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THE EFFECTS OF PROJECT-BASED WRITING  
INSTRUCTION ON WRITING ABILITY AND CRITICAL  
THINKING SKILLS OF THAI EFL UNDERGRADUATE  
STUDENTS



Miss Apapan Ruengkul

A Dissertation Submitted in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy in English as an International  
Language

Inter-Department of English as an International Language

GRADUATE SCHOOL

Chulalongkorn University

Academic Year 2020

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ทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาไทยระดับปริญญาตรีที่เรียน  
ภาษาอังกฤษเป็นภาษาต่างประเทศ



น.ส.อาภาพรษ์ เรืองกุล

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต  
สาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ สหสาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ

บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

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ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

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CHULALONGKORN UNIVERSITY

อาภาพรชัย เรืองกุล : ผลของการสอนการเขียนโดยใช้โครงงานที่มีต่อความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาไทยระดับปริญญาตรีที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ. ( THE EFFECTS OF PROJECT-BASED WRITING INSTRUCTION ON WRITING ABILITY AND CRITICAL THINKING SKILLS OF THAI EFL UNDERGRADUATE STUDENTS) อ.ที่ปรึกษาหลัก : รศ. ดร.ปัทมา วาสนสมสิทธิ์

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ (1) ศึกษาผลของการสอนการเขียนโดยใช้โครงงานเป็นฐานที่มีต่อความสามารถทางการเขียนของนักศึกษาไทยระดับปริญญาบัณฑิตที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ (2) ทดสอบผลของการสอนการเขียนโดยใช้โครงงานเป็นฐานที่มีต่อทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาไทยระดับปริญญาบัณฑิตที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ และ (3) สำรวจทัศนคติของนักศึกษาไทยระดับปริญญาบัณฑิตที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศต่อการสอนการเขียนโดยใช้โครงงานเป็นฐาน งานวิจัยชิ้นนี้เป็นงานวิจัยแบบผสมผสานที่มีกลุ่มทดลองกลุ่มเดียว วัดผลก่อนและหลังการทดลองโดยเก็บข้อมูลทั้งเชิงปริมาณและเชิงคุณภาพ กลุ่มตัวอย่างคือนักศึกษาระดับปริญญาบัณฑิตชั้นปีที่ 1 จำนวน 24 คน ที่กำลังศึกษาอยู่ที่มหาวิทยาลัยศรีนครินทรวิโรฒ เครื่องมือที่ใช้ในงานวิจัยได้แก่ แบบทดสอบความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณก่อนและหลังการเรียน บันทึกสะท้อนคิดของนักศึกษา แบบบันทึกการระลึกข้อมูลย้อนหลัง แบบสอบถามทัศนคติ และแบบสัมภาษณ์ถึงโครงสร้าง การเก็บข้อมูลกระทำในภาคการศึกษาต้น ปีการศึกษา 2562 และสถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ สถิติบรรยาย ค่าสถิติ **paired-sample t-test** และการวิเคราะห์เนื้อหา ผลการวิจัยพบว่าความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ หลังจากการทดลองการสอนการเขียนโดยใช้โครงงานเป็นฐาน และนักศึกษามีทัศนคติเชิงบวกต่อการสอนการเขียนโดยใช้โครงงานเป็นฐาน จากผลการวิจัยดังกล่าวสามารถสรุปได้ว่าการสอนการเขียนโดยใช้โครงงานเป็นฐานเป็นวิธีการสอนที่มีประสิทธิภาพวิธีหนึ่งซึ่งสามารถนำไปใช้ในการพัฒนาความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาไทยระดับปริญญาบัณฑิตที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศได้



สาขาวิชา            ภาษาอังกฤษเป็นภาษานานาชาติ  
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ลายมือชื่อนิสิต .....  
ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

# # 5887815720 : MAJOR ENGLISH AS AN INTERNATIONAL LANGUAGE

KEYWORD project-based writing instruction, writing ability, critical thinking  
D: skills, EFL undergraduate students

Apapan Ruengkul : THE EFFECTS OF PROJECT-BASED WRITING  
INSTRUCTION ON WRITING ABILITY AND CRITICAL THINKING  
SKILLS OF THAI EFL UNDERGRADUATE STUDENTS. Advisor:  
Assoc. Prof. PUNCHALEE WASANASOMSITHI, Ph.D.

This present study aimed to (1) investigate the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students, (2) examine the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students, and (3) explore the attitudes of Thai EFL undergraduate students towards project-based writing instruction. This study employed a mixed-method research design with a one-group, pre-test-post-test design to collect both quantitative data and qualitative data. The study participants were 24 first-year undergraduate students at Srinakharinwirot University. Five research instruments were created to elicit data including the pre-test and post-test of writing ability and critical thinking skills, the students' reflective journals, the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol. Data collection took place in the first semester of the academic year 2019, and the collected data were analyzed using descriptive statistics, paired-sample *t*-test, and content analysis. The findings revealed that after the implementation of project-based writing instruction, students' writing ability and critical thinking skills increased with statistical significance and students had positive attitudes towards project-based writing instruction. Based on such findings, it could be concluded that project-based writing instruction could be effectively implemented to enhance writing ability and critical thinking skills of Thai EFL Undergraduate students.

จุฬาลงกรณ์มหาวิทยาลัย  
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Field of Study:	English as an International Language	Student's Signature
		.....
Academic Year:	2020	Advisor's Signature
		.....

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## TABLE OF CONTENTS

	Page
.....	iii
ABSTRACT (THAI) .....	iii
.....	iv
ABSTRACT (ENGLISH) .....	iv
ACKNOWLEDGEMENTS .....	v
TABLE OF CONTENTS .....	vii
LIST OF TABLES .....	xi
LIST OF FIGURES .....	xiii
CHAPTER I INTRODUCTION .....	1
1.1 Background of the study .....	1
1.2 Research questions .....	6
1.3 Research objectives .....	6
1.4 Research hypotheses .....	6
1.5 Scope of the study .....	7
1.6 Definition of terms .....	7
1.6.1 Project-based learning .....	7
1.6.2 Writing instruction .....	8
1.6.3 Project-based writing instruction .....	8
1.6.4 Writing ability .....	8
1.6.5 Critical thinking skills .....	9
1.6.6 Thai EFL undergraduate students .....	9
1.7 Significance of the study .....	9
CHAPTER II LITERATURE REVIEW .....	11
2.1 Project-Based Learning .....	11
2.1.1 Theoretical foundation for project-based learning .....	11

2.1.2 Project-based learning: means of integrating language and content .....	16
2.2 Writing Ability.....	30
2.2.1 Definition of writing ability.....	30
2.2.2 Writing instruction.....	33
2.2.3 Writing assessment .....	44
2.3 Critical thinking skills.....	47
2.3.1 Definition of critical thinking skills.....	47
2.3.2 Critical thinking instruction .....	49
2.3.3 Critical thinking assessment .....	53
2.3.4 Related studies regarding critical thinking skills and writing .....	58
2.4 Conceptual framework of the study .....	60
CHAPTER III RESEARCH METHODOLOGY .....	63
3.1 Research design .....	63
3.2 Population and participants.....	64
3.3 Research procedures .....	65
3.4 Research instruments .....	86
3.4.1 The pre-test and post-test of writing ability and critical thinking skills .....	88
3.4.2 The students' reflective journals.....	97
3.4.3 The stimulated recall.....	100
3.4.4 The attitude questionnaire.....	101
3.4.5 The semi-structured interview protocol.....	105
3.5 Data collection .....	108
3.6 Data analysis .....	110
3.7 Chapter summary .....	111
CHAPTER IV FINDINGS .....	114
4.1 The effects of the project-based writing instruction on students' writing ability .....	114
4.2 The effects of the project-based writing instruction on students' critical thinking skills .....	122
4.3 Students' attitudes towards project-based writing instruction .....	132

4.3.1 General information of the participants .....	132
4.3.2 Students' overall attitudes towards project-based writing instruction.....	136
4.3.3 Students' attitudes towards the use of project-based writing instruction in improving their writing ability .....	137
4.3.4 Students' attitudes towards the use of project-based writing instruction in improving their critical thinking skills .....	140
4.3.5 Students' attitudes towards learning process of project-based writing instruction .....	142
4.3.6 Students' attitudes towards advantages and disadvantages of working on a project .....	155
4.3.7 Students' additional comments and suggestions .....	164
4.4 Summary .....	167
CHAPTER V SUMMARY, DISSCUSSION, AND RECOMMENDATIONS.....	168
5.1 Summary of the study .....	168
5.2 Summary of the findings.....	170
5.2.1 English writing ability .....	170
5.2.2 Critical thinking skills.....	170
5.2.3 Students' attitudes towards project-based writing instruction.....	171
5.3 Discussion .....	171
5.3.1 The effects of project-based writing instruction on improvement of writing ability .....	172
5.3.2 The effects of project-based writing instruction on improvement of critical thinking skills .....	177
5.3.3 Thai EFL students' attitudes towards project-based writing instruction .....	182
5.4 Implications of the findings .....	188
5.5 Limitations of the study .....	190
5.6 Recommendations for future research .....	190
REFERENCES .....	192
Appendix A: The results of a learner survey .....	209
Appendix B: Scope and sequence of the project-based writing instruction (PWI) ...	210
Appendix C: The lesson plans of Unit 1 .....	223

Appendix D: Test specifications of the pre-test and post-test of writing ability and critical thinking skills.....	234
Appendix E: The pre-test and post-test of writing ability and critical thinking skills .....	242
Appendix F: The scoring rubric of writing ability .....	248
Appendix G: The scoring rubric of critical thinking skills .....	250
Appendix H: Students' reflective journals in English .....	252
Appendix I: Students' reflective journals in Thai.....	253
Appendix J: The attitude questionnaire in English .....	254
Appendix K: The attitude questionnaire in Thai.....	260
Appendix L: The semi-structured interview protocol in English .....	269
Appendix M: The semi-structured interview protocol in Thai .....	270
Appendix N: Validation of the lesson plans .....	272
Appendix O: Validation of the pre-test and post-test of writing ability and critical thinking skills.....	274
Appendix P: Validation of students' reflective journals.....	278
Appendix Q: Validation of the attitude questionnaire .....	279
Appendix R: Validation of the semi-structured interview protocol.....	285
Appendix S: Names of the experts.....	287
Appendix T: Scenarios and examples of the products of all mini-projects .....	288
Appendix U: Self-check forms .....	292
Appendix V: Peer review checklists .....	296
Appendix W: The scoring rubric of project .....	300
Appendix X: Consent form for participation in a research study .....	302
VITA .....	304

## LIST OF TABLES

	<b>Page</b>
Table 1: Synthesis of project-based instruction framework .....	24
Table 2: Synthesis of writing process .....	39
Table 3: Synthesis of writing instruction framework .....	44
Table 4: Demographic characteristics of the participants (n = 24) .....	64
Table 5: Rhetorical modes of each text type.....	68
Table 6: Project-based writing instructional plans.....	84
Table 7: Research instruments of the study .....	86
Table 8: The students' reflective journals.....	97
Table 9: Original and revised versions of the semi-structured interview protocol....	106
Table 10: The steps involved in the 15-week data collection.....	109
Table 11: Summary of research questions, research instruments, data obtained, and data analysis .....	112
Table 12: Overall results of the comparison between the pre-test and post-test scores of writing ability in four text types .....	115
Table 13: Overall results of the comparison between the pre-test and post-test scores of writing elements of four text types .....	115
Table 14: Overall results of the comparison between the pre-test and post-test scores of critical thinking skills in four text types .....	123
Table 15: Overall results of the comparison between the pre-test and post-test scores of critical thinking skills of four text types .....	124
Table 16: General information of the participants (n = 24) .....	133
Table 17: Students' perceptions towards levels of writing ability and critical thinking skills before and after implementing project-based writing instruction .....	135
Table 18: Overall results of students' attitudes towards project-based writing instruction .....	136
Table 19: Students' attitudes towards the use of project-based writing instruction in improving their writing ability .....	138

Table 20: Students' attitudes towards the use of project-based writing instruction in improving their critical thinking skills.....	140
Table 21: Students' attitudes towards learning process of project-based writing instruction .....	143
Table 22: Students' attitudes towards the stage of planning the project.....	144
Table 23: Students' attitudes towards the stage of developing the project.....	147
Table 24: Students' attitudes towards the stage of evaluating the project.....	152
Table 25: Students' attitudes towards advantages and disadvantages of working on a project .....	155



## LIST OF FIGURES

	<b>Page</b>
Figure 1: Zone of proximal development (ZPD) (Vygotsky, 1978).....	12
Figure 2: A five-step model to improve students' critical thinking (Duron et al., 2006) .....	52
Figure 3: Conceptual framework of project-based writing instruction (PWI).....	62
Figure 4: Research design (Dimitrov & Rumrill, 2003).....	63
Figure 5: Research procedure .....	65
Figure 6: A learner survey on topics of interest.....	67
Figure 7: A sample of Activity 1: Warm-up.....	71
Figure 8: A sample of Activity 2: Reading a model text .....	71
Figure 9: A sample of Activity 3: Learning content and language.....	72
Figure 10: A sample of Activity 4: Shared writing.....	73
Figure 11: A sample of Activity 5: Receiving a scenario .....	73
Figure 12: A sample of Activity 7: Collaborative writing.....	75
Figure 13: A sample of Activity 9: Giving a presentation.....	76
Figure 14: An example of lists of questions for a student-teacher conference.....	79

# **CHAPTER I**

## **INTRODUCTION**

### **1.1 Background of the study**

With the worldwide spread of English through migration, colonization, and globalization, the role and status of English have been changed. English is currently used as an international language or EIL, which means that English is not only used to communicate with native English speakers or even between native and non-native English speakers, but also among non-native speakers of the language (McKay, 2002).

Given the richness and importance of English as an international language, English language teaching (ELT) has become a crucial feature of education. Asia is one of the places where people use English as the working language of the community and the medium for commerce, science, education, and culture. Therefore, most children from many Asian countries including Thailand learn English as a second or foreign language after a national language in order to be the competent users of English (Kirkpatrick, 2012).

In Thailand, the government has long realized the importance of the English language. They have included English in the educational curriculum, the Basic Education Core Curriculum B.E. 2551 (A.D. 2008), for decades in order to equip learners with the ability to use it to communicate with others in several situations and pursue further education at higher levels. Students from grade 1 to grade 12, as well as those in the tertiary level, have to study English as a compulsory subject. However, overall Thai student performance in PISA 2012 measured by international and national assessments was in the low proficiency level. Therefore, the government has recently announced the adoption of the Common European Framework of Reference for Languages (CEFR) to raise the standards of English and to evaluate English language proficiency of Thai users (OECD/UNESCO, 2016).

Regarding language skills, writing is an important skill that language learners need to master in order to communicate with people in everyday lives. Graham and Perin (2007) posit that writing proficiency becomes critical in both the school and the



workplace. In the school setting, writing is a tool for learning subject matters to express opinions in the essays, reports, research papers, or in the examinations. It is an indicator of students' knowledge and proficiency. Also, in working life, writing proficiency is required as employees need to produce a good and understandable piece of writing in the forms of e-mails, reports, presentations, etc. Those who have an outstanding writing proficiency could get a promotion or even more chances in the society. Therefore, it is important to develop students' writing ability to ensure that their writing ability will enable them to have more successes in life, academically and professionally after graduation.

Apart from writing ability, critical thinking skills are important skills that students should master. In today's world which is full of conflicting information, students need critical thinking skills and become critical thinkers who understand how to deal with information. In other words, they need to be ready to analyze, evaluate, and make decisions about the information they have received. Therefore, developing students' critical thinking skills at all levels should be one of the responsibilities of language teachers.

It is believed that writing and critical thinking skills are compatible. To write is to think and reflect (Pea & Kurland, 1987); that is, critical thinking skills such as analyzing and decision-making are called for when students are involved in the writing process to express their thoughts. Therefore, "by helping students become better thinkers, we would enable them to become better writers and vice-versa" (Olson, 1984, p. 31). In other words, writing activities could support students to think critically as Wade (1995) mentions that "writing is an essential ingredient in critical thinking instruction" (p.24). For this reason, even though the English writing skill is considered the most problematic skill for EFL students including Thai students to master (Benchachinda, 2012; Negari, 2011; Watcharapunyawong & Usaha, 2013), students need to be provided with opportunity to develop their writing ability. Moreover, as students tend to lack the ability to learn, analyze, and think critically (Nanni & Wilkinson, 2014; Ploysangwal, 2018), and as writing and critical thinking skills are deemed compatible, as previously mentioned, their critical thinking skills should be promoted simultaneously with their writing.

Byrne (1988) divides writing problems into three categories: psychological, linguistic, and cognitive problems. First, students have psychological problems because there is no interaction between writers and readers. Unlike speech, immediate feedback cannot be given when students write. Therefore, it makes the act of writing difficult. Second, students have linguistic problems because when writing in a second or foreign language, students need much more time to pay attention to organizing or connecting sentences since they are not as familiar with the conventions accounting for the organization of text types in English. There are differences in textual patterns, structures, background knowledge towards topics, reader orientation, patterns of cohesion, the way to form sentences, and word choices (Paltridge, 2004; Richards, 2015; Silva, 1997). Owing to constraints or limited second or foreign language knowledge and the differences between first and second language writing, non-native students think that writing in the second or foreign language is more difficult than writing in the first language (Weigle, 2002). Lastly, cognitive problems can come into play. Writing is a skill that needs to be trained and taught. It has certain structures and requires a particular way to organize ideas so as to master the written form and have effective communication in writing. Among Thai students, writing problems can be related to development of contents and ideas (Pawapatcharodom, 2007; Seensangworn & Chaya, 2017), organization (Seensangworn & Chaya, 2017), grammar uses (Boonyarattanasoontorn, 2017; Rodsawang, 2017; Seensangworn & Chaya, 2017), lexical issues (Boonyarattanasoontorn, 2017; Rodsawang, 2017; Seensangworn & Chaya, 2017), and practice duration (Rodsawang, 2017).

Beside writing problems, Thai students also lack critical thinking skills which are necessary skills for higher education and future life in the workforce after graduation. Ploysangwal (2018) indicates that Thai undergraduate students have difficulty analyzing situations, making decisions, and solving problems. The ability to interpret, make inferences, and reflect their own justification is at a low level since students are not sufficiently trained to practice thinking analytically and critically. For these reasons, critical thinking instruction should be widely promoted. Wongchachom and Cojorn (2016) assert that the teaching methods have an impact on students' behavior and ability related to thinking. They surveyed critical thinking skills of high school students in Thailand and found that students who were taught by a lecture-based

method had lower scores in a critical thinking test. Therefore, instead of using the traditional way of teaching, an alternative approach should be implemented to support students to cultivate their critical thinking skills.

Although the English curriculum of Thai universities is currently designed to move away from grammar-translation to the communicative approach, the grammar translation approach still plays a major role in English language teaching. With this approach, teachers focus on rote memorization which heavily emphasizes the content, not critical thinking or inquisitive learning. With this kind of teaching, students are described as being passive and have difficulty understanding and applying knowledge in other areas (Charernwiwatthanasri, 2012; Mala, 2017). Furthermore, the social norms of the Thai culture have an impact on students' behaviors in the classroom. That is to say, teachers are in the high status in Thai society. They are the givers of knowledge and the leaders of the classroom. This authority does not allow students to question the teachers or express any ideas. If students ask questions, they can be perceived as being aggressive or disobedient. As a result, Thai learners tend to sit silently and are regarded as uncritical and unquestioning, thus making them be considered passive learners (Baker, 2008; Kaur et al., 2016; Mala, 2017).

At Srinakharinwirot University, Bangkok, Thailand, writing and critical thinking skills are similarly crucial for university students' lives. Both of the skills are required when students take notes, communicate with instructors, write a report, complete an assignment, and answer questions for both midterm and final examinations. However, students are not competent in their writing and critical thinking skills even though they have been studying English since elementary school. Based on the researcher's experience as a part-time lecturer at various universities in Bangkok and a full-time lecturer at Srinakharinwirot University, it is evident that most students have difficulty writing a proper paragraph in English. The issues are that, first, they do not know how to generate ideas. Second, they do not know how to write a topic sentence or a concluding sentence, how to improve paragraph unity, and how to write in a formal way. Third, they cannot apply grammatical knowledge or use correct grammar as well as punctuation marks in their writing. Lastly, they cannot complete their writing in a limited time.

