting strategy). –Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. –Teacher gives the sentence frame. "I think I will learn …………………… because……………………."	**Planning** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
During-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. –Teacher activates the learners in a small group work to make the questions (using wh-questions) by asking the guideline questions. For examples: "Which suitable material is used to make football?" "Why sport equipment must be strong?"	**Monitoring** –Learners talk with their friend in a small group by looking at the text. They use the wh-questions –Learners make the questions by themselves and share the own questions with their friend in a small group. – Learners use the (meta)cognitive reading strategies by themselves in a small group of work. –Learners write their own questions on the reciprocal reading worksheet.
3. Clarifying A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For example: I can't figure out "technologist", so I look for word parts that I know. Others examples: •I don't get the [word, sentence, part, visual, chapter], so I [use fix-up	–Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection]. •I am not sure about ..., but then I ... This is a tricky word because .... •I am having trouble pronouncing	
Post-reading 4. Summarizing A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners use text structure (e.g., present simple tense) to summarize the main idea and details, sequence, causes and effects, and problem and solution. –Teacher activates learners observing (e.g. table of contents, headings) to summarize the text. For example: The most important idea in the text is…*the choosing material in the sport* equipment…. . *A lather is used to make football.* Others examples: The most important idea in the text are.................., This part is mostly about................, This article is about ...., First......., Next,............, Then................., Finally..............., and In the beginning/ middle/end.	Evaluation –Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. – They also use the (meta)cognitive reading strategies to summarize the reading article while they work with their friend and they used reciprocal reading worksheet.

6. Evaluation:

6.1 Reading comprehension per-test and post-test

6.2 Reciprocal reading worksheet (see Appendix E)

6.3 Observation from of cognitive and metacognitive reading strategies engaged in reciprocal reading activities (see Appendix C)

Instructional Plan

Subject: English for Technology   **Code:** 2313704

Unit 5: Medical Technology   **Time:** 3 hours

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1. Terminal Objectives:

1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of medical technology.

1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

After the learners complete the unit, they are able to:

2.1 make prediction.

2.2 make questioning and clarifying the new word(s) under the topic medical technology.

2.3 make summarizing by using the own words.

2.4 answer the comprehension questions.

3. Language Contents:

3.1 Language skill: Reading comprehension

3.2 Grammar: Relative clauses

3.3 Vocabularies: bioengineering, artificial heart, pumping system, hydraulic fluid, hydraulic valves, rechargeable, scanning, and etc.

4. Materials and Teaching Aids:

4.1 Reciprocal reading worksheet

4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group to look at the article by using predicting strategy. –Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. –Teacher gives the sentence frame. "I think I will learn .... because................. ."	**Planning** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
While-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. –Teacher activates the learners in a small group work to make the questions (using wh-questions) by asking the guideline questions. For examples: "What is medical technology applying form?" "What are the products of medical technology?"	**Monitoring** –Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. –Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. –Learners write the prediction on the reciprocal reading worksheet.
3. Clarifying A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For examples: I can't figure out "rechargeable", so I reread to get a picture in my head. Others examples: •I don't get the [word, sentence, part, visual, chapter], so I [use fix-up	–Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection]. •I am not sure about ......, but then I .... This is a tricky word because .... •I am having trouble pronouncing	
Post—reading **4. Summarizing** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners use text structure (e.g., using relative clauses) to summarize the main idea and details, sequence, causes and effects, and problem and solution. –Teacher activates learners observing (e.g. table of contents, headings) to summarize the text. For example: *The most important idea in the text is...the product of medical technology. A pacemaker is a device for people who have heart problems. ....* *The examples form the article are..............* Others examples: The most important idea in the text are..................., This part is mostly about................, This article is about ...., First......., Next,............, Then................., Finally.............., and In the beginning/ middle/end.	**Evaluation** –Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. – They also use the (meta)cognitive reading strategies to summarize the reading article while they work with their friend and they used reciprocal reading worksheet.

6. Evaluation:

6.1 Reading comprehension per–test and post–test

6.2 Reciprocal reading worksheet (see Appendix E)

6.3 Observation from of cognitive and metacognitive reading strategies engaged in reciprocal reading activities (see Appendix C)

Instructional Plan

Subject: English for Technology **Code:** 2313704

Unit 6: Careers in Technology **Time:** 3 hours

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1. Terminal Objectives:

1.1 Learners are able to use the metacognitive reading strategies (predicting, questioning, clarifying, summarizing) in a small group of interaction under the topic of careers technology.

1.2 Learners use the metacognitive reading strategies by themselves in the process of reading activities.

2. Enabling Objectives:

After the learners complete the unit, they are able to:

2.1 make prediction.

2.2 make questioning and clarifying the new word(s) under the topic careers in technology.

2.3 make summarizing by using the own words.

2.4 answer the comprehension questions.

3. Language Contents:

3.1 Language skill: Reading comprehension

3.2 Grammar: must, mustn't, should, shouldn't

3.3 Vocabularies: qualifications, employers, responsibilities, assemblies, conduct, environmental engineers, petroleum engineers, and etc.

4. Materials and Teaching Aids:

4.1 Reciprocal reading think-aloud sheet

4.2 Oxford English for Careers (Student's book): Technology 1

5. Activities:

Teacher's Notes	Teacher's Activities	Learners' Activities
Pre-reading **1. Predicting** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	−Teacher activates the learners in a small group to look at the article by using predicting strategy. −Teacher guides the learners using predicting strategy, such as previewing the determine text structure, sequencing of events, looking the main idea and details. −Teacher gives the sentence frame "I think I will learn .... because.................. ."	**Planning** −Learners talk with their friends in a small group work by focus on the reading article. They brainstorm the idea to predict the topic or title by looking at the content/information from the reading article. −Learners exchange the roles to be the leader in a small group work. They model and share their opinion with their friends to make a prediction. −Learners write the prediction on the reciprocal reading worksheet.
While-reading **2. Questioning** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	−Teacher provides the learners looking at text features (e.g., heading, maps, tables, chart to formulate the questions. −Teacher activates the learners in a small group to make the questions (using wh-questions) by asking the guideline question. For examples: "What are the lists of careers in technology that you know?" "What do you think are the most important to work as aerospace engineer?" "Which careers in technology do you like the most and why?"	**Monitoring** −Learners talk with their friend in a small group by looking at the text. They use the wh-questions −Learners make the questions by themselves and share the own questions with their friend in a small group. − Learners use the (meta)cognitive reading strategies by themselves in a small group of work. −Learners write their own questions on the reciprocal reading worksheet.
3. Clarifying A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	−Teacher activates the learners in a small group of work to identify the breakdown in meaning of word(s). For example: I can't figure out "agricultural", so I check the pictures. Others examples:	−Learners talk with their friends in a small group work by looking at the reading article and clarify the difficult word(s), phrase(s), or sentences(s). Then, they write the difficult words and make the clarifying on the reciprocal reading worksheet.

	•I don't get the [word, sentence, part, visual, chapter], so I [use fix-up strategies, reread, read on, break the word into parts, visualize, skip it, ask a friend, think about my connection]. •I am not sure about ..., but then I .... This is a tricky word because .... •I am having trouble pronouncing	
Post-reading **4. Summarizing** A teacher observes the learners' behavior (using of (meta)cognitive reading strategies) by short note.	–Teacher provides the learners use text structure (e.g., present simple tense, must, should) to summarize the main idea and details, sequence, causes and effects, and problem and solution. –Teacher activates learners observing (e.g. table of contents, headings) to summarize the text. For example: The most important idea in the text is...*the careers in technology .... . The examples form the article is chemical engineers. If you want to be the chemical engineers, you must have the certificate or diploma in chemical engineering. ....* Others examples: The most important idea in the text are..................., This part is mostly about................, This article is about ...., First......., Next,............., Then................, Finally.............., and In the beginning/ middle/end.	**Evaluation** –Learners talk with their friends in a small group by sharing their idea about the main part to summarize. Then, they use their own words or sentences to summarize the reading article in brief. – They also use the (meta)cognitive reading strategies to summarize the reading article while they work with their friend and they used reciprocal reading worksheet.

6. Evaluation:

    6.1 Reading comprehension per-test and post-test

    6.2 Reciprocal reading worksheet (see Appendix E)

    6.3 Observation from of cognitive and metacognitive reading strategies engaged

in reciprocal reading activities (see Appendix C)

Six Reading Articles

Unit 1: Technology and Society

Language skill: Reading comprehension

Technology and society

   The purpose of technology is to produce things that improve our lives, our work and our environment. The people who design, test and make these things are engineers and technologists. They work in areas such as civil, mechanical, electrical, electronic and marine engineering, and information technology (IT). They use scientific knowledge and technological experience in their work. They often use old technology (e.g. radio waves) to create new things (e.g. mobile phones).

   The people who install, work with and maintain technological equipment are technicians. A technician studies one area of technology like electricity, electronics or mechanics and works with equipment in that area. Two examples are an electrician and a car mechanic.