Therefore, in order to foster writing and critical thinking skills as well as to overcome all problems that come with it, project-based learning (PBL) seems to be a promising teaching method as it allows students at all levels to get involved in the process of working on the project work to solve real-world problems before finally giving a presentation to the audience (Larmer, 2020). Fried-Booth (2002) and Beckett and Miller (2006) agree that the implementation of project-based learning in the classroom can help students develop language and critical thinking skills due to the following reasons. Firstly, it allows the shift from teacher-centered learning to student-centered learning. Secondly, using projects can encourage cooperative learning and stimulate interaction among students. Thirdly, the final product of the project is a real-world task ranging from low-level projects such as creating a poster presentation to high-level projects which provide opportunities for students to examine a serious topic in depth and in details (Dudeney & Hockly, 2007). In so doing, it is possible that projects provide greater motivation for students to complete the task. When students learn and work together with their peers to conduct their project work to achieve a common goal, their critical thinking skills will also be developed in addition to language skills.

Many studies have found that using project-based learning has positive impacts on the language learning process and critical thinking development. Affandi and Sukyadi (2016), for example, conducted a study to investigate the effects of project-based learning on students' writing achievement. The results showed that project-based learning helped students improve writing ability, think contextually, develop their critical thinking skills, work in groups effectively, and foster their autonomous learning. Furthermore, Coffin (2013) has indicated that project-based learning is beneficial for students who could develop their language proficiency and working skills such as teamwork, decision-making, and problem-solving skills, which are also considered critical thinking. Finally, Kettanun (2015) has also confirmed that project-based learning deserves to be included in the English language classroom in Thailand because it provides the authentic learning experience and the opportunity to use of language skills to achieve tasks.

In conclusion, based on a review of literature and research, project-based learning can help reinforce students' writing ability and critical thinking when they

accumulate knowledge from the teacher and peers and develop interactions with others while engaging in the process of working on a project. However, there are only a few studies that investigated how to simultaneously promote writing ability and critical thinking skills through the use of project-based learning in Thailand. Therefore, this study aimed to explore the effects of project-based writing instruction on students' writing ability and critical thinking skills as well as to investigate students' attitudes towards project-based writing instruction implemented in the present study.

## **1.2 Research questions**

1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?
2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?
3. What are Thai EFL students' attitudes towards project-based writing instruction?

## **1.3 Research objectives**

1. To investigate the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students
2. To examine the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students
3. To explore the attitudes of Thai EFL undergraduate students towards project-based writing instruction

## **1.4 Research hypotheses**

Based on an extensive review of literature on the effectiveness of project-based instruction (Al Sharadgah, 2014; Busciglio, 2016; Dudeney & Hockly, 2007; Efendi et al., 2020; Fatmawati, 2018; Ferris & Hedgcock, 2014; Gujral & Adipattaranan, 2018; Indah, 2017; Newprasit & Seepho, 2015; Stoller, 2012; Zhang, 2018), it could be assumed that project-based writing instruction could enable students to improve their

writing ability together with critical thinking skills. Therefore, the hypotheses of this study were formulated as follows:

1. The post-test mean score of writing would be significantly higher than the pre-test mean score after implementing project-based writing instruction.
2. The post-test mean score of critical thinking skills would be significantly higher than the pre-test mean score after implementing project-based writing instruction.

### **1.5 Scope of the study**

The aims of this study were to explore whether project-based writing instruction could improve writing ability and critical thinking skills of Thai EFL undergraduate students and to investigate students' attitudes towards the use of project-based writing instruction. The population of the study was Thai EFL first-year undergraduate students at Srinakharinwirot University, Bangkok, Thailand. The study participants consisted of 24 first-year students from the Faculty of Humanities who ranged in age from 18 to 20 years old and constituted an intact group. They were enrolled in an English course named "EN 131 Basic Writing" in the first semester of the academic year 2019. The independent variable of this study was the project-based writing instruction, whereas the dependent variables were students' writing ability and students' critical thinking skills.

### **1.6 Definition of terms**

#### **1.6.1 Project-based learning**

Project-based learning refers to a type of approach that places an emphasis on student-centered learning and the need to establish an end product. Project work plays an important role to let students work together individually or in groups and have hands-on experience in a meaningful context (Fried-Booth, 2002). In this study, project-based learning referred to a student-centered instructional method that engages students in

learning knowledge and necessary skills through the project tasks on real-world problems designed by the researcher.

### **1.6.2 Writing instruction**

According to Hyland (2003), writing instruction refers to an instruction that focuses on products, processes, and genres. In this study, writing instruction referred to the teaching of paragraph writing consisting of four text types, namely procedural, descriptive, narrative, and persuasive paragraphs taught through five main stages of inquiry, modeling, shared writing, collaborative writing, and independent writing. From the first stage of shared writing to the final stage of independent writing, writing process and writing strategies were integrated into the instruction to assist students who were trying to produce a piece of writing while trying to think critically.

### **1.6.3 Project-based writing instruction**

Project-based writing instruction referred to a 15-week English writing instruction designed specifically in this study by the researcher to develop students' writing ability and critical thinking skills through three stages consisting of planning project, developing the project, and evaluating the project. There were four units to teach four text types: procedures, descriptions, narratives, and expositions. At the end of each unit, students were required to conduct the mini-project and give a presentation based on the given scenario. The product of each unit was in the form of a brochure, booklet, poster, and review, respectively. Moreover, students needed to come up with their own topic, product, and presentation of the final project.

### **1.6.4 Writing ability**

Writing ability is the ability to put a sequence of sentences in a particular order linked together in certain ways (Byrne, 1988). In this study, writing ability referred to the ability to construct organized procedural, descriptive, narrative, and persuasive paragraphs related to the given scenarios. Students' writing ability was assessed using the analytic scoring under the criteria of content, organization, vocabulary, grammatical accuracy, and mechanics.

### **1.6.5 Critical thinking skills**

Critical thinking skills refers to the skills of interpretation and evaluation used for communication and access to different sources of information (Fisher, 2011). In this study, the term of critical thinking skills was adapted from the key definitions of critical thinking proposed by many scholars (e.g., Ennis, 1989; Facione & Facione, 1996; Halpern, 1999; Levy, 1997; Paul & Elder, 2006). It referred to the ability to analyze, reason, evaluate, decide, and solve problems in order to complete a task and achieve a common goal when learning through three stages of project-based writing instruction and participating in assigned activities. Students' critical thinking skills were assessed using analytic scoring under the criteria of analyzing, reasoning, evaluating, decision-making, and problem-solving.

### **1.6.6 Thai EFL undergraduate students**

Thai EFL undergraduate students referred to the participants under study who were first-year Thai university students at the Faculty of Humanities, Srinakharinwirot University, Bangkok, Thailand. They ranged in age from 18 to 20 years old. All of them had been studying English as a foreign language for at least 12 years in school based on the Ministry of Education requirement and were enrolled in an English course entitled "EN 131 Basic Writing."

## **1.7 Significance of the study**

With regard to theoretical significance of the present study, the findings of this study would yield evidence related to effects of the integration of project-based learning into writing instruction and critical thinking instruction to promote students' writing ability and critical thinking skills. It was anticipated that the results of the present study would portray the key elements of project-based writing instruction fostering students' writing ability alongside critical thinking skills as well as its strengths and weaknesses. As for pedagogical benefits, project-based writing instruction could be implemented as an alternative teaching model to empower students to write more effectively and think more critically. Furthermore, the findings of this study would yield support for a



promising instructional method that could be utilized by other interested instructors to more effectively promote students' writing ability and critical thinking skills.



## **CHAPTER II**

### **LITERATURE REVIEW**

In this chapter, the theoretical background and related research were reviewed to shed light on a model of teaching for this study. Three main areas were covered: project-based learning, writing ability, and critical thinking skills.

#### **2.1 Project-Based Learning**

##### **2.1.1 Theoretical foundation for project-based learning**

A project-based learning approach is experiential and action-based learning. It is one type of pedagogy based on the theory of social constructivism, learner-centeredness, and cooperative and collaborative learning (Beckett & Miller, 2006). All aforementioned theoretical foundation for project-based learning is clarified in the following section.

##### **2.1.1.1 The theory of social constructivism**

Social constructivism is the grounded theory of project-based learning. It is branched off from constructivism which aims to help students learn by doing rather than observing. Mascolo and Fischer (2004) believe that knowledge arises through a process of active construction. Students can use their own background knowledge, understanding, and experience to construct new knowledge. It means that although two students are exposed to the same learning, they can have different learning outcomes. The beginning of constructivism was developed by Jean Piaget who worked in the mid- and late twentieth century. Later, Lev Vygotsky rejected the assumption made by Piaget. He argued that learning is not just the assimilation of new knowledge, but learning is a process by which learners are integrated into a knowledge community. In other words, learning can occur through interaction between the learner and others, as Vygotsky (1978, p. 57) explains:

every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people

(interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

Based on Vygotsky's notion, learning occurs at two levels. One is the level of actual development where learners can master a skill or concept independently. The other is the level of potential development called the zone of proximal development (ZPD) where learners master concepts and skills with the help of more knowledgeable teachers and peers (see Figure 1). Students can build new knowledge through the process called "scaffolding." It is an effective technique used to enhance the progress of learning as well as support learners in their gradual understanding of the object or concepts. The scaffolders can be teachers and friends in the classroom. Teachers have duties to provide feedback when learners need more help, whereas friends can help one another in group or paired work.

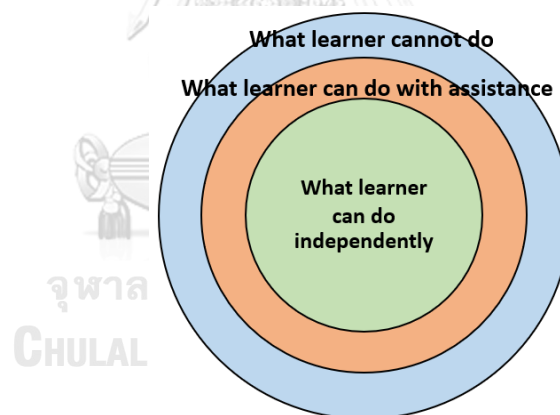


Figure 1: Zone of proximal development (ZPD) (Vygotsky, 1978)

As mentioned above, the social constructivism gives the importance of social interaction and the role of scaffolding which could promote students' progress on their learning when they are assigned to complete their project work. Throughout the process of working on the project work, it provides opportunities for students to have authority to communicate with one another, negotiate plans, analyze and discuss information, and assist one another to attain the goals.

### **2.1.1.2 Learner-centered approach**

Learner-centered approach is developed based on the social constructivism. It focuses on promoting learners' role in learning, which represents a paradigm shift from traditional ways of teaching. The main role in the classroom belongs to not only teachers but students as well. The teachers change the role from lecturers to facilitators, whereas students have more chances to express their opinions, develop their social interaction, and involve in their own learning and decision-making process regarding the content of the course and how it is taught. There is a collaborative effort between teacher and students to develop the content of the course and the way of teaching. In other words, students have a role to decide about the content they would like to learn and determine the goals and objectives. They could also initiate their own tasks, manage their own learning, and monitor their own progress, and give suggestions about modification of teaching and learning during and after the course (Nunan, 1988).

According to Weimer (2002), there are five key principles of the learner-centered approach. To start with, the role of teachers is changed from the directors of knowledge to facilitators or contributors. Second, the classroom power is shifted from teachers to students. Therefore, active learning and engagement are emphasized to increase opportunities for students to work together and have a discussion in pairs or in groups. Third, the content should not be the isolated facts, but the one that can develop critical thinking skills. Fourth, students learn to be responsible for their own learning. They can be exposed to any knowledge and discover their own strengths and weaknesses. Consequently, they will become autonomous learners. Lastly, assessment in the learner-centered approach is meaningful. It will be the tools that can promote learning and motivate students to develop themselves.

It is worth noting that although a learner-centered environment is beneficial, teachers should be aware of the balance of teaching in the classroom. They should retain more power in controlling the learning experiences, discussions, and small group of students so that students will not struggle with getting lost from the key concepts (Wohlfarth et al., 2008).

Project-based learning accommodates principles of the learner-centeredness as described by Weimer (2002). That is, students are consulted to design

the content of the course through the use of needs analysis at the early stage and involved in determining the topic of the final project, objectives, and the outcomes. In addition, the route to the end-product could benefit students in many aspects. Through the use of the project work, students have a chance to get involved in social interaction with their peers, construct their new knowledge by connecting new information to their background knowledge and experience, have responsibilities for their own learning, and understand their own strengths and weaknesses. Consequently, the growth of knowledge and understanding is expected.

### **2.1.1.3 Cooperative and collaborative learning**

To develop the intellectual growth of learners including the growth of knowledge and understanding, cooperation and collaboration in the classroom play an important role. These two terms seem to have similar meanings, but they are not equivalent. In general, cooperative learning is more teacher-centered, whereas collaborative learning is more learner-centered (Panitz, 1999). The explanations of each term are explained as follows:

To start with, cooperative learning is an instructional technique in which small groups of students work together to solve problems, complete tasks, and accomplish a goal (Gillies, 2016; Slavin, 2014). Students have a chance to interact with each other in the same group and build critical thinking skills needed in their everyday life. Johnson et al. (1984) mention that there are five essential elements of cooperative learning: 1) positive interdependence, 2) face-to-face promotive interaction, 3) individual accountability, 4) interpersonal and small-group skills, and 5) group processing, respectively.

1. *Positive interdependence* means that students in a group should rely on each other to attain the goal. If one of the members fails, everyone in the group shares a common fate. It is like “we all sink or swim together here.”
2. *Face-to-face promotive interaction* means that group members should provide feedback, challenge reasoning and conclusions, teach, and encourage one another in a group.

3. *Individual accountability* refers to making each student in a group stronger. It is important for students to know the level of mastery of their friends in their group so that they could help and support one another.
4. *Interpersonal and small-group skills* is essential for cooperative learning. Students should get to know and trust each other, communicate accurately, accept and support each other, and resolve conflicts. Therefore, social skills such as leadership, decision-making, trust-building, communication, and conflict management skills should be taught to let students work together effectively and improve their relationship.
5. *Group processing* is the step in which team members can reflect on what they are doing and identify changes they can better in the future.

It is believed that cooperative learning can improve students' communication skills together with working skills which are important skills to live in the society at present. Therefore, teachers should apply cooperative learning in the classroom by structuring group interactions and assigning group work to students and act as an observer to observe groups, analyze the problems when students work together, and give feedback to students in each group. However, cooperative learning might not be suitable for all students. Some of them prefer working individually since they do not want to waste time talking about the topics with friends who have no ideas or poor discussion (Wichadee, 2005). In addition, students with lower English proficiency can feel intimidated because they perceive themselves as a burden to their team when they work with those who are high achievers of English (Sukkaew & Whanchit, 2020). Therefore, this is another issue teachers should concern.

Compared to cooperative learning, Panitz (1999) claims that collaborative learning is more learner-centered. When the instructor assigns the task for students, the authority is transferred to the group. Students are expected to have their own responsibility to learn and contribute what they have learned and found to their peers in group. The group's task is open-ended. To put it another way, it does not employ students to serve the instructor's ends. Students in groups have the right to produce their own solutions. With collaborative learning, student talk is stressed and

the process of working together plays an important role. Rockwood (1995) suggests that teachers should use cooperative learning as the first step to prepare students to approach mastery of foundational knowledge since it is closely controlled by teachers. When students become experienced, they are ready for collaborative learning.

In conclusion, it is assumed that the project-based learning, which is under social constructivism, learner-centered approach, and cooperative and collaborative learning, could be implemented in the classroom to promote students' writing ability and critical thinking skills since students are allowed to involve in selecting the topics to study at the early stage from conducting needs analysis about their topics of interest. In addition, they have their own voice and choice to make decisions about their project, work with others to construct new knowledge, and attain the goals throughout the process of working on the project work.

### **2.1.2 Project-based learning: means of integrating language and content**

To understand project-based learning better, definition of project-based learning, characteristics of project-based learning, types of projects, steps in developing a project, project-based learning assessment, and related studies are presented in this section.

#### **2.1.2.1 Definition of project-based learning**

The concept of project-based learning has been part of the educational practice implemented in a wide range of subjects for decades. At present, it is widely used in teaching English as a foreign language. There are many definitions of the project-based learning proposed by scholars. Moss and Van Duzer (1998, p. 2) define project-based learning as “an instructional approach that contextualizes learning by presenting learners with problems to solve or products to develop”. Thomas (2000) adds that project-based learning is a model of learning through the use of projects. He indicates that project tasks should be challenging questions or problems that foster students to engage in problem-solving, decision-making, and managing their own working over time to culminate products and presentations. Fried-Booth (2002) asserts that project-based learning puts an emphasis on learner-centered learning and the need to establish an end product. She echoes that project work plays an important role to let

students work individually or in group and have hands-on experience in a meaningful context.

Based on all of these definitions, it could be concluded that project-based learning is a learner-centered instructional method that engages students in learning knowledge and necessary skills through the project tasks regarding real-world problems. To understand this pedagogical approach, the characteristics of project-based learning should be explored.

### **2.1.2.2 Characteristics of project-based learning**

According to Boss and Krauss (2007), Stoller (2006), and Thomas (2000), the hallmarks of project-based learning are as follows:

1. Project-based learning is learner-centered.
2. Students will be responsible for their own learning.
3. Project-based learning has the process and the product.
4. Students have opportunities to learn and practice integrated skills of English and other skills such as critical thinking, problem solving, and collaboration in real-world activities.
5. Students work cooperatively by themselves, in pairs, and in groups to construct knowledge and solve problems that matter to them.
6. Technology plays a vital role for discovery, collaboration, and communication.
7. It extends and takes time to finish the project work.
8. It builds students' self-confidence, self-esteem, and autonomy.

From these features, communication in the classroom is changed. In the traditional way of teaching, teachers are a controller, lecturer, and director. However, with the use of project-based learning, the roles of teachers are changed to be a guide, facilitator, motivator, and developer of learning new experiences. Teachers need to prepare driving questions to urge students to think and develop inquiry together with curiosity so that students can create their final product interestingly and meaningfully.



### 2.1.2.3 Types of projects

Several types of projects are described by many educators. According to Stoller (2002), there are three types of projects: structured projects, semi-structured projects, and unstructured projects. First, structured projects are organized by teacher, which is appropriate for students who are not familiar with project-based learning. Teacher mainly organizes topics, materials, methodology, and presentation, whereas semi-structured projects need the agreement between teachers and students. Lastly, unstructured projects are learner-centered. It means that almost all steps to complete the projects are defined and handled by students.

To classify types of projects, the way the final product is presented can be another way to use such as production projects, performance projects, and organizational projects, respectively. To give more details, production projects are related to create something such as bulletin boards, videos, photo essays, brochures, posters, written reports, travel itineraries, and so on. Performance projects are called when students perform something such as debates, oral presentations, role plays, or fashion shows. Organizational projects require students to organize or plan something such as club, conversation table, special interest group, or special event (Haines, 1989).

Moreover, Stoller (2002) classifies projects into five groups: research, text, correspondence, survey, and encounter projects. All of them are different in terms of data collection procedures students employ. In research projects, students are required to gather information from library or Internet. Similarly, text projects let students involve with “texts” such as literature, the reports, the newspaper articles, and so on. Correspondence projects allow students to communicate with individuals to gain information by e-mails. Survey projects include creating a survey and collecting and analyzing data, respectively. Lastly, encounter projects require students to contact with the guest speakers face-to-face or individually outside the classroom.

From all of the above, it can be seen that the outcomes of projects are divided into two categories: written outcomes and oral outcomes. The written outcomes can be a summary, synthesis, position paper, argumentative paper, poster, newsletter, wall newspaper, web page, string and pin bulletin board display, and scrapbook. As for the oral outcomes, it can be an oral presentation with or without a handout and

PowerPoint, debate, role play, simulation, and poster including questions and answers section.

To select types of projects, students' ages, their English proficiency, course objectives, institutional constraints, and available resources are factors that should be taken into account. Most importantly, the projects should be tailored to meet students' needs and interest (Stoller, 2012).

In this study, both production and performance projects were selected to allow students to be exposed to the authentic materials, learn by doing, and promote cooperative and collaborative learning along the process of creating the products and the presentations. To design projects that support students to apply knowledge to the real world and improve critical thinking, communication, collaboration, and self-management, (Larmer, 2020) presents the seven essential project design elements called "Gold Standard PBL", as presented as follows:

1. *Challenging problems or questions:* The main starting point of doing a project is to set a problem for students to investigate, explore, and solve. This challenges students to find answers and it leads to their learning.
2. *Sustained inquiry:* Students involve in the process of asking questions, seeking information, finding resources, and applying information.
3. *Authenticity:* The project focuses on real-world tasks and issues in students' lives. The authentic tasks can be investigating some issues and recording the video to present their project. At the end, the project can reflect students' interest, concern, culture, and issues.
4. *Student voice and choice:* Students will play a role to decide their own project such as how they work and what they create. They should have a sense of ownership and work harder to create their project to the audience.
5. *Reflection:* Along the way to complete the project, both students and teachers reflect on what, how, and why they have learned.