   But we all use technology every day. It is all around us and affects every part of our lives. Here are some examples:

- **transport**–cars, ships air travel, space exploration
- **telecommunications** –mobile phones internet, satellites
- **trade**–credit and debit cards, bank ATM machines, internet trade
- **work efficiency**–washing machines, microwave ovens, computer software
- **power**–heating, lighting, air conditioning equipment
- **entertainment** –DVDs, satellite TV receivers, digital cameras
- **health**–lasers in eye surgery, medicines, biotechnology
- **safety and security** – ABS brakes and airbags in cars, smoke detectors
- **food**–farming, processed food
- **Information management**–computers, flat-screen monitors, software
- **infrastructure**–roads, buildings, water supply

- **manufacturing**–machines and robots in factories

Because technology is so important in society, technologists and engineers have to think about its good points and bad points. Unfortunately, some technology has both positive and negative effects. Oil and coal, for example, make our lives easier but they also pollute our environment. Cars and planes allow us to travel fast, but they also cause accidental deaths and add to global warming. The problem for technology is how to increase the positive effects on society and reduce the negative effects.

Retrieved from: (Bonamy, 2007, p. 6)

Unit 2: Studying Technology

Language skill: Reading comprehension

Studying technology

What is the difference between a technician, a technologist and an engineer? The main difference is in the level of education and training. Engineers have the highest level of training and normally have university qualifications. A technologist usually has 2–3 years of training, and a technician usually has 1–2 years.

You can progress from technician to technologist and then to engineer by doing courses at college and university. Colleges offer certificates and diplomas (a diploma is a higher qualification than a certificate). Universities offer degrees.

As an example, in the UK, young people who want a career in technology can start by studying at a college of further education or university. They normally follow the route: HNC (Higher National Certificate) ⟶ HND (Higher National Diploma) ⟶ B.Eng. (Bachelor of Engineering degree). Some universities allow students to start a degree course after only one year of a diploma course.

It is also possible for students to leave school at sixteen and work for a company. The company may allow them to study at a college for part of each week. This is called a part-time, day-release or 'sandwich' course.

In Unit 2 of the Student's Book there is an example of a student, Alec, who is doing an HND diploma course in civil engineering at a college in Scotland, Civil engineers work in the planning and construction of airports, bridges, roads, etc. The course includes the following subjects:

• **Construction surveying** This teaches how to measure ground and how to mark outlines and points on the ground from plans.

• **Construction management** This teaches how to ensure that building Work is completed on time, safely and with the correct materials.

• **Fluid mechanics** This teaches how liquids and gases move and affect structures. This is important in constructing pipelines, for example.

• **Geotechnics** This is about the properties of earth and rocks. This is especially important in underground construction.

• **Communications** (sometimes called complex communication, or communication skills) This teaches how to speak and write about technical matters.

• **CAD (Computer-Assisted Design)** Surveyors and architects use computer software to help them draw plans and designs.

Retrieved from: (Bonamy, 2007, p. 10)

Unit 3: Design

Language skill: Reading comprehension

Design

Design is at the heart of technology. This is why most technology courses include design. Look at manufactured product, and you can see that someone has designed it: they have tried to make good and work well.

The design process has several stages. It starts when someone notices a need or problem. It ends when a product which meets that need or solves that problem is manufactured.

These are the stages of the design process:

• **Notice a need or a problem** For example, when a cooking pot is heated, the handle become too hot to touch. The designer may have to design a new product or change the product to improve it.

• **Write a design brief** This is a simple, clear statement of what is needed. For example, design a handle that stays cool when the pot is heated.

• **Investigate and research** The designer asks questions and looks for information: Who will use product? What will it do? How will it look? What materials can I use? What will the materials cost? Do they have the right properties (such as light weight and durability)? How will the product he made? Will it be safe?

• **Develop alternative solutions** The designer thinks of various different ideas. He or she will then draw sketches (simple drawings), of these different designs.

• **Choose the best solution** The designer chooses the best design. He or she also considers cost, time and whether it can be manufactured easily.

• **Make a model or prototype** (also called the **realization** stage, when a design is made into a real object) First, a detailed drawing is made, probably using CAD software. Then a prototype (a first working model) is produced. Or a computer simulation may be used.

• **Test and evaluate** The prototype is physically tested to make sure it works and that it is strong enough. Then it is evaluated: *How well does it meet the design brief? Can it be improved?*

• **Decide whether to manufacture** If the final evaluation is positive, the company may decide to manufacture the product

Retrieved from: (Bonamy, 2007, p. 14)

Unit 4: Technology in Sport

Language skill: Reading comprehension

Technology in sport

When you play a sport, your equipment must be strong enough for the sport. If it isn't powerful forces will break or damage it. When a racket hits a ball, for example, there is sudden compression (= squeezing) and tension. (= Stretching). The racket may also bend (= compression + tension). Clothing wears away with frequent use. Even strong metal bicycle pedals may break same way repeatedly. Water may cause corrosion of metal parts.