They consider the effectiveness of the project, the quality of student work as well as problems and solutions to the problems. Reflection can be a part of the student-teacher conference.

6. *Critique and revision*: When students give and gain feedback, they can use it to improve the process of working and develop their project to ensure high-quality. Therefore, students should be trained on how to give feedback.
7. *Public product*: Students present their product by explaining, displaying, or presenting it to the audience.

All of these elements were kept in mind when designing the framework of project-based learning for this study which is presented in the following section.

#### **2.1.2.4 Steps in developing a project**

The framework of project-based learning in this study is the combination of three frameworks designed by Fried-Booth's framework, Stoller's framework, and Busciglio's framework. This section therefore reviews each framework and presents the synthesis of project-based learning for this study.

Fried-Booth (1986) suggests eight steps as the following:

1. *The stimulus*: This is the initial stage that students discuss the topic for their project.
2. *Defining the project objectives*: Students define the objectives of the project.
3. *Practice of language skills*: Students learn language skills through discussion, reading, and writing.
4. *The design of written materials*: Students start to design and write the details for their project.
5. *Group activities*: Students work together in small groups.
6. *Collecting information*: Students gather all information from many sources inside and outside the classroom.
7. *Organizing of materials*: Students organize the information gained and develop them for the end-product.

8. *Final presentation*: Students present their end-product to the classroom.

Stoller (2012) proposes seven steps as shown below.

1. *Agreeing on a theme for the project*: The teacher and students help one another to set the theme for the project.
2. *Determining the final outcome*: The teacher and students help one another to determine the final outcome of the project.
3. *Structuring the project*: The teacher and students help one another to structure the project.
4. *Information gathering cycle*: The teacher prepares students for the demand required by the project in terms of both content and language.
5. *Information compilation and analysis cycle*: The teacher prepares students to gather information from sources and analyze the information.
6. *Information reporting cycle*: The teacher prepares students to report their final outcomes.
7. *Evaluate the project*: The teacher and students evaluate the project through the use of feedback in terms of language learned, strategies learned, content learned, and experience for the process and the product.

Busciglio (2016) presents four steps of doing a project as follows:

1. *Preparing for the project*:
  - a. This step promotes using technology as an instructional material to teach contents in the course.
  - b. Language skills are taught to students.
2. *Launching the project*: Students search for information about the project and discuss the information they have gained in groups.
3. *Managing the project*: Students manage the project through communicating, surveying, analyzing, summarizing, and presenting the data.
4. *Assessment*: Students evaluate and reflect upon their project.

These three frameworks were selected for this present study as all of them were designed for the language classroom, which was appropriate for this study. Fried-Booth's framework was chosen because of the clear stages of practicing language skills and group activities, whereas Stoller's framework was included owing to the last

stage which was the evaluating stage. This stage was important since it provided students with an opportunity to offer and receive peer feedback, know their weaknesses, and improve themselves to be better in the next project tasks. Moreover, the teacher took part in supporting students in all stages of learning to achieve the goals or complete any tasks. Furthermore, these two frameworks had been adapted to teach English courses focusing on reading, speaking, and writing skills in Thailand in many studies (e.g., Barr, 2015; Phasuk et al., 2019; Pinweha, 2010; Siritaratn, 2007; Thitivesa, 2014; Thitivesa & Essien, 2013), all of which yielded satisfactory results. The last framework proposed by Busciglio (2016) focused on learning languages at the initial stage before allowing students to create their own project work. It also integrated technology into learning and included writing reflections to reflect experience and learning.

Concerning the synthesis of project-based learning in this study, it started with considering the stages of all frameworks. Fried-Booth (1986) presents eight steps to develop a project. Stoller (2012) proposes seven steps, while Busciglio (2016) introduces four steps. However, these three frameworks shared the similar characteristics mostly; therefore, the main stages in the end were categorized into three main stages: planning the project, developing the project, and evaluating the project.

In the stage of planning the project, the steps from three frameworks were relatively similar, for example, finding the topic of interest for the project, determine the objectives of the project, and structuring the project (Fried-Booth, 1986; Stoller, 2012) and learning language skills (Fried-Booth, 1986; Busciglio, 2016). This study aimed to promote students' writing ability and critical thinking skills. Therefore, the stage *practice of language skills* through reading, writing, and technology proposed by Fried-Booth (1986) and Busciglio (2016) was important for students to gain language knowledge. Finally, there were sub-steps starting from steps 1-3 as shown below:

1. Students and the teacher determine the final outcome.
2. The teacher drives questions to let students come up with the ideas.
3. Students learn the content and language.

In the stage of developing the project, the sub-steps from three frameworks mentioned collecting the information and discussing the details in groups as the main points. Fried-Booth (1986) and Busciglio (2016) included working together in small groups, while Stoller (2012) included the role of the teacher in almost all steps to give students support along the process of working on the project. Therefore, with the combination of all steps from all frameworks, there were sub-steps starting from steps 4-7, as shown below:

4. Students collect information.
5. Students discuss in groups.
6. Students analyze the information.
7. Students develop the project with a student- teacher conference organized for students.

In the stage of evaluating the project, the focus was on presenting and evaluating the project as well as writing reflections after learning. All frameworks included giving a presentation of the project, but Fried-Booth's did not include assessment. Therefore, the step of *evaluating the project* from Stoller's framework and the step of *assessment* from Busciglio's framework were required to allow students to give feedback to one another. In addition, to end the last stage completely, writing a reflection include in Busciglio's framework was added. Consequently, the sub-steps of the last stage of project-based learning in this present study started from steps 8-11 as shown below:

8. Students present their project.
9. Students and the teacher evaluate the project.
10. The teacher wraps up all lessons.
11. Students write a reflection in terms of language learned, strategies learned, content learned, and experience for the process and the product.

After considering the primary features from all three frameworks mentioned above, the synthesis of project-based instruction framework is presented in three steps: planning, developing, and evaluating as shown in Table 1.

Table 1: Synthesis of project-based instruction framework

<b>Fried-Booth (1986)</b>	<b>Stoller (2012)</b>	<b>Busciglio (2016)</b>	<b>Conceptual framework of the study</b>	<b>Main stages</b>
1. The stimulus 2. Defining the project objectives 3. Practice of language skills 4. The design of written materials	1. Agreeing on a theme for the project 2. Determining the final outcome 3. Structuring the project	1. Preparing for the project	1. Students and the teacher determine the final outcome. 2. The teacher drives questions to let students come up with the ideas. 3. Students learn the content and language.	1. Planning the project
5. Group activities 6. Collecting information	4. Information gathering cycle	2. Launching the project	4. Students collect information. 5. Students discuss in groups.	2. Developing the project
7. Organizing of materials	5. Information compilation and analysis cycle	3. Managing the project	6. Students analyze the information. 7. Students develop the project with a student- teacher conference.	
8. Final presentation	6. Information reporting cycle		8. Students present their project.	3. Evaluating the project
	7. Evaluate the project.	4. Assessment	9. Students and the teacher evaluate the project.	

<b>Fried-Booth (1986)</b>	<b>Stoller (2012)</b>	<b>Busciglio (2016)</b>	<b>Conceptual framework of the study</b>	<b>Main stages</b>
			10. The teacher wraps up all lessons. 11. Students write a reflection in terms of language learned, strategies learned, content learned, and experience for the process and the product.	

#### **2.1.2.5 Project-based learning assessment**

Project-based learning is an approach that includes the process and the product. It helps students to improve language, content, and skills. As for project-based learning assessment, teachers should design both formative and summative assessments carefully to assess students' performance and monitor students' progresses on their writing ability and critical thinking skills. Formative assessments are conducted during learning, whereas summative assessments are conducted at the end of learning (Boss & Krauss, 2007). Bender (2012) suggests that a variety of formative assessment such as self-evaluation, peer evaluation, and reflections should be taken into account.

According to Bender (2012), self-evaluation, peer evaluation, and reflections were included in this study. First, self-evaluation enables students to reflect their own strengths and weaknesses at the beginning. Second, peer evaluation is an assessment form of project-based learning. When working together in groups, members in the group will rate one another and give the ranking. Also, they can provide feedback and help each other to improve their project. Lastly, reflections can be another tool to assess project-based learning. It helps students to track their own learning, problems, and question any issues to find the answers. When they find the answers, their learning



can be improved. From reflections, teachers can follow up students' progress of learning and working.

#### **2.1.2.6 Advantages and disadvantages of project-based learning**

Project-based learning seems to be of great advantages for this study. Many educators such as Gu (2002) and Stoller (2006) report the benefits of project-based learning as follows:

1. Students encounter authenticity of experience and language.
2. Students engage in meaningful language, strategy, and study skill.
3. Students enhance language skills such as gaining plentiful input and output.
4. Students increase content knowledge.
5. Students have more motivation, involvement, enjoyment, and creativity.
6. Students improve their ability to work in groups and increase their cooperative and collaborative skills.
7. Students improve their autonomous learning. It increases their willingness to take responsibility.
8. Students improve their ability to make decisions and think critically as well as solve problems.

Based on the benefits above, it can be concluded that project-based learning can promote 4Cs: creativity, critical thinking, communication, and collaboration through the use of real-world tasks. It also helps students to master both content and language, promote their autonomous learning, and foster students' lifelong learning.

However, there have been concerns about project-based learning for both teachers and students. Regarding teachers, Ballantyne (2013) and Pitipornatapin and Kuhapensang (2015) agree that applying a project in the class takes more time to plan, research, design assessment, and assess activities. The work is stressful for teachers because it requires more "brainwork" and needs teachers to be ready to alter plans all the time. Moreover, Beckett and Slater (2005) caution that teachers should be

able to understand all steps of developing project-based learning before they can help students, but a lot of teachers lack training on how to implement project-based learning in an EFL classroom. With these reasons, some teachers prefer using the traditional way of teaching or a teacher-centered approach since they do not need to put much effort into preparing lessons and creating their own materials (Fang & Warschauer, 2004).

As for students' attitudes towards the use of project-based learning, Fang and Warschauer (2004) reported that Chinese university students rejected using project-based learning in the classroom. Instead, they preferred a teacher-centered classroom because learning from teachers was believed to be more important than learning on their own. This situation is consistent with the one in Thailand. Kettanun (2015) explained that some Thai EFL students were still comfortable to be taught by the traditional way of teaching, which emphasized drilling or rote learning since this is the teaching method they have learned since they were young. They would like the teacher to be the leader of the class and prefer following all instructions with trust. Therefore, using project-based learning in the classroom for some groups of Thai students might be difficult.

Despite the fact that there are some obstacles in the implementation of project-based learning, both teachers and students can make an agreement and learn its characteristics and benefits for better understanding of the project-based learning approach at the beginning stage. Besides, all lesson plan, activities, and materials need to be designed carefully to help students learn happily and effectively.

#### **2.1.2.7 Related studies regarding project-based learning**

There have been a number of related studies conducted to investigate the effects of project-based learning on develop language skills and critical thinking skills. This section aims to review the related studies focusing on the use of project-based learning to enhance writing ability and critical thinking skills to ensure the successful results and find a research gap for the present study.

In the area of language skills, Astawa et al. (2017) tested the effects of project-based learning on students' English speaking and writing skills in a high school in Bali, Indonesia. The results showed that students' productive skills were improved.

Moreover, project-based learning could promote students' enthusiasm, confidence, creativity, self-directed learning, and collaborative learning skills. Sadeghi et al. (2016) investigated the effectiveness of project-based learning with Iranian EFL learners. They focused on comparison and contrast paragraph writing skills of students who were in the intermediate level. The results indicated that those in the experimental group significantly outperformed those in the control group. Moreover, project-based learning allows students to work together and help each other to edit their writing. Except improving language skills, project-based learning also helps increase self-esteem, and motivation. Therefore, using project-based learning not only improves language skills such as speaking and writing skills but also promotes collaboration, self-esteem and motivation of students.

In Thailand, Newprasit and Seepho (2015) conducted a study which aimed to measure the effectiveness of project-based learning in a first-year undergraduate English course. The findings revealed that their English language skills were improved significantly, and students had positive attitudes towards project-based learning. They claimed that they could apply what they learned in the course into their everyday life. Also, they could increase their confidence in using the language, foster their own learning, and improve working in groups and other skills such as decision-making and problem-solving skills. In addition, the researchers indicated that although project-based learning was learner-centered, teachers played a significant role to support students to improve their language skills and make them keen on finding out the answers. Another study in Thailand is conducted by Thitivesa (2014) to investigate the effects of project-based learning on students' writing ability in terms of mechanics, usage, and sentence formation in a fourth-year content-based class at Rajabhat University. The comparison of the pre-test and post-test results showed that project work helped students to improve mechanics and usage even though the students could not yet master how to form sentences correctly.

Regarding the use of project-based learning to promote critical thinking skills, Musa et al. (2011) conducted a study to find out whether project-based learning can promote skills such as language skills, interpersonal skills, critical thinking skills, collaborative skills, and leadership skills. The researchers used a questionnaire as a tool to collect the data from 29 second-year students from Faculty of Science and

Technology and Faculty of Information Technology who enrolled in the course “Workplace Communication.” The results showed that students agreed that project-based learning could strengthen many skills necessary for working life in the future. In addition, Desinta et al. (2017) investigated the effects of project-based learning and self-regulated learning on students’ critical thinking skills. They used a quasi-experiment with a two-group pretest-posttest design. The instruments were an essay test of critical thinking and a questionnaire of self-regulated learning. The results showed that after using project-based learning with students in the experimental group, they were able to develop their critical thinking better than students in the control group. Moreover, students with high self-regulated learning would have critical thinking skills more than those with low self-regulated learning. Based on such findings, critical thinking skills could be enhanced through the implementation of project-based learning.

Based on the aforementioned research studies, it could be seen that the use of project-based learning to promote students’ writing ability and critical thinking skills was effective. The results were mostly positive. They indicated that not only language skills, but also other important skills such as critical thinking skills, interpersonal skills, collaborative skills, leadership skills, decision-making skills, and problem-solving skills were enhanced. Moreover, project-based learning fostered students’ enthusiasm, confidence, creativity, motivation, self-esteem, and self-directed learning and pointed out the role of the teacher as a supporter and facilitator who gave students support to achieve the goals. However, in Thailand, few of related studies were conducted to investigate the effects of project-based learning on writing ability and critical thinking skills simultaneously. Moreover, few studies combined three types of assessments, namely self-assessment, peer assessment, and teacher assessment in the writing course. Therefore, this present study emerged to develop students’ writing ability and critical thinking skills through implementing project-based learning.

## 2.2 Writing Ability

### 2.2.1 Definition of writing ability

Birch (2007) explains that writing is to use graphic symbols, letters, or combinations of letters to form words and sentences. When they are put in a particular order and linked together in certain ways, they form a “text”. Composing a text is not easy. It requires writers to have a clear concept and conscious mental effort. In other words, writers need to think out their sentences, arrange them, and modify them until the writers become satisfied with their writing (Byrne, 1988). In the same vein, Spratt et al. (2011) indicate that writers need to be able to form letters and words, join them together to create a series of sentence linked together, and finally send messages to the readers. Differently, Hyland (2016) defines the definition of writing as six perspectives: writing as expressive activity, writing as cognitive activity, writing as completed activity, writing as situated activity, writing as social activity, and writing as ideology, respectively. The view of six perspectives is presented below.

- 1) *Writing as expressive activity*: It is a creative act of imagination and discovery.
- 2) *Writing as cognitive activity*: It is deemed a problem-solving activity which requires writers to formulate their ideas and involves in the steps of planning and editing. That is to say, it is a thinking process.
- 3) *Writing as completed activity*: Language is more focused more than writing. In other words, structures and rules of usage are observed.
- 4) *Writing as situated activity*: It is contextual performance. Writers bring their personal attitudes and prior experiences they gain from reading, talking, observing, acting, and making feeling to their writing.
- 5) *Writing as social activity*: it considers texts as discourse which express community purposes. Writers have certain goals, relationships to their readers, information to use, and forms of a text to express through their writing.

- 6) *Writing as ideology*: The analyses of the texts are involved to consider power relations of writers' experiences and social context in specific situations.

From Hyland's viewpoints, it seems that this study can define writing as two aspects: writing as cognitive activity and social activity because students need to use the process of thinking to generate their ideas and involve the steps of writing such as planning, drafting, editing, and publishing in order to meet the purposes of their writing concerning the audience and the context. Therefore, writing ability is not the ability to form words and create a series of sentences in certain ways. It also involves the process of thinking and the purpose of writing.

To be able to write, the writer needs linguistic, lexical knowledge, syntactic patterns, and cohesive devices in order to combine structural sentence units into a larger structure (Grabe & Kaplan, 1996; Richards, 2015). To get "good writing", writers should be able to produce a finished piece of communication which is clear, organized, complete, well developed, and well written (Craig, 2013). In addition, good writing should have accuracy and convey the writer's meaning clearly (Hyland, 2016). Especially, rhetorical situation such as the purpose, the audience/ the reader, the content/ genre, and the medium should be taken into consideration no matter what writers write (Bullock, 2006; Grabe & Kaplan, 1996; Harmer, 2004; Hyland, 2016).

All in all, writing ability in this study is the composing ability to combine letters to forms various text types through the use writing process including the steps of prewriting, drafting, revising, editing, and publishing. Knowledge bases of writing are necessary to produce a good piece of writing. The details are presented in the next section.

### **2.2.1.1 Knowledge bases of writing**

Knowledge bases of writing are important for writers when producing the text. It can be bases for teachers to include in the course to support students to produce a piece of writing. Many scholars introduce and discuss about this topic. For example, Grabe and Kaplan (1996) propose that the knowledge bases of writing are made up of three knowledge such as linguistic knowledge, discourse knowledge, and sociolinguistic knowledge, respectively. Linguistic knowledge refers to knowledge of

the basic structural elements of the language such as phonological and orthographical, morphological, syntactic, and semantic knowledge. Discourse knowledge includes knowledge of the ways in which cohesive texts is constructed and abilities to structure discourse effectively. Sociolinguistic knowledge is knowledge of the ways that sociolinguistic awareness and rules of appropriate language use are taken into consideration.

Moreover, Hyland (2003) summarizes knowledge for effective writing as follows:

1. *Content knowledge*: It depends on types of writing learners are learning. Content can be from learners' background knowledge, internet searches, reading, interviews, and opinion surveys.
2. *System knowledge*: It emphasizes grammar and sentence organization.
3. *Process knowledge*: It is deemed a writing process which consist of three stages, namely rehearsing, drafting, and revising. The stage of rehearsing involves finding a topic, generating ideas, thinking about the audience and the purpose of the writing assignment. Next, learners need to turn all ideas into words in the stage of drafting. Writers can go back to the first phase or switch the first two phases. Lastly, writers evaluate what they have written, added or deleted the texts as necessary.
4. *Genre and text knowledge*: It is the knowledge of text types.
5. *Context knowledge*: It is the awareness of how cultural factors influence the nature of written texts.

In addition, Richards (2015) asserts that writers should be aware of knowledge of text types, knowledge of cultural assumptions underlying texts or the organization of text types based on writers' culture, and use of grammar at the level of sentence and text.

Lastly, metacognition plays a role in second language writing. It refers to thinking about thinking, and knowing about knowing (Flavell, 1979). When students write, they have to understand their own writing process. Generally, metacognition consists of three metacognitive knowledge: declarative knowledge (knowledge about things), procedural (knowledge about how to do things), and conditional knowledge

(knowledge about when and why to do things). All knowledge is applied in the writing process. Students will use the technique of planning, drafting an introduction, expanding the topic sentences, revising and giving conclusion (Surat et al., 2014). However, Wang and Han (2017) claims of three knowledge, the declarative knowledge is possible to measure through self-report or questionnaire.

As mentioned above, all necessary knowledge for producing a piece of writing is linguistic knowledge, discourse knowledge, sociolinguistic knowledge, knowledge of the world, and metacognition. That is to say, constructing any texts, writers need to think of the writer themselves, audience, purpose, genre, context, and use appropriate grammar. Understanding and knowing the components of knowledge for writing are beneficial in terms of writing instruction and writing assessment.