Sports materials must have properties to resist these forces. Equipment must be strong corrosion resistant, and tough, so that it's difficult to break. Clothing must be wear-resistant, fit the body tightly and be aerodynamic. Some materials should be flexible (able to bend) or elastic (able to bend, stretch or change shape and return to their first shape). Some equipment must be hard- able to cut, but not be cut by other materials. For many sports, especially fast sports, the equipment need to have a high strength-to-weight ratio.

Special materials are used for making modern sports equipment and clothing:

• **plastics** – these are light and can be moulded into shape-examples: polycarbonate (used for bike helmets), polyurethane (footballs) and polystyrene (inside bike helmets)

• **fibers** – materials such as lycra, nylon and Kevlar are used for sports clothing because of their strength, lightness and elasticity

• **composites** – these mix fibers and plastic and have a good strength-to weight ratio- examples: fiberglass (boats and vaulting poles), graphite and carbon-fiber (ski poles and expensive lightweight bicycle frames)

• **laminates** – these are formed from two or more layers of plastic or composite (boats and snowboards)

• **metals** such as titanium and aluminum, and alloys (mixtures) such as aluminum alloys, combine lightness, strength and corrosion-resistance

Retrieved from: (Bonamy, 2007, p. 18)

Unit 5: Medical Technology

Language skill: Reading comprehension

Medical technology

Medical technology applies engineering to biology and medicine–for example, in the development of aids or replacements for defective or missing body parts. Bioengineering combines biological science with engineering.

One product of bioengineering is the artificial heart. This is made of metal and plastic. It is used to keep very sick patients alive who might die while waiting for a transplant of a natural heart. An artificial heart has an electric motor and a pumping system with hydraulic fluid and hydraulic valves. It has external and internal parts (that is, outside and inside the body). Inside the body is a rechargeable battery which powers the pumping system. This intimal battery is recharged by an external battery using a simple electrical coil, which induces a current. This current then recharges the internal battery. The whole system is controlled by a microprocessor (also called a controller) inside the body. Of course, biological safety is very important, so the plastics in the artificial heart are very durable. There is also a heart pacemaker under the skin, which keeps the heart working at a regular pace.

Another product of medical technology is scanning equipment. This scans internal organs of the body, and produces images using technologies such as X–Rays and ultrasound. CAT scanners use special X–ray equipment. (CAT is really CT, which stands for Computed Tomography.) A computer processes the images to create a cross–section of the soft tissue and organs of the body. CT imaging is very useful because it can show the soft parts of the body very clearly.

Electronic Assistive Technology or EAT is an example of mechatronics in medical technology Mechatronics combines mechanical engineering, electronics and IT. This kind of technology can provide equipment for very disabled people. In a disabled person's house, for example, this equipment allows them to control doors, lights, televisions, computers, etc. with eye movements.

Another example of EAT is the ultracane. Blind people often carry a cane when walking. The ultracane uses ultrasound (sound above the level of human hearing) to help blind people detect objects around them. Some people call it the 'batcane' because bats use ultrasound when they fly at night.

Retrieved from: (Bonamy, 2007, p. 42)

Unit 6: Careers in Technology

Language skill: Reading comprehension

Careers in technology

      The jobs described in this unit are types of engineers and technician relates to qualifications and responsibilities. Engineers should have a better understanding of the principles and theories behind their discipline, and are more likely to be involved in design and project management or running an industrial complex. Technicians require a practical understanding of their specialism and have the practical skills and understanding of equipment to convert the engineers' theoretical designs ideas into working solutions. Most engineers will work as a member of a team including engineers from other disciplines.

      This is why employers try to recruit people who are good team players and have good communication skills, in addition to their engineering skills and qualifications. Each engineer will have technicians working for them to make part or assemblies, conduct, tests, and perform other tasks as part of the team. Here are some examples of engineering and technician jobs:

      • Environmental engineers often work in a manufacturing industry. They make sure that the company's products are good for certain conditions or environments, such as high and low temperatures. They design safety tests for products and make sure that products are environmentally friendly. A different kind of job for environmental engineers is environmental protection—this uses technology to prevent or reduce pollution and other dangers to humans, plants and animals.

      • Petroleum engineers specialize in oil exploration and production activities of oil and gas companies. They work with sophisticated technology in often dangerous conditions: from the cold Arctic to hot desert temperatures, and from land to the deep ocean.

      • Sound technicians have a working knowledge of electrical engineering, electronics and sound recording equipment.

      • Aerospace engineers apply engineering knowledge to spacecraft, planes, satellites and rockets. Their work involves the control of flight, aerodynamics, jet engines, etc.

• Agricultural engineers design agricultural machinery and equipment. They find ways to improve farming methods and the processing of food products.

• Biomedical engineers apply engineering to the development of medical devices to replace or support damaged body parts. They also develop devices such as scanners.

• Chemical engineers apply chemistry (combined with Maths and Economics) to the process of converting materials or chemicals to more useful or valuable forms – for example, converting natural gas into plastics.

Retrieved from: (Bonamy, 2007, p. 59)

Reciprocal Reading Worksheet

Name _____ Class_____ Students I.D. _____

Title: _____ Group _____

Prediction: Before you begin to read the selection, look at the title or cover, scan the pages to read the major heading, and look at any illustrations. Write down your prediction (S).	

Prediction: I predict that I think I will learn **Support:** because	

Main Ideas: As you finish reading each paragraph or key section of text, identify the main idea of that paragraph section.	**Questions:** For each main idea listed, write down at least one question. Here are questions I can ask my group (who, what, when, where, why, how, what if):
Main Ideas 1:	**Question for paragraph 1:**
Main Ideas 2:	**Question for paragraph 2:**
Main Ideas 3:	**Question for paragraph 3:**

Main Ideas 4:	Question for paragraph 4:
Main Ideas 5:	Question for paragraph 5:

Clarify: Copy down words, phrases, sentences, or references in the passage that are unclear. Then explain how you clarified your understanding.

Word or Phrase of Reference;	How to clarify:
1._____ is difficult word because _____ _____ _____ _____ _____.	So, I (check the strategies that you used) ___ checked parts of word that I know. ___ sounded out of word that I know. ___ thought out the word. ___ read on to find clues. ___ reread to find clues. ___ tried another word:
2. _____ is confusing idea because _____ _____ _____ _____ _____.	So, I (check the strategies that you used) ___ reread. ___ read on. ___ thought about what I know. ___ talked to a friend.

Summarize: Write a brief summary of what you read.

Here is a one-, two-, or more sentence summary.

Adapted from: (Komariah, Ramadhona & Silviyanti, 2015; Oczkus, 2018)

Appendix F Examples of Translating Audio Recording: Metacognitive Reading Strategies Behaviors of Different Proficiency EFL Learners

The cognitive and metacognitive reading strategies were used by the different proficient EFL students through reciprocal reading activities in the reading process units 1–6.

Reciprocal Reading Activities		
Advanced EFL Students	**(Meta)cognitive Reading Strategies Codes** **(C3) = Break down larger phrases into smaller parts (C23) = Questioning** **(C27) = Summarizing (C29) = Translating (C30) = Using dictionary** *You can see the explanation of each code at the Appendix C.	
During–reading	**Unit 1 Technology and Society** AS1: _What_ was marine engineering? [5] **(C23)** AS2: Good! What was question number three? _Who_ created technology? And _Where_ did they work?[45] **(C23)**	**(C23)** What...? Why...? Where...? When...? How...? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 4 Technology in Sport** Teacher: How did you clarify the word? AS1: Breaking the word, looking at the context clue, rereading, and _asking friends_.[55] **(C3+M14)**	**(C3)** "I don't have vocabulary problems in Thai at all, but in English I sometimes do. When the problem occurs, I use my knowledge of prefix and suffix to help me guess. For instance, I don't know the word "misuse", I divide the word into "mis" and "use" and guess the meaning." (Wirotanan, 2002, p. 83). **(M14)** "I wish I had my friends help me understanding this sentence." (Thampradit, 2006, p. 108).
During-reading	**Unit 5 Medical Technology** AS2: This sentence we could use to summarize. I found it. AS2: Ho! _Translated_ it.[20] **(C29)**	**(C29)** "This word, "essentially" should mean "cham–pen" (Thampradit, 2006, p. 105).