### **2.2.2 Writing instruction**

With regard to writing instruction, there are many approaches to teach writing for decades. It starts with a product approach which emphasizes accuracy or the product (Hyland, 2016). With the learning style of drilling and practice, the product approach is not successful and there is a paradigm shift to use the process approach which focuses on the process of writing instead. However, the process approach pays a little attention to linguistic knowledge such as grammar and text structure. It does not help learners to understand how the text might be constructed (Badger & White, 2000). The text is written without concerning the purpose of communication. Therefore, a genre approach is caught attention. Writing in this approach is seen as discourse in which language is used to communicate and achieve particular purposes in particular contexts. It involves relations between writer, reader, and text. The purpose should be the first thing to concern because there are many kinds of writing and genres used to carry out different purposes. However, this approach has drawbacks. It can result in prescriptive teaching of texts, and the text analysis is put an emphasis more (Hyland, 2003). All in all, these are approaches of writing instruction applied in writing classroom.

However, this study aimed to investigate the effects of the project work to help promote students' writing ability. Therefore, the aforementioned writing instruction approaches were not involved, but the writing process and writing strategies instead.



This next section presents writing process, writing strategies, and the writing model of this study, respectively.

### **2.2.2.1 Writing process**

The writing process in this study is derived from three models of writing process proposed by Watkins-Goffman and Berkowitz (1990), Ferris and Hedgcock (2014), and Williams (2003). The details are presented as follows:

Watkins-Goffman and Berkowitz (1990) define writing process as everything writers do. It begins from the moment they think about what to write until the writing is completed. The authors suggest that writers should pay attention to what they write, to whom they write, how they write. To gain more control over the writing process, four stages of writing are presented as a guideline: prewriting, drafting, revising, editing. These four stages are not essential to occur in a sequence, but can happen at the same time. For example, writers may edit when they revise a draft. It depends on how each writer manages their writing. The details of four stages are presented as below.

*Stage 1: Prewriting:* To start writing, there are many activities that the teacher can include such as brainstorming (a group activity talking about the given topic), free writing (an individual work that allows students to write down any thought of the topic), drawing (using pictures to organize ideas about the given topic), and cluster diagramming (drawing a map of thought).

*Stage 2: Writing the first draft:* This is the initial stage of writing after gathering ideas by means of various prewriting activities. The writers can write down anything without paying attention much on spelling, grammar, and punctuation mistakes since they can revise and edit this draft many times later.

*Stage 3: Revising:* After writing the first draft, writers need to consider what they have written. They need to rethink and rewrite the first draft. The writers should check the organization such as topic sentences, supporting details, and concluding sentences, grammar, and vocabulary. In this stage,

having someone read and giving comments can help writers to improve their writing.

*Stage 4: Editing:* This stage is the final step of revising. Writers should edit with special attention to spelling, punctuation, and grammar. During editing, the authors suggest writers to list their mistakes and use them to create their own checklists to check themselves next time.

Another model of writing process is presented by Ferris and Hedgcock (2014). They propose six stages of the writing as follows:

*Stage 1: Prewriting:* In this stage, the teachers lead students to involve text-based tasks and requires them to write from the texts. Student can generate tasks by brainstorming, mapping, clustering and so on.

*Stage 2: Planning and drafting:* The teachers encourage students to plan their writing and understand the purpose of writing. To have students get ideas, the teachers can use reading and allow students to discuss about it as an input for them. After that the teachers should give sufficient time for students to exchange ideas, share their plans, and elicit new information for further development for their writing.

*Stage 3: Rewriting and revising:* This stage lets students have a chance to practice providing feedback to their friends. Then the teachers supply input by ways of reading and discussion to make students get more ideas.

*Stage 4: Feedback, incubation, and revision:* This stage is about giving the feedback. The teachers demonstrate supportive ways in which students can respond to the writing of their friends and emphasize the benefits of responding to the work of others. Then students provide feedback to their friends.

*Stage 5: Editing and polishing:* In this stage, students take time to edit and polish their work after receiving the feedback from peer, teacher, and self-editing.

*Stage 6: Publishing:* This stage provides opportunities for students to share their “final” products to others.

Moreover, Williams (2003) proposes eight stages of writing: prewriting, planning, drafting, pausing, reading, revising, editing, and publishing. Below display the details of each stage.

*Stage 1: Prewriting:* This stage is to generate ideas, strategies, and information related to the given task. It happens before writing the first draft. The activities can be discussion, outlining, free writing, talk-write, and so on.

*Stage 2: Planning:* This stage is to develop what students gain from the previous stage to achieve the purpose of the task. It also involves selecting information to support the reasons and cut out unnecessary information or structure.

*Stage 3: Drafting:* This stage is to produce words on a computer or paper. It takes time in this stage. The teachers should provide more time for students to complete their writing.

*Stage 4: Pausing:* This stage is to give moments for students to think of what they have written and how well it matches the purpose of writing.

*Stage 5: Reading:* This stage is to give moments for students to read what they have written and compare it with the plan. Reading during writing is important to the reflection process during pausing.

*Stage 6: Revising:* This stage is to make changes to correspond with the plan and the purpose of writing. In this stage, it includes receiving peer feedback and the teacher in order to improve the writing.

*Stage 7: Editing:* This stage is to focus on checking grammar, spelling, and punctuation. The goal of this stage is to polish writing to be more professional.

*Stage 8: Publishing:* This stage is to share the final draft to the audience and turn it in to the teacher.

Based on all aforementioned models of the writing process, it shows that although the name of each step in each model of writing process seemed similar and shared the same characteristics, there were some different details which could be supported one another when all models of writing process were combined. Three models of writing process were chosen for this study. To begin with, Watkins-Goffman and Berkowitz's model was flexible. It allows students to check, review, and revise as many times as possible. However, this model did not show the role of peer feedback much and did not have the clear stage of publishing which was deemed vital for this study since students should be able to publish their work to increase the sense of ownership and learn good examples from friends' work. Therefore, the other models were added to make the writing process more suitable for this study. Ferris and Hedgcock's model was added aiming to add an input through discussion or reading and a demonstration of how to complete each task, while Williams' model was included to emphasize the self-check process allowing students to monitor their own writing one more time before sending their papers to receive feedback from peers and the teacher.

Concerning the synthesis of writing process in this study, Watkins-Goffman and Berkowitz (1990) presents four stages, Ferris and Hedgcock (2014) suggest six stages, and Williams (2003) proposed eight stages of writing process. In this study, the writing process adapted from these three models consists of five stages: prewriting, drafting, revising, editing, and publishing as follows:

In the first stage, three models of writing process similarly share the same process, which is allowing students to involve in a task and let them begin to brainstorm and generate ideas individually or in groups before moving to the next stage which was drafting. Therefore, the prewriting stage in this study was as follows:

#### *Stage 1: Prewriting*

Students select the topic, consider the purpose of their writing, identify the text type, and organize their ideas using brainstorming, discussion, outlining, or mapping.

In the second stage, three models of writing process focus on planning and drafting, which encourages students to plan and understand the purpose of their

writing and then take time to start drafting. Therefore, the drafting stage in this study was as follows:

*Stage 2: Drafting*

Students read the model text and search for information from any sources as an input and then write their first draft using the plan from the previous stage.

In the third stage, three models went in the same way. It required students to reconsider their writing before sending their writing to friends. Watkins-Goffman, Berkowitz, and Williams' models supported students to stop and think of their own writing before gaining peer feedback, while Ferris and Hedgcock's model provided more input such as reading or group discussion for students to gain more ideas. When all three models were mixed, the revising stage in this study was as follows:

*Stage 3: Revising*

Students take time to think, read, and check their first draft in terms of content and language. Then they submit their writing to receive feedback from peers and the teacher. In this stage, the teacher may add an input more to help students polish their writing.

In the fourth stage, three models required students to edit their writing with the focus on grammatical accuracy and mechanics including spelling, punctuation marks, and capitalization. Therefore, the editing stage in this study was as follows:

*Stage 4: Editing*

Students recheck and take time to edit their grammatical accuracy and mechanics in terms of spelling, punctuation marks, and capitalization. They can polish their writing until they feel satisfied.

In the last stage, there was not the publishing stage in Watkins-Goffman and Berkowitz's model, but it was found in Ferris, Hedgcock, and Williams' models.

In this stage, students shared their writing to others and send it to the teacher finally. The publishing stage in this study was as follows:

*Stage 5: Publishing*

Students share their final writing to their friends and the classroom and submit it to the teacher.

In conclusion, the five stages of writing process in this study were prewriting, drafting, revising, editing, and publishing. The synthesis of writing process in this study is shown in Table 2.

Table 2: Synthesis of writing process

<b>Watkins-Goffman and Berkowitz (1990)</b>	<b>Ferris and Hedgcock (2014)</b>	<b>Williams (2003)</b>	<b>Synthesis of writing process of the study</b>	<b>Main stages</b>
1. Prewriting	1. Prewriting	1. Prewriting	1. Students select the topic, consider the purpose of their writing, identify the text type, and organize their ideas using brainstorming, discussion, outlining, or mapping.	1. Prewriting
2. Writing the first draft	2. Planning and drafting	2. Planning 3. Drafting	2. Students read the model text and search for information from	2. Drafting

<b>Watkins-Goffman and Berkowitz (1990)</b>	<b>Ferris and Hedgcock (2014)</b>	<b>Williams (2003)</b>	<b>Synthesis of writing process of the study</b>	<b>Main stages</b>
			any sources as an input and then write their first draft using the plan from the previous stage.	
3. Revising		4. Pausing	3. Students take time to think, read, and check their first draft in terms of content and language. Then they submit their writing to receive feedback from peers and the teacher. In this stage, the teacher may add an input more to help students polish their writing.	3. Revising
		5. Reading		
	3. Rewriting and revising 4. Feedback, incubation, and revision	6. Revising		
4. Editing	5. Editing and polishing	7. Editing	4. Students recheck and take time to edit their grammatical accuracy and mechanics in terms of spelling,	4. Editing

<b>Watkins-Goffman and Berkowitz (1990)</b>	<b>Ferris and Hedgcock (2014)</b>	<b>Williams (2003)</b>	<b>Synthesis of writing process of the study</b>	<b>Main stages</b>
			punctuation marks, and capitalization. They can polish their writing until they feel satisfied.	
	6. Publishing	8. Publishing	5. Students share their final writing to their friends and the classroom and submit it to the teacher.	5. Publishing

Apart from writing process, writing strategies got involved in writing instruction. The following section presents writing strategies used in this study.

#### **2.2.2.2 Writing strategies**

In this study, two strategies: metacognitive strategies (MTS) designed by Mu (2005) and the model of IMSCI proposed by Read (2010) were selected as part of writing instruction.

First, the metacognitive strategies (MTS) designed by Mu (2005) were involved to support the writing process as mentioned earlier. MTS is related to thinking about the writing process using planning, monitoring, and evaluating of what students have written. This help students to manage, direct, and guide their writing. Kasper (1997) believes that metacognitive strategies have an impact on writing proficiency. The more students can develop metacognitive strategies, the more their writing



proficiency is higher. The details of three stages: planning, monitoring, and evaluating are presented as below.

*Stage 1: Planning:* It involves finding focus. That is when writing, students have to consider audiences, ideas, and strategies to be used before writing. The activity can be brainstorming.

*Stage 2: Monitoring:* It involves checking and identifying problems. To explain more, during the process of writing, students will check and verify their content, organization, grammar, and mechanics.

*Stage 3: Evaluating:* It involves reconsidering written text and goals. Students will discuss about their work and evaluate it. The objective of this stage is to allow students to evaluate their own learning process.

Another important writing strategy was the model of IMSCI developed by Read (2010). It was selected for this study since it is effective for second language learners. Moreover, its highlight is scaffolding instruction which provides consistent support for students throughout their learning and gives them opportunities to learn new knowledge, reach the goals, and yield successful learning outcomes. The model is named “IMSCI” which stands for inquiry, modeling, shared, collaborative, and independent. They are the five stages of this model.

*Stage 1: Inquiry (I):* In this stage, students’ background knowledge is activated. The teacher will read aloud and ask students about text types in order to introduce the new text type to students and let them engage in the features of that text type.

*Stage 2: Modeling (M):* In this stage, the teacher provides the modeling text to students and thinks aloud. That is to say, the teacher shows how to brainstorm topics, draft, revise, and edit the text.

*Stage 3: Shared writing (S):* In this stage, the teacher and students will start creating the text together. The teacher engages students to create the text in order to have them learn the process of writing and be able to write on their

own at the end. Students will make decision on their topic, sentence structures, and organization.

*Stage 4: Collaborative writing (C):* In this stage, students will work together in pair or in a group to produce a text. Providing feedback also plays a role in this stage.

*Stage 5: Independent writing (I):* In this stage, students are required to write independently.

When completing all above stages, students are expected to be able to gradually improve their writing ability and write independently which is the ultimate goal of the scaffolding process.

#### **2.2.2.3 Writing model**

After reviewing writing process and writing strategies in the previous sections, it could be concluded that the framework of writing instruction in this study was based on the concepts proposed by many scholars (e.g., Watkins-Goffman & Berkowitz, 1990; Williams, 2003; Mu, 2005; Read, 2010; Ferris & Hedgcock, 2014). The main stages of writing instruction were “IMSCP” comprising: inquiry, modeling, shared writing, collaborative writing, and independent writing proposed by Read (2010). These stages emphasized the importance of scaffolding which was a concept of working in the zone of proximal development (ZPD) indicating what students could or could not do, and what they could attain independently or with the support given by peer and the instructor (Vygotsky, 1978). In the main stages, the stage of inquiry aimed to activate students’ background knowledge through questioning. The stage of modeling aimed to provide the model text to students and teach them how to analyze the text. From the stage of shared writing to the stage of independent writing, there were the MTS writing strategies, namely planning, monitoring, and evaluating (Mu, 2005) and five steps of writing process, namely prewriting, drafting, revising, editing, and publishing (Watkins-Goffman & Berkowitz, 1990; Ferris & Hedgcock, 2014; Williams, 2003) included. The MTS writing strategies were added to support the writing process, thus allowing students to think about their writing when students wrote

collaboratively and independently. The main stages of writing instruction for this study are summarized in Table 3 below.

Table 3: Synthesis of writing instruction framework

<b>Writing process (Watkins-Goffman &amp; Berkowitz, 1990; Ferris &amp; Hedgcock, 2014; Williams, 2003)</b>	<b>MTS Writing strategies (Mu, 2005)</b>	<b>Main stages (Read, 2010; Watkins- Goffman &amp; Berkowitz, 1990; Ferris &amp; Hedgcock, 2014; Williams, 2003; Mu, 2005)</b>
		1. Inquiry
		2. Modeling
1. Prewriting	1. Planning	3. Shared writing 4. Collaborative writing 5. Independent writing
2. Drafting		
3. Revising	2. Monitoring	
4. Editing	3. Evaluating	
5. Publishing		

### 2.2.3 Writing assessment

Writing assessment is important for students and teachers. It is the outcome to show students' progress on their writing ability and benefits teachers in terms of planning and the evaluation of their own teaching. Therefore, scores, grades, and evaluative feedback are deemed vital to help teachers to indicate students' learning processes and their improvement of writing ability (Ferris & Hedgcock, 2014; Grabe & Kaplan, 1996)

To assess writing, Weigle (2002) suggests three types of rating scales: primary trait scales, holistic, and analytic scales as follows:

#### *Primary trait scoring*

Understanding how well students write within a narrowly defined range of discourse is significant. In this procedure, the rating scale is designed based on the

specific writing assignment. It can include several categories, for example, entire exercise, use of dialogue, point of view, and tense to see how writers approach the writing task. However, although the primary trait scoring has potential, it has not been adopted and widely used in assessment programs. It is time-consuming to develop a scoring guide for every writing task.

### *Holistic scoring*

A holistic scoring method is a single score to rate or rank writing proficiency. The rubrics consist of four to ten levels to allow evaluators to give scores above or below the midpoint. Each level provides a set of descriptions or benchmark scripts. It is frequently used for placement, diagnostic purposes, and high-stakes assessments such as TOEFL iBT, SAR, GRE and so on. Also, it is appropriate to rate general text types, particularly for a large number of writing samples because it is faster to read descriptions and assign the single score. However, this kind of scoring cannot provide much diagnostic information about the writing ability of the writer since the rating scale gives overall descriptions in each level. It cannot specifically distinguish several aspects of writing such as organization, grammatical accuracy, vocabulary and so on. For example, when two raters agree to assign the same scores to a written text, they may think differently. It is feasible that one may give four scores for organization. The other may give the same scores, but for grammatical accuracy or vocabulary (Weigle, 2002; Ferris & Hedgcock, 2014).

### *Analytic scoring*

Unlike holistic scoring, analytic scoring provides scales in the form of letter grades or numerical value together with detailed scripts to check a writer's performance in terms of content, organization, vocabulary, grammatical accuracy, and mechanics. The analytic scoring is suggested using because of the following reasons. Firstly, it gives clear descriptors and weighting systems, which can facilitate the training of raters. Novice teachers can understand how to use this rubric and find it easier to use than a holistic rubric (Ferris & Hedgcock, 2014). Secondly, it is helpful for second language learners to know their mistakes based on the scores they gain in each aspect. For example, students are good at organizing a paragraph, but they might fail to use grammatical accuracy and mechanics such as spelling. Thirdly, it is beneficial for

teachers to understand students' writing problems and provide them explicit feedback. However, it is worth noting that even though analytic scoring provides a lot of advantages, it is difficult to design the right descriptors for the right numerical scores and also takes time for raters to finish rating because of various aspects of writing.

To select a type of rating scales to assess writing, it depends on the purposes, the course, and the context. In this study, the analytic scoring was considered the most appropriate way to employ since the results could benefit both students and teachers. It provided diagnostic information in terms of students' strengths and weaknesses, which corresponded with the present study aiming to investigate students' writing ability in terms of content, organization, vocabulary, grammatical accuracy, and mechanics.

These five aspects were the main criteria to assess students' writing adapted from the writing rubrics of Jacobs et al. (1981) and *IELTS TASK 2 Writing band descriptors (public version)* n.d.). Designing the scoring rubric in this study was based on the principles proposed by Weigle (2002), who recommended considering the users of the scoring rubric, the aspects of writing to focus, and the points on rating scale as the main factors to concern. Therefore, the criteria and description of the writing rubric in this study was simplified to avoid difficulty in using the rubric and facilitate the users who were the participants of the study and another rater. As for the criteria, there were five aspects consisting of content, organization, vocabulary, grammatical accuracy, and mechanics. Students were expected to achieve each aspect based on the following definitions:

- *Content*: Students should be able to present a well-developed response to the topic with relevant information.
- *Organization*: Students should be able to write a paragraph including a clear topic sentence, supporting details, and a concluding sentence. All sentences should be organized in a logical and chronological order and connected to the topic.
- *Vocabulary*: Students should be able to use vocabulary effectively and appropriately for the topic to show the meaning throughout the paragraph.

- *Grammatical accuracy*: Students should be able to use grammar accurately paying attention to tenses, parts of speech, articles, subject-verb agreement and so on.
- *Mechanics*: Students should be able to use mechanics including punctuation marks, spelling, and capitalization correctly.

Regarding the points on rating scale, all aspects of writing ability: content, organization, vocabulary, grammatical accuracy, and mechanics were rated on a 0-4 scale each equally as Hamp-Lyons (1991) suggested that weighting all components equally is more appropriate for analytic scoring, while having different weighting of the components is more suitable for holistic scoring. It was because that the goals of the course in this study were to have students write well-organized paragraphs and to apply the use of grammatical accuracy, vocabulary, and mechanics in different text types, which could be inferred that students' writing ability should be promoted in all aspects.

## 2.3 Critical thinking skills

Critical thinking is an indispensable requirement for everyone in today's life and in academic setting (Lun et al., 2010). People use critical thinking skills as a tool to deal with rapid changes in this world, for example, they have to face amounts of information, complex problems, technological and social changes. It involves in creativity, life skills, problem solving, decision making. Therefore, to promote critical thinking skills which are survival imperatives in the 21<sup>st</sup> century, the concept of critical thinking skills is specified.

### 2.3.1 Definition of critical thinking skills

Critical thinking has been developed for many years; however, the clear consensus in its definition has been discussed among scholars in the field of philosophy, psychology, and education. The ways to articulate the concept of critical thinking from different perspectives are presented as follows.