Reciprocal Reading Activities		
Intermediate EFL Students	**(Meta)cognitive Reading Strategies Codes**	
	(C22) = Predicting **(C23) = Questioning** **(CM13) = Vocabulary listing**	
	*You can see the explanation of each code at the Appendix C.	
During–reading	**Unit 1 Technology and Society** **IS1:** <u>*What*</u> was the purpose of technology?[23]**(C23)** **IS2:** <u>*Who*</u> designed and produced technology?[25]**(C23)** **Peer3:** Could I ask "What was the impact of technology?"	**(C23)** What…? Why…? Where…? When…? How…? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 2 Studying Technology** **Peer3:** All–right! We could start with "learning technology". **IS1**: Also, <u>we could compare between *technical, technologist,* and *engineer. What*</u> were they different?[36]**(C23+M13)** I would start with … I though…(waiting a moment…) I didn't know. **Peer2:** Understanding and studying **IS1:** We had to give some information…talking about *<u>education, training, and future career</u>.*[75]**(M13)** **Peer2:** "qualification of a person who wanted to study" **IS1:** "It was the qualification of studying."[78] **Peer1:** Studying! What did we write? **IS1:** … (please wrote) … "<u>*I thought I learnt*</u> about the qualification of studying and when the students finished the course, they could do…."[100]**(C22)**	**(C22)** I think I will learn…because…. (Oczkus, 2018, p. 24)./ **(C22)** "I guess the second paragraph is going to tell me something concerns with the main idea of the passage." (Thampradit, 2006, p. 99). **(C23)** What…? Why…? Where…? When…? How…? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26). **(M13)** "After reading, I think I'd better group verbs that are related in meaning, such as, execute, carry on, run on." (Thampradit, 2006, p. 107)./ **(M13)** The readers make lists of relevant vocabulary to prepare for new reading (Thampradit, 2006).

Reciprocal Reading Activities		
Intermediate EFL Students	**(Meta)cognitive Reading Strategies Codes**	
	C23) = Questioning (C29) = Translating (M13) = Vocabulary listing (M14) = Working with classmates *You can see the explanation of each code at the Appendix C.	
During–reading	**Unit 2 Studying Technology** **IS1:** *What* was about studying?[80]**(C23)** **Peer2:** It had differences between technician, technology, and engineer. **Peer2:** We wrote another question about the curriculum that students chosen (question two). **IS1:** So, we could make the question "*How long* did the technologist train?"[129]**(C23)** **Peer3:** This was better? (question two)	**(C23)** What…? Why…? Where…? When…? How…? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 4 Technology in Sport** **Peer1:** We found the difficult word while reading. If we saw the difficult word, we would write it or find the meaning while reading. **IS1:** I *translated text into Thai* too.[36]**(C29)** **Peer1:** Which materials did we use to make the sport equipment?	**(C29)** "This word, "essentially" should mean "cham–pen" (Thampradit, 2006, p. 105).
Post–reading	**Unit 5 Medical Technology** **Peer1:** How was the CT Scan usefulness? This word "replacement" was difficult.[37] **Teacher:** How did you get the meaning of this word? "replacement" **Peer1 and IS1:** *We asked Pattarawarin.*[40]**(M14)**	**(M14)** "I wish I had my friends help me understanding this sentence." (Thampradit, 2006, p. 108).
During–reading	**Unit 6 Careers in Technology** **Peer3:** There were two careers, that right? **IS1:** Hum… there was a paragraph that the writer talked about *engineer, technician, environmental engineer, petroleum engineer* (the word list of occupations) …[29]**(M13)** **Peer3:** Could I make the question? "Why did they work in team?"	**(M13)** "After reading, I think I'd better group verbs that are related in meaning, such as, execute, carry on, run on." (Thampradit, 2006, p. 107)/ **(M13)** The readers make lists of relevant vocabulary to prepare for new reading (Thampradit, 2006).

Reciprocal Reading Activities		
Novice EFL Students	**(Meta)cognitive Reading Strategies Codes**	
	(C4) = Clarifying C22) = Predicting C23) = Questioning (C29) = Translating *You can see the explanation of each code at the Appendix C.	
During–reading	**Unit 1 Technology and Society** **Peer1:** Yes, it was an article that told ours about engineering. **NS1:** If you said that this story was about engineering. *How* did I write?[61]**(C23)** **NS2:** We could make the question "*What* was this story about?/ *What* was it?"[63]**(C23)** **NS2:** It was difficult. *What* was the question number two?[116]**(C23)** **NS1:** *What* was this story about?[117]**(C23)** **Peer1:** Read the story and asked the questions.	**(C23)** What…? Why…? Where…? When…? How…? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 4 Technology in Sport** **NS1:** At the first paragraph was a supporting detail. **NS2:** That right! ……the sport equipment had been strong enough for sports.[19] **NS1:** This topic was about… **NS2:** …was about technology in sport. Right? It could resistant… (*I translated*!)[22]**(C22+C29)** **NS1:** *What* was the property? [60]**(C4)** **NS2:** *What* was property of sport equipment? [61] **(C23)** **Peer3:** What was main idea? **NS2:** We thought later! Made the questions first! **NS2:** "*What* was the properties of equipment?"[64]**(C23)**	**(C4)** I didn't get the word… , so I …(asked a friend)… . (Oczkus, 2018, p. 28). **(C22)** "I guess the second paragraph is going to tell me something concerns with the main idea of the passage." (Thampradit, 2006, p. 99). **(C23)** What…? Why…? Where…? When…? How…? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26). **(C29)** "This word, "essentially" should mean "cham–pen" (Thampradit, 2006, p. 105).

Reciprocal Reading Activities		
Novice EFL Students	**(Meta)cognitive Reading Strategies Codes** **C23) = Questioning (C27) = Summarizing (M14) = Working with classmates** *You can see the explanation of each code at the Appendix C.	
During–reading	**Unit 4 Technology in Sport** **NS2:** This one asked about property. **NS1:** ...and the other one asked "***How many*** sport equipment were there? Was it different?[95]**(C23)** **Peer3:** What? **NS2:** ***What*** were they? (talked about the questions) They were fibers.[98]**(C23)**	**(C23)** What...? Why...? Where...? When...? How...? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 5 Medical Technology** **Peer3:** In unit 4, there were lots of information. **NS1:** ***What*** artificial heart was made from?[26] **(C23)** **Peer1:** Hum... ok.	**(C23)** What...? Why...? Where...? When...? How...? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26).
During–reading	**Unit 6 Careers in Technology** **NS1:** I had just made the questions. Which part did we use to make the questions? Friends! Ok! I would tell you about some information to make questions. Engineers and technicians had to have qualifications and had to be responsibilities for their duty. They did work under the principles and theories.[89]**(C23+C27)** Peer1: Ok! You could ask "What did the engineers have to have/be? (qualification/principles to do work) **NS1:** Ok! ***I got it***.[93]**(M14)** **Peer1:** Didn't forget to underline the words! **NS1:** Ok!	**(C23)** What...? Why...? Where...? When...? How...? such as "What examples does the author include? "and How does the heading?" (Oczkus, 2018, pp. 25–26). **(C27)** "If I have to read this passage, I'll read it all then summarize it."/ "And in short, it's likely that this passage is about computer program writing." (Thumpradit, 2006, p. 106) **(M14)** "I wish I had my friends help me understanding this sentence." (Thampradit, 2006, p. 108).

Appendix G Ethical Application of the Study

University of Phayao Human Ethics Committee	**หนังสือแสดงความยินยอมเข้าร่วมโครงการวิจัย สำหรับอาสาสมัครอายุมากกว่า ๑๘ ปีขึ้นไป** (Informed Consent Form)

การวิจัยเรื่อง ประสิทธิภาพของกิจกรรมการอ่านแบบแลกเปลี่ยนเรียนรู้โดยใช้กลวิธีการอ่านแบบอภิปัญญา (meta)cognitive reading strategies เพื่อพัฒนาความสามารถในการอ่านเพื่อความเข้าใจของผู้เรียนชาวไทยที่เรียนภาษาอังกฤษในฐานะ ภาษาต่างประเทศ

The Effectiveness of Reciprocal Reading Activities using Metacognitive Reading Strategies for Enhancing Thai EFL Learners' Reading Comprehension Ability

วันให้คำยินยอม วันที่....................เดือน.........สิงหาคม...............พ.ศ...........๒๕๖๒..............

ข้าพเจ้า นาย/นาง/นางสาว
....
ที่อยู่...ได้อ่านรายละเอียดจาก
เอกสารข้อมูลสำหรับผู้เข้าร่วมโครงการวิจัยวิจัยที่แนบมาฉบับวันที่... และข้าพเจ้ายินยอมเข้าร่วม
โครงการวิจัยโดยสมัครใจ

ข้าพเจ้าได้รับสำเนาเอกสารแสดงความยินยอมเข้าร่วมในโครงการวิจัยที่ข้าพเจ้าได้ลงนาม และ วันที่ พร้อมด้วย
เอกสารข้อมูลสำหรับผู้เข้าร่วมโครงการวิจัย ทั้งนี้ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจาก
ผู้วิจัยถึงวัตถุประสงค์ของการวิจัย ระยะเวลาของการทำวิจัย วิธีการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด
ข้าพเจ้ามีเวลาและโอกาสเพียงพอในการซักถามข้อสงสัยจนมีความเข้าใจอย่างดีแล้ว โดยผู้วิจัยได้ตอบคำถามต่าง ๆ ด้วยความ
เต็มใจไม่ปิดบังซ่อนเร้นจนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกเข้าร่วมในโครงการวิจัยเมื่อใดก็ได้ โดยไม่จำเป็นต้องแจ้งเหตุผล และการบอกเลิกการเข้า
ร่วมการวิจัยนี้ จะไม่มีผลต่อการวัดผล ประเมินผล ตลอดจนการให้คะแนนในรายวิชาภาษาอังกฤษสำหรับเทคโนโลยีแต่อย่างใด