With regard to the philosophical approach, Paul and Elder (2006) define critical thinking as reflective thinking which requires reasoning as a key element. Not only the

ability to reflect one's own thinking with reasoning but also decision-making play roles as part of critical thinking (Ennis, 1989). The thinking process starts with thinking about any situation, questioning one's self, finding relevant information both strengths and weaknesses, reducing the weaknesses, building on the strengths to be better, and finally drawing conclusions for believing something. Based on these views, critical thinking is regarded as reflective thinking. However, McPeck (1981) disagrees with it. He defines critical thinking as reflective skepticism and downplays logic in reasoning. For him, thinking about something in a specific field is more emphasized. Therefore, to develop critical thinking, a particular context is needed. With the disagreement between these two perspectives, the definition of critical thinking has been improved and more concerned in terms of classroom practice. A Delphi panel of critical thinking experts assembled by the American Philosophical Association (APA) tried to reach consensus on the concept of critical thinking and finally agreed to define critical thinking as "to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (Facione & Facione, 1996, p. 4).

In opposition to the philosophical approach, the psychological approach emphasizes cognitive skills, the mental process, and how people actually think. In addition, critical thinking is associated with problem-solving. Halpern (1999, p. 70) suggests that critical thinking is "the use of cognitive skills or strategies that increase the probability of a desirable outcome. Critical thinking is purposeful, reasoned, and goal-directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions." In a similar vein, Levy (1997, p. 236) defines critical thinking as "an active and systematic cognitive strategy to examine, evaluate, understand events, solve problems, and make decisions on the basis of sound reasoning and valid evidence." Therefore, critical thinking for philosophers focus on the products of thought involving in identifying the problem, analyzing, interpreting the data, and coming up with good questions related to the data.

Regarding the educational approach, one of the well-known frameworks in education is Bloom's taxonomy (Bloom, 1956). It categorizes six levels of thinking starting from lower order thinking (knowledge, comprehension, and application) to

higher order thinking (analysis, synthesis, and evaluation). Among six levels, the higher order thinking has been represented as critical thinking (Kennedy et al., 1991). However, Paul (1985) argues that higher order thinking in Bloom's taxonomy is not critical thinking because of a one-way hierarchy, which emphasizes that the learning in higher levels require the prerequisite knowledge from the lower levels. Critical thinking requires bringing at least knowledge, comprehension, application, analysis, synthesis, and evaluation into every act of the mind. Since it may not easy to define the clear definition of critical thinking in term of education, some researchers have resorted to taking the concept of critical thinking from the combination between the philosophical and the psychological approaches to gain the practical concept of critical thinking for teaching and learning (Sternberg, 1986).

Based on all definitions above, although there are various definitions of critical thinking, the key elements are related to analyzing, reasoning, evaluating, decision-making, and problem-solving (Ennis, 1989; Facione & Facione, 1996; Halpern, 1999; Levy, 1997; Paul & Elder, 2006). It is impossible to conclude that these skills are the most important critical thinking skills; however, these skills are the tools to improve the quality of thinking for people when making the judgements and solving any problems in their daily lives.

In this study, critical thinking skills refers to the ability of analyzing, reasoning, evaluating, decision-making, and problem-solving when making the judgements and solving any problems to get the best outcomes for any circumstances.

### **2.3.2 Critical thinking instruction**

Fostering critical thinking skills is a part of English language curriculum. It is one of the teacher's task to prepare students to develop critical thinking skills in order to do many activities successfully in foreign language classrooms (Shirkhani & Fahim, 2011). The goals are to foster students to be able to think critically to reach the goal of the curriculum; to make decisions, solve problems, use their thinking skills to understand language and content; and treat their thinking skills to improve lifelong learning. Consequently, students become well-balanced intellectually, physical, emotionally, and spiritually (Mahyuddin et al., 2004).



Although promoting students to be critical thinkers is significant, there are arguments regarding teaching critical thinking in EFL context. For example, Atkinson (1997) claimed that critical thinking instruction is difficult and inappropriate for non-Western students since Asian societies are collectivist, while Western societies are individualistic. With this point of view and different culture between societies, EFL students are evaluated based on inappropriate standards. To argue Atkinson's claims, Davidson (1995) and Long (2003) agree that it is unreasonable to conclude that critical thinking may not fit with Asian or EFL students. To discuss this point, Rear (2017) mentions that the cultural background plays a role and influences students' behaviors in the classroom. The main learning environments in Asian countries such as China, Japan, Korea, and Singapore including Thailand are large class sizes, authoritarian teaching, rote memorization, and taking examinations. Moreover, Asian students are quiet. They have few questions and less interaction with teachers. All of these characteristics seem to be surface learning, not deep learning compared to the Western classrooms. However, it is not feasible to conclude that this kind of learning makes students lack critical thinking skills since these skills can be perceived in a silent atmosphere which is beneficial for deep thinking or high levels of thinking (Kim, 2002). Therefore, it can conclude that Asian learners do not lack critical thinking skills, but there might be some language barriers that prevent them to show their full critical thinking skills (Rear, 2017).

To help develop students' critical thinking skills, teaching critical thinking skills should be taught (Davidson, 1995; Long, 2003). In this study, analyzing, reasoning, evaluating, decision-making, and problem-solving were the critical thinking skills which were taught in the writing course. All of them were integrated in each activity to stimulate students to think critically. To teach critical thinking skills more effectively, many researchers suggested various techniques as follows:

Duron et al. (2006) developed a five-step model to promote critical thinking skills through active learning that can be used in any classrooms (see Figure 2). The details are presented below:

*Step 1: Determine learning objectives*

Teachers introduce the course, identify the learning objectives, and define behaviors students should do to promote their critical thinking. It is suggested that the learning objectives should be written by the action verbs based on Bloom's Taxonomy. For example, students will be able to describe, to demonstrate their understanding, to summarize, to apply, to differentiate, to create, and to evaluate.

*Step 2: Teach through questioning*

In this step, teachers teach through questioning. It is an important part of teaching and learning process that can expand students to explore more information. Walker (2003) supports teacher to design questions that promote higher-order thinking which focuses on evaluation and synthesis of the facts and concepts. The questions should consist of the word phrases or sentences such as "explain", "compare", "why", and "do you agree or disagree with this statement?" Therefore, it is a teacher's job to prepare a set of questions allowing students to have group discussion.

*Step 3: Practice before you assess*

In this step, active learning is applied to provide opportunities for students to engage in their learning and feel enjoyable. The authors suggest teacher to include three components of active learning: information and ideas, experience, and reflective dialog. The last one is necessary. It allows students to reflect their own learning experience. The questions can be "What am I learning?", "What is the value of what I am learning?", "How am I learning?", and "What else do I need to learn". Therefore, this study includes students' reflective journal and requires them to write it weekly.

*Step 4: Review, refine, and improve*

In this step, students are allowed to review their work. They need to think critically to improve their work. Moreover, during teaching the course, teacher should ensure that instructional techniques develop students' critical thinking. To achieve the goal, teacher can monitor the activities in the classroom and track students' participation. Teaching diary can be used to record class

activities, participation, and assessment of the success. Also, student feedback is another help to improve the course. After getting all information, teacher can refine and improve the course to promote students' critical thinking.

*Step 5: Provide feedback and assessment of learning*

In the last step, teacher provide feedback to student performance to enhance the quality of their learning and performance. Student peers are also allowed to provide feedback. This helps students to understand what successful and unsuccessful performance are based on the criteria. As a result, it helps students to think more critically and it also helps teacher to improve the course to be better.

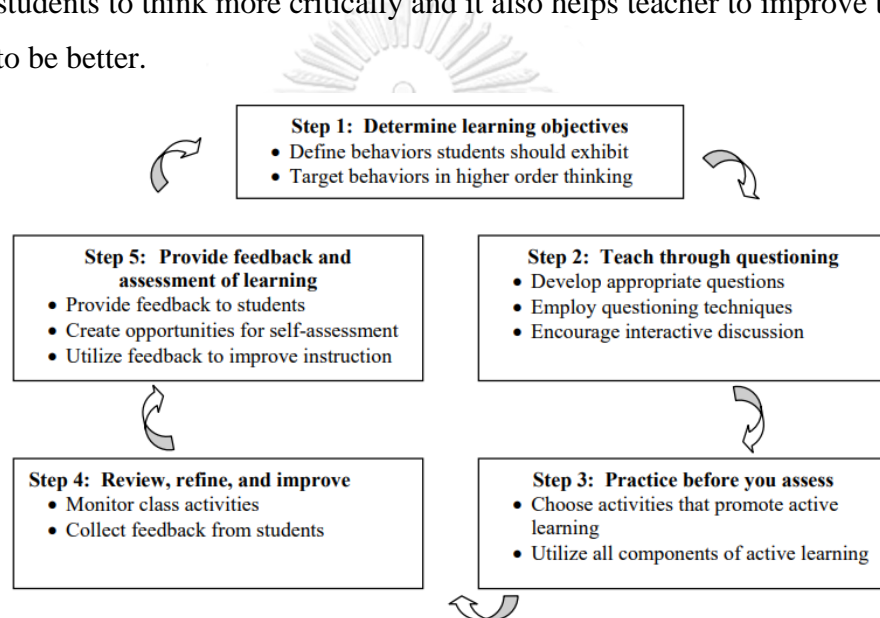


Figure 2: A five-step model to improve students' critical thinking (Duron et al., 2006)

In the same vein, Zhao et al. (2016) promoted the use of questioning and active learning strategies as the methods to enhance critical thinking skills. First, questioning can stimulate students to think critically. The questions can be divided into two groups: lower-level questions and higher-level questions based on Bloom taxonomy. The lower-level questions require students to answer about facts, whereas the higher-level questions require students to create, analyze, and evaluate. In addition, closed-ended and open-ended questions can be used, but teachers should use open-ended questions rather than closed-ended questions in order to allow students to explain and provide examples or evidence to support their ideas. When questioning, teachers should make

sure that students have sufficient time to think and reflect their ideas. Another technique that can develop critical thinking skills is active learning. In this learning environment, students are assigned to work in group, which allows them to exchange their ideas and have responsibilities for their assigned work. Given the emphasis on students' participation, collaboration, and interaction, students' critical thinking skills could be promoted (Fung & Howe, 2014).

In addition, Fahim and Masouleh (2012) suggested three strategies to promote critical thinking skills: annotating, previewing, contextualizing. First, *annotating* refers to underlining key words, writing comments or any notes you feel interested, and highlighting important messages. Second, *previewing* means having a concept of what the text is about and how it is formatted. Lastly, *contextualizing* is the one's ideas toward the text. The reader can use background knowledge to connect with the text. The goal is to have students draw their own conclusions.

To this end, teaching critical thinking skills could be done through questioning and active learning which allows students to work in groups and interact with one another to complete the goals. Moreover, all of these techniques were compatible with steps of developing the project and writing process. Therefore, it could be assumed the combination of project-based learning, writing instruction, and critical thinking instruction was feasible to go together.

### 2.3.3 Critical thinking assessment

Assessment is one way to enhance critical thinking skills. There are a number of critical thinking tests, for example, the California Critical Thinking Skills Test, the Cornell Critical Thinking Test, the Watson Glaser Critical Thinking Assessment, and the Ennis-Weir Critical Thinking Essay Test (Dwyer, 2017). These tests have the same format: multiple-choice questions, but they cannot be comparable and used interchangeably. Although these published tests are validated and reliable, they are general critical thinking assessments, not subject-specific. Therefore, the specific critical thinking test was designed to assess students' critical thinking skills in this study.

To design the specific critical thinking test, it is worth understanding how to assess critical thinking skills. Researchers provided many suggestions as follows:

- Critical thinking assessment should occur frequently during the course to see the development of students' critical thinking. There are four dimensions to assess critical thinking. They are formative-summative, product-process, qualitative-quantitative, and experimental-quasi-experimental classifications. Teacher can select and design assessment to fit the course (Shirkhani & Fahim, 2011).
- Criterion-referenced testing should be used rather than norm-referenced testing. Since the criteria of criterion-referenced testing is clear, and the atmosphere of learning promotes students to help one another to learn and work together. Unlike criteria of criterion-referenced testing, norm-referenced testing creates the competitive atmosphere that makes students compete with others to get better grades and feel stressed to achieve the goals (Shirkhani & Fahim, 2011).
- There are many different forms of tests, namely multiple-choice items, cloze test, and production test to assess student's critical thinking. First, multiple-choice items can assess critical thinking since the process to select the correct answer requires students to have a critical evaluation. Students should be able to cut the distractors and choose the correct answer. Second, cloze test also allows students to analyze the questions critically and find the correct answer in each blank. Lastly, productive tests such as writing and speaking are related to critical thinking. These tests require students to analyze what the question is about and think about the answers and evidence to support arguments (Fahim & Pezeshki, 2012).
- Assessment tasks should be authentic. It means that assessments should be related to real-world problems and issues that allow students to provide multiple views (Lai, 2011).
- Structured interviews can be used to assess critical thinking. The responses will be analyzed to find the nature of critical thinking process (Hager & Kaye, 1992).

Based on the recommendations above, this study selected to use the writing test to assess students' critical thinking skills by giving the scenarios related to real-world

problems for students to think critically and reflect their ideas through writing. Moreover, the formative and summative assessment were applied, that is, the informal feedback was provided to students during the course and the critical thinking tests were distributed to students during and at the end of the course. Finally, their performance was evaluated using the criterion-referenced testing, and their thinking process was examined by conducting the interviews.

As for the critical thinking rubric, it was created from the descriptions of critical thinking skills proposed by Halpern (1999), Halpern and Riggio (2002), and Facione (2015) because while other scholars ignore decision-making and problem-solving skills, Halpern (1999) gives an importance of these two skills and includes them as parts of critical thinking skills, which suited this study. Regarding Facione's (2015) descriptions, it was reliable and credible since all core critical thinking skills were derived from the consensus of a Delphi panel of critical thinking experts, which aimed to be used in education. The descriptions of each scholar are explained below:

To begin with, Halpern (1999) suggests five category headings of critical thinking skills: verbal reasoning skills, argument analysis skills, skills in thinking as hypothesis testing, using likelihood and uncertainty, and decision-making and problem-solving skills, as presented below.

- *Verbal reasoning skills* refer to skills used to determine if a conclusion is valid or true.
- *Argument analysis skills* refer to skills needed to judge how well reasons and evidence support a conclusion, including considering counter-evidence, stated and unstated assumptions, and the overall strength of the argument.
- *Skills in thinking as hypothesis testing* refer to skills used in scientific reasoning such as formulation of beliefs or hypotheses and then using the collected data to decide if it confirms the hypotheses or not.
- *Using likelihood and uncertainty* refers to the correct use of objective and subjective estimates of probability.

- *Decision-making and problem-solving skills* refer to skills needed to identify and define a problem, state the goal, select the alternatives, and judge among alternatives to get the final solutions.

Concerning decision-making and problem-solving skills, both of them should not be equated because in a particular circumstance, either decision-making or problem-solving skill is needed. Therefore, Halpern and Riggio (2002) separate these two skills and give the descriptions below:

- *Decision-making skills* are “those used in framing a decision, generating and evaluating alternatives, and analyzing the outcome.”
- *Problem-solving skills* are “those that are needed to identify and define a problem, state the goal, generate, and evaluate solution paths.”

Facione (2015) focuses on six core skills of critical thinking: interpretation, analysis, evaluation, inference, explanation, and self-regulation. The description of each skill is shown below:

- *Interpretation* is “to comprehend and express the meaning or significance of a wide range of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria” (Facione, 2015, p.5).
- *Analysis* is “to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express belief, judgment, experiences, reasons, information, or opinions” (Facione, 2015, p.5).
- *Evaluation* is to assess the credibility of statements or other representations that are accounts or descriptions of a person’s perception, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions, or other forms of representation (Facione, 2015, p.6).
- *Inference* is to identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant

information and to reduce the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation (Facione, 2015, p.6).

- *Explanation* is “to state and to justify that reasoning in terms of the evidential, conceptual, methodological, criteriological, and contextual considerations upon which one’s results were based; and to present one’s reasoning in the form of cogent arguments” (Facione, 2015, p.6).
- *Self-regulation* is self-consciously to monitor one’s cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis, and evaluation to one’s own inferential judgments with a view toward questioning, confirming, validating, or correcting either one’s reasoning or one’s results (Facione, 2015, p.7).

Based on all of these descriptions of critical thinking skills, there were some of them that could not be used in this study, for example, ‘skills in thinking as hypothesis testing’ and ‘using likelihood and uncertainty’ (Halpern, 1999) as well as self-regulation (Facione, 2015) since these headings were not focused and related to this research.

Drawing on the Halpern’s (1999), Halpern and Riggio’s (2002), and Facione’s (2015) lists of critical thinking skills, the researcher summarized and synthesized the descriptions of the critical thinking skills which were subsequently used to create the analytic scoring under the criteria of analyzing, reasoning, evaluating, decision-making, and problem-solving for this study, as described as follows:

- The meaning of *analyzing* was the ability to understand and identify a problem, issue, or question, and accurately give explanations relating to the problem, issue, or question.
- The meaning of *reasoning* was the ability to provide logical and accurate reasons and arrive at a conclusion in a different context.
- The meaning of *evaluating* was the ability to justify strengths and weaknesses among statements, descriptions, questions or other forms of



the representations, and the ability to assess the credibility of statements or other representations.

- The meaning of *decision-making* was the ability to select the best option among various alternatives to constitute the best outcome.
- The meaning of *problem-solving* was the ability to state the problem, explore possible strategies or solutions, and select the best solution for that particular problem.

Regarding the points on rating scale, all critical thinking skills: analyzing, reasoning, evaluating, decision-making, and problem-solving were rated on a 0-4 scale each equally as Hamp-Lyons (1991) suggested that each component in analytic scoring should be weighted equally. Moreover, it is beneficial for both students and the teacher to know the strong and weak skills of critical thinking when reporting the scores.

#### **2.3.4 Related studies regarding critical thinking skills and writing**

Writing and critical thinking skills can go together. Wade (1995) claimed that “writing is an essential ingredient in critical thinking instruction” (p.24). Paul and Elder (2006) asserted that writing is a powerful tool to show mode of thinking. In the writing process, critical thinking skills play an important role in order to produce a good piece of writing. Good writing can reflect the elements of reasoning, whereas poor writing reflects poor understanding and poor elements of thought. For example, when sentences are interpreted in many different ways, it can be inferred that the messages writers intend to convey is not clear as the result of their vague writing and thinking. Therefore, it could be concluded that writing and critical thinking skills are related to one another.

Regarding related research on critical thinking and writing, many educators have conducted the research. For example, Indah (2017) studied the patterns of relationship among critical thinking, writing performance, and topic familiarity of Indonesian EFL learners. The findings showed that all of them were related to one another. Students could write and reflect their critical thinking skills well when they had a chance to choose their own topics they were familiar with. Based on these results, it could be inferred that improving writing performance can lead students to become

critical thinkers since it required students to ponder any topics and reflect them through their writing.

To enhance critical thinking and writing, some scholars integrated technology as a tool. Al Sharadgah (2014) conducted research to develop critical thinking skills through writing in an Internet-based environment. The participants were 98 male university students who took a writing course. They were divided into two groups: a control group and an experimental group. The first group was taught through the ordinary method, whereas the latter group received treatment via the Internet-based writing program called IBM. The results revealed that students in the experimental group showed higher improvement of their critical thinking skills than those in the control group. It is because the task provided to students required them to think critically and search for relevant information to the given topics to complete the task. Moreover, the collaborative learning through the text-based chat also played a significant role to enhance students' critical thinking skills.

Bouanani (2015) conducted a study to investigate the development of critical thinking skills through a reflective writing intervention. The samples were 30 third-year university students at Business school, majoring in Business, Finance and Marketing. They were assigned to write a weekly reflection as homework and measured their writing by the ARC (Assessment Rubric for Critical Thinking). The results showed that reflective writing could enhance critical thinking skills because students got involved in the thinking process when they wrote their reflections. They had put an attempt to solve problems, interpret results, synthesize, and conclude their ideas before they produced a good piece of writing. Therefore, reflective writing was considered a pedagogical strategy that could promote critical thinking skills, and it was recommended to include in writing instruction.

In Thailand, Soranasathaporn et al. (2016) investigated the effects of using the dinner mystery game to develop English and critical thinking skills and students' attitudes towards this instruction. The results indicated that students had more opportunities to communicate in English and think critically, especially analyzing and using logical reasoning during the process to find the murderer in the game. Moreover, students felt satisfied with using game to develop both English and critical thinking skills.

Based on these aforementioned related studies, it could be seen that critical thinking and writing skills could go together and connected. Moreover, critical thinking instruction could be integrated in the writing course or in the language classroom through various activities. Therefore, it could be assumed that in this study, the use of project-based learning could promote students' writing ability together with critical thinking skills and yield the good results.

## **2.4 Conceptual framework of the study**

The conceptual framework of the study was developed based on the three main concepts of project-based learning (Fried-Booth, 1986; Stoller, 2012; Busciglio, 2016), writing instruction (Watkins-Goffman & Berkowitz, 1990; Williams, 2003; Mu, 2005; Read, 2010; Ferris & Hedgcock, 2014), and critical thinking instruction (Ennis, 1989; Facione & Facione, 1996; Levy, 1997; Halpern, 1999; Paul & Elder, 2006). The model of the study named project-based writing instruction (PWI) consisted of three main stages: planning the project, developing the project, and evaluating the project. Each stage can be explained in the following section. In the stage of planning the project, students' prior knowledge was activated through questioning. After that, they learned the content and language from the model text and practiced doing exercises with friends, the teacher, and the whole class. Finally, they took time to plan the project which was the real-world problem to determine the objectives and outcomes. Additionally, analyzing, decision-making, and problem-solving were in need to complete each activity. In the stage of developing the project, students collected relevant information from any sources to write the texts independently and submitted their writing to their friends and the teacher to receive feedback. Then they shared feedback through a groups discussion and continued working collaboratively to develop the project with a student-teacher conference. During each activity, reasoning, evaluating, decision-making, and problem-solving were applied on its appropriateness to help students to reach the goals. In the stage of evaluating the project, students presented their projects and used their evaluating and decision-making to help one another to evaluate other's projects. Then they received feedback from their peer and teacher. Finally, the teacher wrapped up all lessons, and students reflected on what they

had learned in their reflective journal. With these three stages, it was anticipated that students' writing ability and critical thinking skills were improved. The conceptual framework is illustrated in Figure 3.



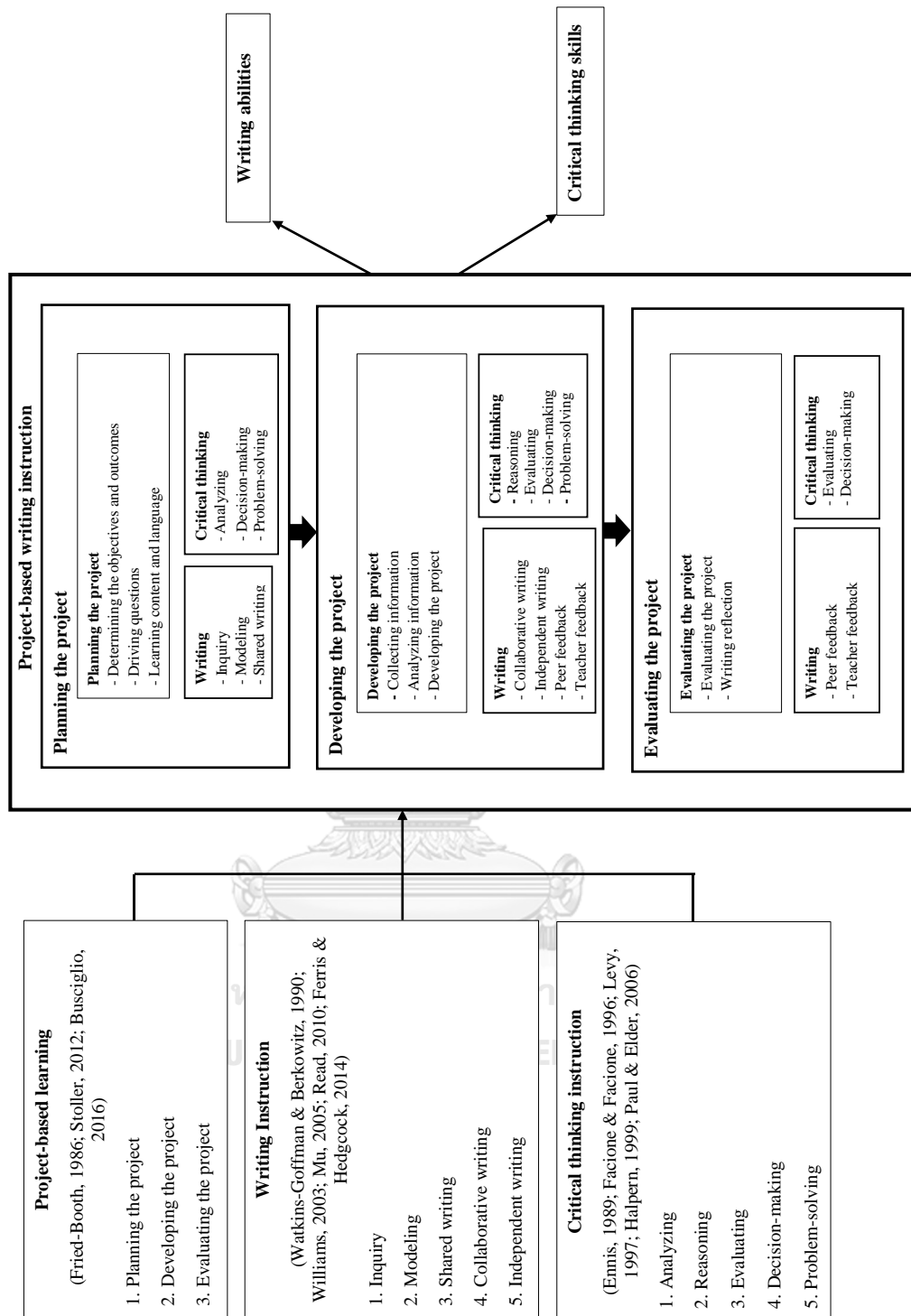


Figure 3: Conceptual framework of project-based writing instruction (PWI)

## CHAPTER III

### RESEARCH METHODOLOGY

This chapter presents the research methodology employed in the study. It begins with the presentation of research design, population and participants, and research procedures divided into two main phrases: development and validation of project-based writing instruction and implementation of project-based writing instruction. After that, research instruments, data collection, and data analysis are described in detail.

#### 3.1 Research design

This study aimed to improve students' writing ability and critical thinking skills through the implementation of project-based writing instruction and explore students' attitudes towards this instructional model. Therefore, to see changes before and after the treatment and to find the effectiveness of the treatment, a one-group, pre-test post-test design was employed in this study (Dimitrov & Rumrill, 2003). The following figure shows the diagram of the research design:

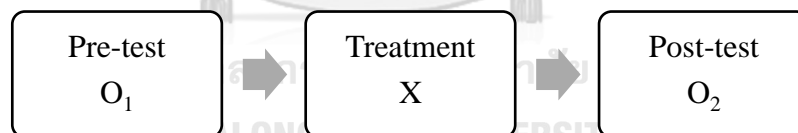


Figure 4: Research design (Dimitrov & Rumrill, 2003)

From Figure 4, O represented the dependent variables: students' writing ability and students' critical thinking skills, whereas X represented the independent variable which was project-based writing instruction.

In this study, both quantitative and qualitative research methods were used. To investigate the effects of project-based writing instruction on writing ability and critical thinking skills, the pre-test and post-test of writing ability and critical thinking skills, the stimulated recall, and students' reflective journals were designed. The tests were distributed to students before, during, and after the treatment, while the stimulated recall

and the students' reflective journals were used during the treatment. Moreover, the attitude questionnaire, the semi-structured interview protocol, and the students' reflective journals were administered to explore students' attitudes towards the use of project-based writing instruction after it was completed.

### 3.2 Population and participants

The population in this study was composed of 962 Thai EFL undergraduate students, both male and female, who ranged in age from 18 to 20 years old and who were first-year students at Srinakharinwirot University, Bangkok, Thailand.

The participants consisted of 24 first-year students from the Faculty of Humanities who constituted an intact group assigned to the researcher who taught a course entitled "EN131 Basic Writing" in the first semester of the academic year 2019. The demographic characteristics of the participants are summarized in Table 4 below.

Table 4: Demographic characteristics of the participants (n = 24)

Demographic characteristics	Number of students	Percentage
<b>Gender</b>		
- Male	7	29.16
- Female	17	70.83
<b>Age</b>		
- 18 years old	10	41.66
- 19 years old	11	45.83
- 20 years old	3	12.50
<b>English learning experience</b>		
- 12 years	10	41.66
- 13 years	11	45.83
- 14 years	3	12.50

According to Table 4, there were seven males and 17 females whose ages were between 18 and 20 years old. All of them were Thais, and they had learned English for 12-14 years based on the Ministry of Education's requirement. They were assigned as

an intact group by the Department of Western Languages. It is worth noting that they were mixed ability students, and their English language proficiency levels were low, moderate, or high based on the pre-test scores of writing ability and critical thinking skills. To participate in the study, the information sheet of this research study was distributed to all students, and they were asked to sign the informed consent form to indicate their willingness to participate in the study on the first day of the class (See Appendix X). In addition, during and after the course, nine of the students categorized based on their pre-test scores of the writing ability and critical thinking skills were selected for the stimulated recall and the semi-structured interview. Three students were in the low proficiency level group, three in the medium, and three in the high groups.

### 3.3 Research procedures

There were two main phases in this study: development and validation of project-based writing instruction and implementation of project-based writing instruction, as shown in Figure 5 below.

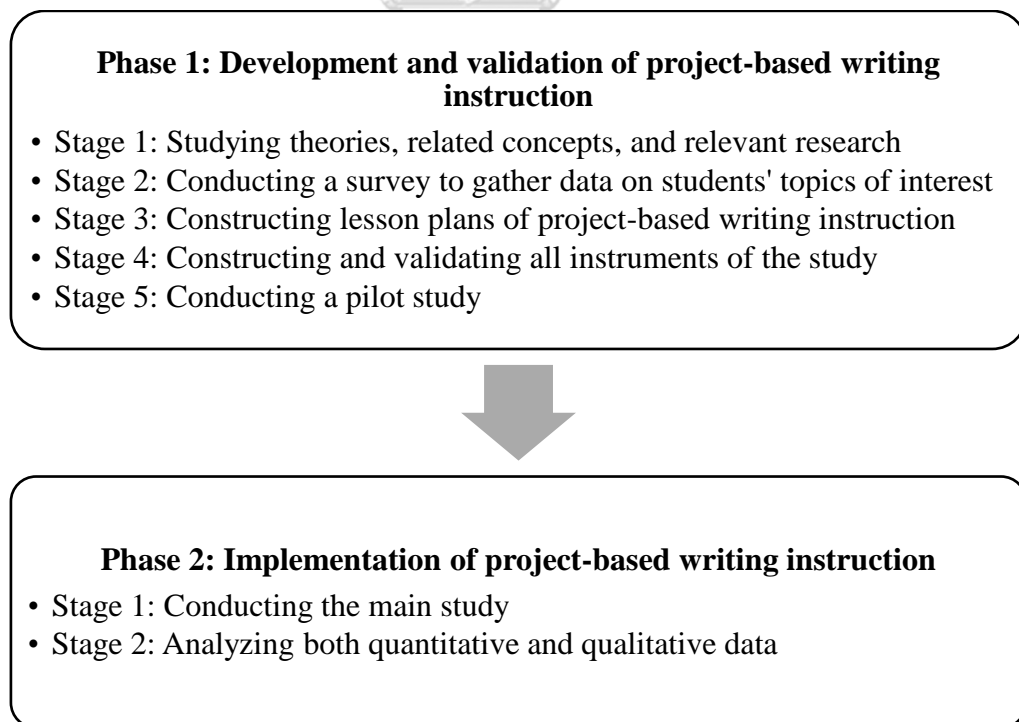


Figure 5: Research procedure



The two phases of the study are described in detail as follows:

***Phase 1: Development and validation of project-based writing instruction***

**Stage 1: Studying theories, related concepts, and relevant research**

The researcher reviewed related theories, concepts, and research based on the topics of project-based learning, writing ability, critical thinking, and teaching methods including writing instruction as well as critical thinking instruction from various sources such as articles, journals, textbooks, books, websites, and doctoral dissertations so as to gain insightful understanding related to the present study. After having sufficient information from many sources, the researcher analyzed and synthesized all information to develop the framework of the study called project-based writing instruction (PWI). The conceptual framework of the present study was developed based on the three concepts of project-based learning (Fried-Booth, 1986; Stoller, 2012; Busciglio, 2016), writing instruction (Watkins-Goffman & Berkowitz, 1990; Williams, 2003; Mu, 2005; Read, 2010; Ferris & Hedgcock, 2014), and critical thinking instruction (Ennis, 1989; Facione & Facione, 1996; Levy, 1997; Halpern, 1999; Paul & Elder, 2006), which can be seen in Figure 3.

**Stage 2: Conducting a survey to gather data on students' topics of interest**

According to Hutchinson and Waters (1987), investigating learners' needs plays an important role as the first step to design a course. Therefore, a mini-learner survey to gather data on learners' topics of interest was conducted with 40 students who were not the main participants of this study in the second semester of the academic year 2017. However, they shared the same characteristics as the participants in the main study; that is, they were Thai male and female students whose age was between 18 and 20 years old. Also, they have learned English for more than 12 years. The topics were selected from the studies of Liakina and Michaud (2018), Tjalla et al. (2017), and Siritaratn (2007). There were 20 topics: business, culture, nature, health, science and technology, language, social issues, vacation, university, food, future career, sport, family, daily life, friend, travel, history, entertainment (music and movie), world, and environment. To conduct a survey, students received the link from the researcher as shown in Figure 6. Then they were required to choose four topics of interest. The results showed that

students preferred learning the topics of entertainment (music and movie), business, travel, and food, respectively. The aforementioned results were used to be part of the course content, instructional materials, tests, presentations, and projects. The results are presented in Appendix A.

Figure 6: A learner survey on topics of interest

### **Stage 3: Constructing lesson plans of project-based writing instruction**

The lesson plans of project-based writing instruction were constructed based on three theoretical frameworks comprising project-based learning (Fried & Booth, 1986; Stoller, 2012; Busciglio, 2016), writing instruction (Watkins-Goffman & Berkowitz, 1990; Williams, 2003; Mu, 2005; Read, 2010; Ferris & Hedgcock, 2014), and critical thinking instruction (Ennis, 1989; Facione & Facione, 1996; Levy, 1997; Halpern, 1999; Paul & Elder, 2006) in this course. Details of the course using project-based writing instruction are presented as follows:

#### **I. Course description**

According to TQF2, the course “EN131 Basic Writing” was a study of English grammar and practice in sentences and paragraph writing of four text types, namely procedures, descriptions, narratives, and expositions emphasizing writing process and organization. Based on this course description, the model of project-based writing instruction was developed to improve students enrolled in the course to be able to produce a good piece of writing and to think critically.

## II. Course objectives

At the end of this course, students were expected to be able to do the following:

1. recognize patterns, the organization, and the process of writing;
2. apply the correct use of sentence structures, grammar, mechanics, organizational patterns, and the writing process to express ideas in different text types, namely procedures, descriptions, narratives, and expositions; and
3. write well-organized, coherent, and unified paragraphs.

## III. Course content

In this course, students were required to write four text types in a paragraph level, namely procedures, descriptions, narratives, and expositions. Therefore, it was important to understand rhetorical modes as well as the ways to communicate with the audience through language to express the ideas, of each text type (McLean, 2012). Rhetorical modes of each text type are shown in Table 5.

Table 5: Rhetorical modes of each text type

Text types	Purposes (Hyland, 2004b)	Rhetorical modes (McLean, 2012)
Procedure	To show how processes or events are accomplished—how something is done	<ul style="list-style-type: none"> <li>- Open a statement that states the outcome of the process</li> <li>- Use chronological sequence</li> <li>- Use time transition words to organize steps and orient the reader</li> </ul>
Description	To provide data giving an account of imagined or factual events	<ul style="list-style-type: none"> <li>- Start with the writer's impression of a person, place, or an object</li> <li>- Include sensory details (senses of sight, sound, smell, taste, and touch)</li> <li>- Use spatial order, which is an arrangement of ideas based on physical characteristics or</li> </ul>

<b>Text types</b>	<b>Purposes (Hyland, 2004b)</b>	<b>Rhetorical modes (McLean, 2012)</b>
		appearance (from top to bottom, left to right, near to far, warm to cold, etc.)
Narrative	To entertain and instruct via reflection on experience or retell events	<ul style="list-style-type: none"> <li>- Can be either factual or fictional.</li> <li>- Have a chronological order with a beginning, a middle, and an end</li> <li>- Use time transition words (first, since, next, etc.)</li> <li>- Consist of four components: plot, characters, conflict, and theme</li> <li>- Use sensory details (senses of sight, sound, smell, taste, and touch) to engage the reader</li> <li>- Include strong introduction to hook the reader</li> <li>- End the conclusion by adding resolution to the conflict</li> </ul>
Exposition	To argue for or against a thesis	<ul style="list-style-type: none"> <li>- Express the writer's opinions specifically</li> <li>- Support and explain with a wide range of evidence such as statistics, scientific studies, personal experience, and opinion from experts</li> <li>- Balance facts and opinions</li> </ul>

This course took 15 weeks covering four units. The topics to teach were food, travel, entertainment (music and movie), and business based on the learner survey results. Four units were the following:

Unit 1: Writing a procedural paragraph (Let's cook!)

Unit 2: Writing a descriptive paragraph (Let's go!)

Unit 3: Writing a narrative paragraph (It's movie time!)

Unit 4: Writing a persuasive paragraph (Tell me what you think!)

Each unit took three weeks to teach. Students were required to complete the mini-project of each unit including creating a product such as a brochure, booklet, or poster, and review and give a presentation related to the given scenario at the end of the

unit. After finishing learning four units, students had to present their final project based on the driving question “What will you do if you want to promote Thailand to foreigners?”

#### **IV. Teaching procedures**

Each unit comprised three main stages of teaching: planning the project, developing the project, and evaluating the project. In each stage, students would learn to write and think critically through activities and tasks. The details of the stages of project-based writing instruction and samples from Unit 1: Writing a procedural paragraph are explained and illustrated below:

##### **The project-based writing instruction stage 1: Planning the project**

This stage aimed to let students engage in writing activities to gain knowledge and understanding of the process of working on the mini-project such as how to complete the writing process, how to search for information, and how to evaluate their self-writing so that students could move to the next stage more easily. This stage consisted of the following five activities:

##### Activity 1: Warm-up

The lesson began with the warm-up activity to activate students’ background knowledge through the use of questions for 15 minutes. In Unit 1, students were required to think of Thai foods. In Unit 2, students were required to guess the words about places. In Unit 3, students were asked to guess what happened in the pictures. In Unit 4, students were asked to find a partner to play a game named “Feelink.” There were questions asking for the reasons why foreigners would like to visit Thailand provided, and students had to guess the partner’s answers to the questions. Figure 7 below exemplifies Activity 1: Warm-up.

Figure 7: A sample of Activity 1: Warm-up

### Activity 2: Reading a model text

For the second activity, students were required to read the model text of the unit to see the overall paragraph on their own for five minutes before learning the content and language. A sample of Activity 2: Reading a model text is shown in Figure 8.

Figure 8: A sample of Activity 2: Reading a model text

### Activity 3: Learning content and language

After students had read the model text by themselves, the teacher taught the organization and essential language features of the text type. Then students analyzed the model text considering how to construct a paragraph and the language features of the text type. To ensure that students understood the lessons, there were exercises provided for students to practice. However, the exercises were different owing to the organization and language features of the text type, such as selecting the best topic

sentence, writing a topic sentence and concluding sentence, identifying five senses from the text, identifying facts and opinions, considering if the reason was logical or illogical, adding transitional signals, ordering adjectives, using the past tense, and so on. This activity took 40 minutes. A sample of Activity 3: Learning content and language is illustrated in Figure 9.

**A procedural paragraph**

**WHAT IS A PROCEDURAL PARAGRAPH?**

- A procedural paragraph gives steps or directions of doing something.
- Ex: How to build a doghouse, cook green curry, start a new relationship with someone, do natural makeup, or complete your project.

**Q1:** Can you give me some examples of time-order signals from the model text?

**Q2:** Why do you need to use time-order signals in a procedural paragraph?

**Q3:** Can you tell me the words used to describe the steps of boiling eggs?

**Q4:** What is the part of speech of these words?

**Q5:** What structure do you use to explain the steps of boiling eggs?

**How to boil eggs perfectly every time**

You can cook perfectly boiled eggs every time if you follow these steps. First, fill the egg in a saucepan of cold water covering the egg by an inch. Then, bring the water to a boil. Set your timer for the desired time. If you take down the cooked egg from the pot, let the cooked egg gently cool down in a bowl of ice water. The last step is to peel the egg. With these easy instructions, you can enjoy eating the eggs with any kinds of food.