ผู้วิจัยรับรองว่าจะเก็บข้อมูลส่วนตัวของข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะเมื่อได้รับการยินยอมจาก
ข้าพเจ้าเท่านั้น บุคคลอื่นในนามของบริษัทผู้สนับสนุนการวิจัย คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน อาจได้รับ
อนุญาตให้เข้ามาตรวจและประมวลข้อมูลของข้าพเจ้า ทั้งนี้จะต้องกระทำไปเพื่อวัตถุประสงค์เพื่อตรวจสอบความถูกต้องของ
ข้อมูลเท่านั้น โดยการตกลงที่จะเข้าร่วมการศึกษานี้ข้าพเจ้าได้ให้คำยินยอมที่จะให้มีการตรวจสอบข้อมูลของข้าพเจ้าได้

ผู้วิจัยรับรองว่าจะไม่มีการเก็บข้อมูลใด ๆ เพิ่มเติม หลังจากที่ข้าพเจ้าขอยกเลิกการเข้าร่วมโครงการวิจัยและ
ต้องการให้ทำลายเอกสารและ/หรือ ตัวอย่างที่ใช้ตรวจสอบทั้งหมดที่สามารถสืบค้นถึงตัวข้าพเจ้าได้

ข้าพเจ้าเข้าใจว่า ข้าพเจ้ามีสิทธิที่จะตรวจสอบหรือแก้ไขข้อมูลส่วนตัวของข้าพเจ้าและสามารถยกเลิกการให้สิทธิใน
การใช้ข้อมูลส่วนตัวของข้าพเจ้าได้ โดยต้องแจ้งให้ผู้วิจัยรับทราบ

ข้าพเจ้าได้ตระหนักว่าข้อมูลในการวิจัยของข้าพเจ้าที่ไม่มีการเปิดเผยชื่อ จะผ่านกระบวนการต่าง ๆ เช่น การเก็บ
ข้อมูล การบันทึกข้อมูลในแบบบันทึกและในคอมพิวเตอร์ การตรวจสอบ การวิเคราะห์ และการรายงานข้อมูลเพื่อวัตถุประสงค์
ทางวิชาการ

ข้าพเจ้าได้อ่านข้อความข้างต้นและมีความเข้าใจดีทุกประการแล้ว ยินดีเข้าร่วมในการวิจัยด้วยความเต็มใจ จึงได้ลง
นามในเอกสารแสดงความยินยอมนี้

....ลงนามผู้ให้ความยินยอม

(...) ชื่อผู้ยินยอมตัวบรรจง

วันที่ ....เดือน....................................พ.ศ...........................

ข้าพเจ้า ☐ ยินยอม   ☐ ไม่ยินยอม

....ลงนามผู้ให้ความยินยอม

(...) ชื่อผู้ยินยอมตัวบรรจง

วันที่ ....เดือน....................................พ.ศ...........................

ข้าพเจ้าได้อธิบายถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย หรือความเสี่ยงที่อาจเกิดขึ้นจากการวิจัย รวมทั้ง
ประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด ให้ผู้เข้าร่วมในโครงการวิจัยตามนามข้างต้นได้ทราบและมีความเข้าใจดีแล้ว
พร้อมลงนามลงในเอกสารแสดงความยินยอมด้วยความเต็มใจ

....ลงนามผู้ทำวิจัย

(.............นางสาววิมลพร ระเวงวัลย์.........................) ชื่อผู้ทำวิจัย ตัวบรรจง

วันที่ ....เดือน.......สิงหาคม...................พ.ศ.....๒๕๖๒.............

....ลงนามพยาน

(..........นางสาวฐิตาภรณ์ น้อยนาลุ่ม................................) ชื่อพยาน ตัวบรรจง

วันที่ ....เดือน.......สิงหาคม...................พ.ศ.....๒๕๖๒.............

ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ผู้วิจัยได้อ่านข้อความในแบบคำยินยอมนี้ให้แก่ข้าพเจ้า
ฟังจนเข้าใจดี ข้าพเจ้าจึงประทับตราลายนิ้วมือขวาของข้าพเจ้าในแบบคำยินยอมนี้ด้วยความเต็มใจ

ลายมือชื่อผู้อธิบาย.................................

(......................................)

พยาน.......................(ไม่ใช่ผู้อธิบาย)

(............................)

ประทับลายนิ้วมือขวา   วันที่............เดือน...................พ.ศ...........

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BIOGRAPHY

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Other   –