Figure 9: A sample of Activity 3: Learning content and language


#### Activity 4: Shared writing

In this activity, the teacher introduced the writing process to students and had them work in groups to search for information about the given topic on the Internet. This activity aimed to promote searching skill and critical thinking skills such as analyzing, reasoning, and evaluating. Students used the information obtained to write collaboratively and presented it to the class. After that, the teacher let students compare the writing products in the class and judge which was a better one. To promote the writing process and help students to apply it to their independent writing, the teacher and the whole class helped one another to practice exercises on rearranging sentences or pictures, narrating a story from given pictures, and revising and editing the text using the writer's self-check form. This activity took 80 minutes to complete. A sample of Activity 4: Shared writing is shown in Figure 10.

**Mine or Yours?**


- Compare your steps of cooking Green Curry written in the diagram with the steps from YouTube. Which one is better? Why?

**Steps of cooking Green Curry with Chicken**



1. Add oil to a pan and heat.
2. Stir-fry chicken until cooked.
3. Add the green curry paste.
4. Add the coconut milk.
5. Stir-fry the mixture until the oil separates.
6. Add the chicken and stir-fry until cooked.
7. Add the green curry paste.
8. Add the coconut milk.
9. Stir-fry the mixture until the oil separates.
10. Add the chicken and stir-fry until cooked.

**How to cook Green Curry with Chicken**



- Let's learn how to follow the steps in writing process when you write a paragraph.

Figure 10: A sample of Activity 4: Shared writing

### Activity 5: Receiving a scenario

For the last activity, students received a scenario to analyze, drive questions, and determine the objectives together with outcomes for the mini-project of the unit. They sat in their group formed since the first class, set their roles, wrote the outline to complete the mini-project, and planned their project work. To facilitate their work, the teacher provided students with useful sources about product designs. This activity took 40 minutes. A sample of Activity 5: Receiving a scenario is shown in Figure 11.

**Unit 1**  
**MINI-PROJECT TIME**

"Apinya is the owner of the hostels in four regions of Thailand: North, Central, Isaan (Northeastern Thailand), and Southern Thailand. The most outstanding point of her hostels in each region is to include the Thai cooking class for foreign customers to join. Now, she would like to promote more Thai foods and how to cook them to the foreign customers. She is thinking of three dishes with their cooking steps and the brochure designs for each region. What kind of Thai dishes should she include in the cooking class? Which of the three dishes should be suggested to her as the most popular one of each region? What about the brochure designs? Please help Apinya to choose the dishes for each region and design brochures."




Figure 11: A sample of Activity 5: Receiving a scenario

Moreover, to record the improvement of their learning and working on their mini-project, students were required to write their reflective journal outside the classroom.



### **The project-based writing instruction stage 2: Developing the project**

This stage enabled students to collect and analyze information and work collaboratively in order to develop their mini-project after understanding the scenario clearly from the previous stage.

#### Activity 6: Independent writing

After receiving the scenario of the mini-project, students were required to write their own text individually following the writing process: prewriting, drafting, revising, editing, and publishing and use a writer's self-check to check their own writing outside the classroom. In this activity, students were allowed to search for relevant information from any sources to complete their writing, but the references were needed. Moreover, there was no time limit to finish this activity.

#### Activity 7: Collaborative writing

This activity took 180 minutes to finish. In the classroom, the teacher firstly reviewed the lessons to remind students of the organization and the language focus of the text type and taught them how to use a peer review checklist so that students could understand how to check the text and give comments to their partner. Then, students worked in group. Everyone was required to prepare their own writing to use in this activity. While they were using a peer review checklist to provide feedback for their partner and spending time editing and revising their paragraphs with the partner, the teacher moved around the classroom to assist students if needed. When all members in a group finished making revisions, they discussed the best piece of writing of their group and then polished it to be an even better version for publishing in the product and giving a presentation in the next stage. Provided that students were not satisfied with the selected text, they could write collaboratively to get a new one.

Furthermore, there was a student-teacher conference in the classroom aiming to guide students to understand more about their mini-project in terms of the product or the presentation. Therefore, each group of students was anticipated to prepare themselves to share their ideas, plans, and problems. The conference was arranged in the classroom since students' schedules were tight and different. It was not convenient for both teacher and students to have a meeting any other time outside class. However,

students could contact the teacher anytime via the LINE application in case they had problems.

Finally, students submitted their writing to the teacher and received teacher feedback that could be used to polish their writing independently one last time before publishing their final draft in the product such as a brochure, a booklet, a poster, and a review. A sample of Activity 7: Collaborative writing is illustrated in Figure 12.



Figure 12: A sample of Activity 7: Collaborative writing

#### Activity 8: Creating a product

After receiving teacher feedback via the LINE application, students edited and revised their writing to get the final draft. Then they discussed how to create the product including all texts of all members outside the classroom.

Moreover, to record their progress on learning and working on their mini-project, students were required to write their reflective journal after class.

#### **The project-based writing instruction stage 3: Evaluating the project**

This stage encouraged students to develop more confidence when giving a presentation in public, evaluate their friends' work, and choose the best product as well as the best presentation based on the provided scoring rubrics.

#### Activity 9: Giving a presentation

Before starting the presentations, the teacher demonstrated how to use scoring rubrics to rate students' products and presentations. Next, students sat in their group, set their roles to evaluate their friends' work and performances, and prepared

themselves to be the presenters, audience, and raters. This activity lasted 90 minutes. A sample of Activity 9: Giving a presentation is shown in Figure 13.



Figure 13: A sample of Activity 9: Giving a presentation

#### Activity 10: Voting for the best winners

After the presentations, all groups took time to evaluate their friends' products and presentations. They were also required to vote for the best product and the presentation and give reasons to support their selection. The winners received rewards from the teacher which could be snacks, pens, or notebooks. All groups of students received feedback not only from their friends but also from the teacher so that they knew their strengths and weaknesses better. Finally, the teacher summarized all lessons in the unit and ended the class. This activity took 90 minutes.

Moreover, to record the development of their learning and working on their mini-project, students were asked to write their reflective journal outside the classroom.

#### **V. Materials**

- A computer connected to the Internet
- A projector
- PowerPoint
- YouTube
- Handouts
- Worksheets
- Examples of the products such as brochures, booklets, posters, and reviews

- A writer's self-check form
- Peer-review checklist
- A Post-it note
- Scoring rubrics
- Student's reflective journals
- Project work report

## VI. Evaluation

- Students wrote a summary of what each text type was.
- Students wrote each text type using the writing process: prewriting, drafting, revising, editing, and publishing.
- Students were engaged in class and group discussion.
- Students worked in groups to give a presentation and present their product.
- Students evaluated friends' paragraphs, presentations, and products and provided feedback to one another.
- Students wrote their reflective journals.
- Students wrote the project work report stating the topic, the final outcomes, the product, the project plan, and sources of information.

### Validation of lesson plans

The lesson plans of Unit 1 (Writing a procedural paragraph) were validated by three experts whose specialization was in the field of language and instruction, using the *Item-Objective Congruence* (IOC) value. According to Brown (1996), the IOC value should be equal to or higher than 0.5 to confirm the validity of the research instrument. Supposed that the IOC value was lower than 0.5, revision was needed, and it should be in accordance with the experts' comments and suggestions. The overall IOC value was 0.924, showing that the lesson plans were acceptable. The validation of the lesson plans is shown in Appendix N. The experts' recommendations for the revision of the lesson plans were as follows:

Expert A suggested adjusting the scenario. First, it was about the time to give students the scenario to complete their mini-project. It was too late to show the scenario

for working on the mini-project in the second week of the unit. It would be much better for students to receive the scenario and all details about the mini-project in the first week of the unit so that they could have more time to discuss and produce the product more effectively. Moreover, according to the experts, more details should be added into the scenario to help students to find the right sources to complete their mini-project. The example is given below.

**Original version:**

*“Apinya is the owner of the hostel. The outstanding point of her hostel is to include a Thai cooking class for foreign customers to join. Now, she would like to promote more Thai foods to the foreigners. What kind of Thai foods should she include in the cooking class?”*

**Revised version:**

*“Apinya is the owner of the hostels in four regions of Thailand: North, Central, Isaan (Northeastern Thailand), and Southern Thailand. The most outstanding point of her hostels in each region is to include the Thai cooking class for foreign customers to join. Now, she would like to promote more Thai foods and how to cook them to the foreign customers. She is thinking of three dishes with their cooking steps and the brochure designed for each region. What kind of Thai dishes should she include in the cooking class? Which of the three dishes should be suggested to her as the most popular one of each region? What about the brochure designs? Please help Apinya to choose the dishes for each region and design brochures.”*

Another point was that the exercises in the stage of planning the project should be concerned. There were a lot of exercises to practice, and some of them took time to finish. Therefore, the researcher should consider the length of the time to do each activity and decrease the numbers of exercises.

Expert B gave advice on the following details. For example, the researcher should modify the original lesson title from “*Cooking food*” to “*Let’s cook*.” to make it sound more exciting and interesting. Besides, when there was a student-teacher conference, the researcher should provide the form for students in advance so that

they could prepare themselves and know what they had to do when they met the researcher. Therefore, the researcher had lists of questions for students to think in terms of their product and their presentation as shown in Figure 14.

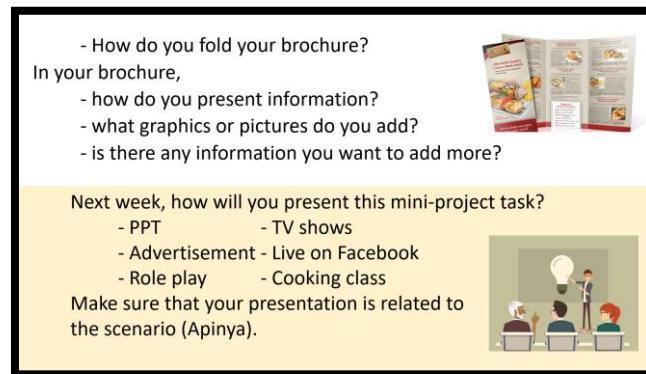


Figure 14: An example of lists of questions for a student-teacher conference

Expert C suggested changing the question for the final project. The question did not allow students to come up with new ideas to write the four text types. The adjustment is presented below.

**Original version:**

*“What is the best one-day trip program in Thailand for foreigners?”*

**Revised version:**

*“What will you do if you want to promote Thailand among foreigners?” จุฬาลงกรณ์มหาวิทยาลัย*

After revisions based on experts’ recommendations, the lesson plans were approved by the dissertation advisor and tested in the pilot study. The scope and sequence of project-based writing instruction is shown in Appendix B, and the revised lesson plans of Unit 1 are shown in Appendix C.

**Stage 4: Constructing and validating all instruments of the study**

Based on three objectives of the study, there were five major instruments, namely the pre-test and post-test of writing ability and critical thinking skills, students’ reflective journals, the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol.

For the first and second objective aiming to investigate the effects of project-based writing instruction on students' writing ability and critical thinking skills, three instruments including the pre-test and post-test of writing ability and critical thinking skills, students' reflective journals, the stimulated recall were developed. Regarding the third objective aiming to explore the students' attitudes towards project-based writing instruction, the attitude questionnaire, the semi-structured interview protocol, and students' reflective journal were designed.

All instruments were validated using the table of Index of Item-Objective Congruence (IOC) by three experts. After gaining the IOC scores and comments from them, the researcher revised all instruments to be more appropriate and readier for a pilot study.

#### **Stage 5: Conducting a pilot study**

To confirm the suitability of the lesson plans and the effectiveness of all instruments used for project-based writing instruction, a pilot study was essential to try them out. Thirty-three first-year students majoring in English at Srinakharinwirot University were recruited as the participants of the pilot study. All of them had the same demographic characteristics and background as those of the participants in the main study. The duration of the pilot study was three weeks. The chosen unit was Unit 1: Writing a procedural paragraph. Students were required to learn through three stages including planning the project, developing the project, and evaluating the project to create a brochure as the mini-project.

In the pilot study, the lesson plans of teaching writing a procedural paragraph were tested to determine the appropriateness in terms of activities, sequences, tasks, a mini-project, and time allocation. Moreover, all research instruments such as the tests of writing ability and critical thinking skills, students' reflective journals, the questions of the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol were tried out. During the pilot study, students were asked to give feedback and suggestions for the lesson plans and unclear parts of each instrument. After that, there were some issues to be improved based on students' feedback and the researcher's observation as follows:

First, there were some unclear questions in the activities. For example, students were required to analyze the language focus of a procedural paragraph from the model text. However, some questions were too long or unclear for students to understand. Therefore, they were edited and deleted for better understanding. The examples are shown below.

**Original version:**

*Q1. If you haven't read the model text before or don't have any background knowledge about how to boil eggs, is it difficult for you to rearrange the steps? Why?*

*Q2. How can you understand the steps of doing something easily?*

*Q3. Can you give me some examples of time-order signals from the model text?*

*Q4. Can you tell me the words used to describe the steps of boiling eggs?*

*Q5. What is the part of speech of these words?*

*Q6. What structure do you use to explain the steps of boiling eggs?*

**Revised version:**

*Q1. Can you give me some examples of time-order signals from the model text?*

*Q2. Why do you need to use time-order signals in a procedural paragraph?*

*Q3. Can you tell me the words used to describe the steps of boiling eggs?*

*Q4. What is the part of speech of these words?*

*Q5. What structure do you use to explain the steps of boiling eggs?*

Second, some words in the writing rubric should be changed. For instance, the descriptions of “grammatical accuracy” and “mechanics” in the scoring rubric of writing ability were not clear for students due to the use of words “a few” or “many” errors. Students preferred knowing the exact numbers of errors such as one to five errors, six to 10 errors, or more than 10 errors in order to use the rubric to rate a piece of writing more accurately. In addition, in the test of writing ability and critical thinking skills, there were many questions for students to answer. Therefore, some students might forget to answer some questions. To let students complete all questions in the



test in the main study, the researcher planned to read the instruction aloud and emphasize that students needed to answer all questions before they started writing their answers.

Finally, students commented that some activities could be separated from the main one. For example, the activity of “Modeling,” which required students to read a model text before learning the content and language, could be divided into two activities: “Reading a model text” and “Learning the content and language.” It would be better and clearer for students when they read the name of the activity. Also, students suggested adding one more activity “Creating a product” although it was an out-of-class activity because it was another activity to complete the mini-project, and it helped them to picture and plan their working.

Even though there were problematic in some parts of the lesson plans and research instruments, most of them were effective and appropriate to implement in the main study. All aforementioned issues were revised and improved to ensure clarity and appropriateness.

## ***Phase 2: Implementation of project-based writing instruction***

### **Stage 1: Conducting the main study**

After the revisions of all instruments based on the results and feedback from the pilot study, the project-based writing instruction model was implemented with the first-year university students from the Faculty of Humanities, Srinakharinwirot University who took the course “EN131 Basic Writing” in the first semester of the academic year 2019 that lasted 15 weeks.

At the beginning of the course, the pre-writing and critical thinking test of procedural and descriptive paragraphs was administered to students. Then the orientation of the course was conducted, and the introduction to the project-based writing instruction model were presented to students to make them understand the overall course and teaching methods. After that, the project-based writing instruction model comprising three main stages including planning the project, developing the project, and evaluating the project was implemented for all four units, namely Unit 1: Writing a procedural paragraph, Unit 2: Writing a descriptive paragraph, Unit 3:

Writing a narrative paragraph, and Unit 4: Writing a persuasive paragraph. Each unit took three weeks to learn and required students to complete the mini-project of the unit, including creating a product such as a brochure, booklet, poster, and review and giving a presentation related to the given scenario. In the end, students were allowed to have their own voice and choice to design the product and the presentation for the final project on their own based on the question “What will you do if you want to promote Thailand among foreigners?” After finishing learning the first two units, the post-writing and critical thinking test of procedural and descriptive paragraphs was administered to students in week 7. Then the pre-writing and critical thinking test of narrative and persuasive paragraphs was given to students in week 9.

During the course, students were required to write their reflective journals every week starting from weeks 2 to 14 except week 8, which was the week for the mid-term examination. The objective of reflective journals was to elicit data regarding students’ progress on writing ability and critical thinking skill development, their working on the project work, and their attitudes towards the project-based writing instruction model. Moreover, three groups of students: low, medium, and high achievers chosen from their pre-test scores of writing procedures and descriptions were selected for the interview to investigate the factors affecting the development of students’ writing ability and critical thinking skills after finishing each unit in weeks 4, 7, 11, and 14. Also, to help students to complete all projects successfully, there was a student-teacher conference organized.

At the end of the course, students presented their final project. After that, the post-writing and critical thinking test of narrative and persuasive paragraphs was administered to students. Furthermore, the attitude questionnaire and the semi-structured interview were conducted in order to explore students’ attitudes towards the use of project-based writing instruction. The project-based writing instructional plans of are presented in Table 6.

Table 6: Project-based writing instructional plans

Week	Topics/ Details	Mini-project tasks	Final project
1	- The pre-writing and critical thinking test of procedural and descriptive paragraphs - Orientation about the course and introduction to the project-based writing instruction model		Planning the project
2	- Unit 1: Writing a procedural paragraph - Stage: Planning the project - Reflective journal	Unit 1	
3	- Unit 1: Writing a procedural paragraph - Stage: Developing the project - A student-teacher conference - Reflective journal	Create a brochure	
4	- Unit 1: Writing a procedural paragraph - Stage: Evaluating the project - Reflective journal - The stimulated recall		
5	- Unit 2: Writing a descriptive paragraph - Stage: Planning the project - Reflective journal	Unit 2	Developing the project
6	- Unit 2: Writing a descriptive paragraph - Stage: Developing the project - A student-teacher conference - Reflective journal	Create a booklet	
7	- Unit 2: Writing a descriptive paragraph - Stage: Evaluating the project - The post-writing and critical thinking test of procedural and descriptive paragraphs - Reflective journal - The stimulated recall		
8	- Midterm examination - A student-teacher conference		
9	- The pre-writing and critical thinking test of narrative and persuasive paragraphs - Unit 3: Writing a narrative paragraph - Stage: Planning the project - Reflective journal	Unit 3  Create a poster	

Week	Topics/ Details	Mini-project tasks	Final project
10	- Unit 3: Writing a narrative paragraph - Stage: Developing the project - A student-teacher conference - Reflective journal		
11	- Unit 3: Writing a narrative paragraph - Stage: Evaluating the project - Reflective journal - The stimulated recall		
12	- Unit 4: Writing a persuasive paragraph - Stage: Planning the project - Reflective journal	Unit 4  Create a review	
13	- Unit 4: Writing a persuasive paragraph - Stage: Developing the project - A student-teacher conference - Reflective journal		
14	- Unit 4: Writing a persuasive paragraph - Stage: Evaluating the project - Reflective journal - The stimulated recall		
15	- Final presentation based on the question “What will you do if you want to promote Thailand among foreigners?” - The post-writing and critical thinking test of narrative and persuasive paragraphs - The attitude questionnaire - The semi-structured interview		Evaluating the project

### Stage 2: Analyzing both quantitative and qualitative data

After collecting data, the results were analyzed both quantitatively and qualitatively. Regarding quantitative data, the pre-test and the post-test scores of writing ability and critical thinking skills were analyzed using the paired-sample *t*-test, while data elicited with the attitude questionnaire were analyzed using descriptive statistics of means and standard deviations. As for qualitative data obtained from students' reflective journals, the stimulated recall, and the semi-structured interview protocol,

content analysis was used in the analysis. To ascertain the reliability of the results, two inter-raters were used.

### 3.4 Research instruments

There were five instruments in this study: the pre-test and post-test of writing ability and critical thinking skills, students' reflective journals, the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol designed to elicit quantitative and qualitative data. All research instruments in the study are summarized in Table 7.

Table 7: Research instruments of the study

Research instruments	Time to collect the data	Research questions	Data analysis
The pre-test and post-test of writing ability and critical thinking skills	Weeks 1, 7, 9, 15	1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?  2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?	Paired-sample <i>t</i> -test (mean and standard deviation)
The students' reflective journals	Weeks 2-7, 9-14	1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?	Content analysis

Research instruments	Time to collect the data	Research questions	Data analysis
		<p>2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?</p> <p>3. What are Thai EFL students' attitudes towards project-based writing instruction?</p>	
The stimulated recall	Weeks 4, 7, 11, 14	<p>1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?</p> <p>2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?</p>	Content analysis
The attitude questionnaire	Week 15	3. What are Thai EFL students' attitudes towards project-based writing instruction?	Descriptive statistics (mean and standard deviation)
The semi-structured	Week 15		Content analysis

<b>Research instruments</b>	<b>Time to collect the data</b>	<b>Research questions</b>	<b>Data analysis</b>
interview protocol			

The details of the five research instruments including the pre-test and post-test of writing ability and critical thinking skills, students' reflective journals, the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol are presented below:

#### **3.4.1 The pre-test and post-test of writing ability and critical thinking skills**

The pre-test and post-test of writing ability and critical thinking skills was employed to investigate the effects of the project-based writing instruction on students' writing ability and critical thinking skills. The scope of the test was designed based on the goals and objectives of the course entitled "EN131 Basic Writing." The pre-test and post-test covered four text types, namely procedures, descriptions, narratives, and expositions which required to construct procedural, descriptive, narrative, and persuasive paragraphs.

The test was constructed based on the concept of language ability (Bachman & Palmer, 1996) and critical thinking skills (Facione, 2015; Halpern, 1999; Halpern & Riggio, 2002), which required students to show their language knowledge, strategic competence, background knowledge, and critical thinking ability. Students were required to write each text type in 150-200 words within one hour. The total score was 40 points. The first part was equal to 20 points for writing ability rated based on five criteria: content, organization, vocabulary, grammatical accuracy, and mechanics with score points ranging from 0 to 4 each. The second part was equal to 20 points for critical thinking skills rated based on five criteria including analyzing, reasoning, evaluating, decision-making, and problem-solving skills, with score points ranging from 0 to 4 each. The components of the test specifications were based on the framework of Douglas (2000) and Weigle (2002). They are presented in Appendix D.

### **Validation of the pre-test and post-test of writing ability and critical thinking skills**

The pre-test and post-test of writing ability and critical thinking skills was validated by three experts using the *Item-Objective Congruence* (IOC) value. According to Brown (1996), the IOC value should be equal to or higher than 0.5 to confirm the validity of a research instrument. Supposed that the IOC value is lower than 0.5, revision is needed, and it should be in accordance with the experts' comments and suggestions. The overall IOC value of the pre-test and post-test of writing ability and critical thinking skills was 0.670, thus indicating that the test was acceptable. The validation of the pre-test and post-test of writing ability and critical thinking skills is shown in Appendix O. However, it is worth noting that there were some items showing scores lower than 0.5, so they were considered invalid and needed revision. The experts suggested revising the test as follows:

#### **1. Suggestions for the procedural paragraph**

In the procedural paragraph, the instruction (item 1.1), the prompt (item 1.2), and the way to assess an evaluating skill in the test (item 1.5) needed revision. For item 1.1, the experts suggested revising the instruction of the test in a procedural paragraph to be clearer. For item 1.2, the experts recommended changing three parts in this prompt. To begin with, the order of the prompt and the questions should be switched. The questions should come first. Second, the numbers should be used instead of the bullet. Third, the language used in the question should be clearer. For example, "*tell him to exercise?*" should be replaced by "*tell him how to exercise regularly.*" Moreover, there was no question to assess the evaluating skill in the test for item 1.5. Therefore, the researcher added the question "*Why is the suggestion you have selected better than the others? Compare it with the others and give reasons or evidence to support your answer*" in the revised test. The original prompt and the revised prompt for a procedural paragraph are presented below.



### The original version:

**Instruction:** Read the information below critically and use the answers from the guided questions to write a procedural paragraph between 150 and 200 words about how to take care of Boom's health.

Boom is your best friend. He is a 19-year-old man who is 188 cm tall and weighs 137 kg. He is friendly and good at searching for information on the Internet. He really loves eating junk food and something sweet. His routine activity is playing games or watching series. He hardly exercises. One day he asked you to go to the hospital with him to get a health checkup because he felt unwell. After the doctor examined Boom, she said that he has high blood pressure and high cholesterol which can increase the risk for heart disease. He needs to change his behavior.

### Guided questions

- As a friend of Boom, what will you suggest him to do?

- 1) Tell him to eat healthy food?
- 2) Tell him to exercise? or
- 3) Tell him to eat weight loss pills?

Among these three choices, which one will you choose?

- Based on your choice, how would you explain its steps to Boom?
- Why do you decide to choose this solution for Boom?

### The revised version:

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What is Boom's problem?
2. What is the cause of Boom's bad health?
3. As a friend of Boom, which of the following suggestions would you give him?  
Explain your selected choice with clear reasons and also explain why you do not select the others with clear reasons.
  - 1) Tell him how to create a healthy diet plan.
  - 2) Tell him how to exercise regularly.

- 3) Tell him how to take weight loss pills safely.
4. Why is the suggestion you have selected better than the others? Compare it with others and give reasons or evidence to support your answer.
5. Based on your selection in number 3, write a well-organized procedural paragraph **between 150 and 200 words** on how Boom can improve his health.

Boom is your best friend. He is a 19-year-old man who is 188 cm tall and weighs 137 kg. He loves junk food and all things sweet. His daily routine is playing games or watching TV series. He hardly exercises. One day, he asked you to go to hospital with him to get a health checkup because he was feeling unwell. The doctor told him that he had high blood pressure and his cholesterol level was high, which could increase the risk of heart disease. He needs to change his behavior.

## 2. Suggestions for the narrative paragraph

In the narrative paragraph, the prompt (item 3.2) and the way to assess a problem-solving skill in the test (item 3.5) needed revision. Regarding the prompt (item 3.2), one expert claimed that there were too many questions. Therefore, some of them should be removed, such as *“When you faced that problem, who helped you to fix it? Your friend? Your parents? Yourself? Or others? Why?”*, *“How did you feel afterwards?”*, *“Why did you change your behavior?”*, and *“What would you want others to learn from your experience?”* Moreover, a question to assess students’ problem-solving skill should be added (item 3.5). Also, another expert suggested asking about other problems instead of asking about students’ biggest problem in their lives because some students might not want to narrate their personal story. Besides, it was interesting to find an excerpt and include it in the prompt to let students come up with the idea. The original prompt and the revised prompt for a narrative paragraph are presented below.

### The original version:

- What was the biggest problem in your life?
- What was the cause of the problem?
- What were the solutions to solve the problem?

- When you faced that problem, who helped you to fix it? Your friend? Your parents? Yourself? Or others? Why?
- How did you feel afterwards?
- Why did you change your behavior?
- What did you learn from this experience?
- What would you want others to learn from your experience?

Write a narrative paragraph about your biggest problem in your life that changed your behavior.

**The revised version:**

1. What was the biggest problem you encountered while you were traveling?
2. What were the causes of the problem?
3. How many solutions did you have for the problem at that time? Please provide three solutions.
4. What was the final solution that you chose? Explain your selected choice with clear reasons and also explain why you did not select the other(s) with clear reasons.
5. Why was the solution you chose better than the other(s)? Compare it with the other(s) and give reasons or evidence to support your answer.
6. What did you learn from this experience?
7. Write a well-organized narrative paragraph **between 150 and 200 words** about a past experience related to travelling.

When traveling to another country, everybody hopes that their trip will go smoothly. However, more often than not, a lot of problems are waiting for us, and when we encounter a problem, we are challenged to deal with it. Write a narrative paragraph about the biggest problem you have encountered while traveling.

### 3. Suggestions for the persuasive paragraph

In the persuasive paragraph, the prompt (item 4.3 and item 4.4) and the way to assess an evaluating skill and a problem-solving skill in the test (item 4.5) needed revision, as suggested by the experts. As for the prompt, two experts agreed that the prompt about the news of Seungri from Big Bang, one of K-pop's biggest idols was more like an opinion paragraph, not a persuasive paragraph that convinced someone to choose something. Moreover, it was not clear that with this prompt students' evaluating and problem-solving skills could be assessed. Therefore, the prompt should be changed to a new one. The original prompt and the revised prompt for a persuasive paragraph are presented below.

#### The original version:

**Instruction:** Read the information below critically and use the answers from the guided questions to write a persuasive paragraph between 150 and 200 words to show your opinion about Seungri's case.



In March 2019, there was news shocking K-pop fans around the world. Seungri of Big Bang, one of K-pop's biggest idols, decided to quit K-pop. The reason behind this retirement was that he sat on the board of the Burning Sun club related to allegations of bribery, violence against customers, supplying prostitutes for VIPs, rape, drug trafficking and drug use according to the Seoul Metropolitan Police. Finally, he became a suspect in violating South Korea's prostitution law. Because of this bad reputation, do you think fans should further support or ban Big Bang?

### Guided questions

- What made Seungri of Big Bang behave like this?
- As a fan, will you further support or ban Big Bang?
- Why do you decide to further support or ban Big Bang?
- What do you think society should do?

### **The revised version:**

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What is Pink's problem?
2. What is the cause of Pink's problem?
3. If you were Pink's friend, where would you advise Pink to go between Phuket and Japan? Explain your selected destination with clear reasons and also explain why you do not select the other with clear reasons.
4. Why is the destination you have selected better than the other? Compare it with the other and give reasons or evidence to support your answer.
5. Based on your selection in number 3, write a well-organized persuasive paragraph **between 150 and 200 words** to show why you would like Pink to travel to this destination.

Pink has visited the Thai International Travel Fair to look for a tour package and won two prizes at the event. The first one is a full package trip to Phuket. Pink will get to live a luxury life like a celebrity with her favorite idol for three days. The second one is a full package trip to Japan, which is her dream destination. She will travel there as a backpacker, stay on a farmstay, and experience the Japanese lifestyle for three days. However, she has to choose just one because both trips not only cost the same but are also scheduled for the exact same period. Pink cannot decide, so she calls you to ask you for your opinion.

After the prompt of this text type was changed, it was validated again by the experts. In terms of the language use in the test, all experts agreed that it should be checked well before the test administration. Therefore, after editing and revising all test tasks following three experts' feedback, the researcher sent the test of writing ability and critical thinking skills consisting four test tasks to a specialist to edit the language.

All items with the IOC score below 0.5 were revised based on the experts' advice. After revision, the test was approved by the dissertation advisor before it was implemented in the pilot study and the main study. The revised pre-test and post-test of writing ability and critical thinking skills is shown in Appendix E.

### **Implementing the pre-test and post-test of writing ability and critical thinking skills**

The pre-test and post-test of writing ability and critical thinking skills were administered to students in week 1, week 7, week 9, and week 15. To begin with, the pre- and post-writing and critical thinking tests of procedural and descriptive paragraphs were distributed in week 1 and week 7. After that, the pre- and post-writing and critical thinking test of narrative and persuasive paragraphs were given to students in week 9 and week 15. The pre-test and post-test were separated two times because students could not complete four test tasks for four hours in one setting as it could put too much workload on them. After data were collected, the tests were checked by two inter-raters who were the researcher and an experienced English teacher to ascertain the reliability of the scoring process of the tests. Analytic scoring was used to rate students' writing ability and critical thinking skills. Finally, the pre-test and the post-test scores were analyzed using the paired-sample *t*-test.

There were two scoring rubrics used to score the test: the rubric for writing ability and the rubric for critical thinking skills. Hamp-Lyons (1991) suggested that weighing all components equally is more appropriate for analytic scoring, while having different weighting of the components is more suitable for holistic scoring. Therefore, all components in two scoring rubrics in this study were weighed equally on a 0-4 scale. Regarding the scoring rubric for writing ability, it was adapted and developed from Jacobs et al. (1981) and *IELTS TASK 2 Writing band descriptors (public version)* (n.d.).

There were five criteria: content, organization, vocabulary, grammatical accuracy, and mechanics (spelling, punctuation marks, and capitalization). The total score of writing ability was 20 points. Another rubric was the scoring rubric for critical thinking skills adapted from Halpern (1999), Halpern and Riggio (2002), and Facione (2015). It consisted of five criteria, namely analyzing, reasoning, evaluating, decision-making, and problem-solving. The total score of critical thinking skills was 20 points. In total, the score for one test task was 40 points. The scoring rubric of writing ability is presented in Appendix F, and the scoring rubric of critical thinking skills is presented in Appendix G.

To rate the pre-test and post-test of writing ability and critical thinking skills, the explanations are as follow:

- As for procedural, descriptive, and persuasive paragraphs, the test of each text type consisted of five items. Therefore, students' writing ability and critical thinking skills were rated in the same manner. That is to say, items 1-2 were to check analyzing skill, item 3 was to check decision-making and reasoning skills, item 4 was to check evaluating skill, and item 5 was to check problem-solving skill and all elements of writing ability.
- Regarding the narrative paragraph, the test consisted of seven items. Items 1-2 were to check analyzing skill, items 3-4 were to check decision-making and reasoning, item 5 was to check evaluating, item 6 was provided as a guiding question only, and item 7 was to check problem-solving skill and all elements of writing ability.

Regarding reliability of the results of the writing ability and critical thinking skills, the tests were checked by two inter-raters who were the researcher and an experienced English teacher using the same criteria and rubrics. Before rating all tests, there was training for raters to ensure better understanding of the use of the rubrics to rate students' writing ability and critical thinking skills. In case both raters disagreed on the scores, for example, the scores from two raters were more than 1 point apart, they discussed discrepancy and decided on the final scores. In addition, to avoid the raters' bias, the test takers were asked to write only their student IDs, and the points

given by each rater were written down on a separate scoring sheet. Therefore, one rater would not know the scores the other rater gave to the students. The inter-rater reliability was then calculated using Cohen's Kappa Coefficient. The overall results for writing ability and critical thinking skills were 0.909 and 0.846, respectively. According to Landis and Koch (1977), Kappa result could be interpreted as follows: values < 0 indicating poor agreement, 0.0-0.20 slight agreement, 0.21-0.40 fair agreement, 0.41-0.60 moderate agreement, 0.61-0.80 substantial agreement, and 0.81-1.00 almost perfect agreement. Therefore, it could be assumed that the scores rated by two raters are consistent and reliable.

### 3.4.2 The students' reflective journals

The students' reflective journals were included to determine the effects of project-based writing instruction on students' writing ability and critical thinking skills and to explore students' attitude towards the use of project-based writing instruction. The questions employed in the students' reflective journals were adapted from the studies of Barr (2015) and Simpson (2011). There were six questions designed to answer three research questions in the present study. The details of the students' reflective journals are presented in Table 8 below:

Table 8: The students' reflective journals

Questions in reflective journals	Objectives	For answering research questions
1. From this week's project-based writing instruction, what have you learned?	To encourage students to review what they had learned in the class	
2. How can this week's project-based writing instruction help you to improve your writing	To identify the activities that helped to promote students' writing ability	1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?



Questions in reflective journals	Objectives	For answering research questions
ability? Please explain and give some examples.		
3. How can this week's project-based writing instruction help you to improve critical thinking skills (analyzing, problem-solving, decision-making, reasoning, and evaluating skills)? Please explain and give some examples.	To identify the activities that helped to foster students' critical thinking skills	2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?
4. What was the progress of working on your project this week?	To explore students' progress on conducting the final project	
5. What were the most interesting things you discovered while working on your project this week? About yourself? About your friends? About the lesson or about the project?	To explore students' attitudes toward the use of project-based writing instruction, especially the advantages of the project-based writing instruction	3. What are Thai EFL students' attitudes towards project-based writing instruction?
6. What problem did you encounter this week?	To explore students' attitudes toward the use of project-based writing	3. What are Thai EFL students' attitudes towards

Questions in reflective journals	Objectives	For answering research questions
Were you able to solve it? How did you solve it?	instruction, especially the disadvantages of project-based writing instruction	project-based writing instruction?

### Validation of the students' reflective journals

The students' reflective journals were validated by three experts who had specialization in language and assessment using the *Item-Objective Congruence* (IOC) value. According to Brown (1996), the IOC value should be equal to or higher than 0.5 to confirm the validity of a research instrument. Supposed that the IOC value is lower than 0.5, revision is then needed, and it should be in accordance with the experts' comments and suggestions. The overall IOC value of the students' reflective journals was 0.943, showing that the questions for the students' reflective journals were acceptable. The validation of the students' reflective journals is shown in Appendix P. However, the experts recommended some revisions be made in both the English and the Thai versions. All experts suggested inserting the specific time such as "*this week*" and "ในสัปดาห์นี้" in each question in both the English and the Thai versions, as exemplified below.

#### Original version:

*From project-based writing instruction, what have you learned?*

#### Revised version:

*From this week's project-based writing instruction, what have you learned?*

#### Original version:

จากวิธีการสอนการเขียนโดยใช้โครงงาน นักศึกษาได้เรียนอะไรไปบ้าง

#### Revised version:

จากวิธีการสอนการเขียนโดยใช้โครงงาน ในสัปดาห์นี้ นักศึกษาได้เรียนอะไรไปบ้าง

The Thai version of the revised students' reflective journals in English is shown in Appendix H, and the English version is shown in Appendix I.

### **Implementing the students' reflective journals**

The students' reflective journals were given to students every week starting from week 2 to week 14 except week 8 which was the mid-term examination week. Students could choose to complete their reflective journals either in English or in Thai so as to reflect their learning and express their feeling and thoughts freely without a language barrier. They had to write at least 50 words for each question to ensure that sufficient information could be obtained to reflect their progress on writing ability and critical thinking skills. Regarding their progress of the mini-projects and the final project, students had to indicate the stages they were in, which could be their tentative plan. After data were elicited with the reflective journals, they were categorized and analyzed using content analysis. Moreover, inter-rater reliability was used to ensure reliability of the analysis. If there was a disagreement between raters, they discussed with each other before deciding on the conclusion.

#### **3.4.3 The stimulated recall**

The stimulated recall was employed to investigate the effects of project-based writing instruction on students' writing ability and critical thinking skills when they planned to construct their writing and work on their project work. Bloom (1953, p. 161) has pointed out that "the basic idea underlying the method of stimulated recall is that a subject may be enabled to relive an original situation with vividness and accuracy if he is presented with a large number of the cues of stimuli which occurred during the original situation." In addition, Gass and Mackey (2000) suggest interviewing students as soon as possible to avoid students' memory loss. Therefore, after ending each unit in weeks 4, 7, 11, and 14, three groups of students were immediately interviewed. They were three low achievers, three medium achievers, and three high achievers categorized by the scores of the pre-writing and critical thinking test of procedures and descriptions.

The procedures of conducting stimulated recall were as follows: prior to the interview, the researcher gave an explanation to students that they would be asked about

learning processes through activities, the process of writing, and working on their project work in order to investigate their development of writing ability and critical thinking skills. Their final writing and the product in each unit were used as the stimuli to recall their concurrent thinking during an event. When interviewing, the conversations between the researcher and the student were audiotaped and subsequently transcribed. The Thai language was used in the interview so that there would be no language barrier. The questions were open-ended questions such as

- What were you thinking at this point?
- Can you tell me what you were thinking at that point?
- I see you're writing something there. What was going through your head?

The questions were also adjusted to match activities and tasks in each unit to ensure that students' critical thinking skills including analyzing, reasoning, evaluating, decision-making, and problem-solving skills could be elicited. Examples of questions used in the interview are shown below.

- What were you thinking when you read the scenario? (*Analyzing*)
- What was going through your head when you selected to write about this province? (*Reasoning*)
- What were you thinking when you found many sources? (*Evaluating*)
- What were you thinking when you chose this story to be the best one in your group? (*Decision-making*)
- Can you tell me what you were thinking about what to do in that situation? (*Problem-solving*)

After the data were elicited, content analysis was employed to analyze the data. In addition, efforts were made to ensure inter-rater reliability. If there was a disagreement between raters, they discussed with each other to reach the final conclusion.

#### **3.4.4 The attitude questionnaire**

The attitude questionnaire was employed to investigate students' attitude towards the use of the project-based writing instruction. The questionnaire was

developed from the instructional model of project-based writing instruction (Fried-Booth, 1986; Stoller, 2012; Busciglio, 2016; Watkins-Goffman & Berkowitz, 1990; Williams, 2003; Mu, 2005; Read, 2010; Ferris & Hedgcock, 2014; Ennis, 1989; Facione & Facione, 1996; Levy, 1997; Halpern, 1999; Paul & Elder, 2006) and a previous study on project-based instruction by Siritararatn (2007). There were three main parts which aimed to elicit the general information as shown in part 1, attitudes towards project-based writing instruction as shown in part 2, and additional comments as shown in part 3, respectively. The details in each part are as follows:

#### Part 1: General information

In this part, 12 items were designed to elicit background information of the participants about their gender, age, department, year of study, experience in learning English, frequency of writing in English per week, levels of English proficiency before and after the use of project-based writing instruction, levels of critical thinking skills before and after the use of project-based writing instruction, the background knowledge of project-based learning, and learning style.

#### Part 2: Attitudes towards project-based writing instruction

This part consisted of 50 items divided into three main topics, namely students' attitudes towards their writing ability after the use of project-based writing instruction (including statements related to the project-based writing instruction stages such as planning the project, developing the project, and evaluating the project), students' attitudes towards their critical thinking skills after the use of project-based writing instruction (including statements related to the project-based writing instruction stages such as planning the project, developing the project, and evaluating the project), and students' attitudes towards the advantages and disadvantages of working on a project. Each item was arranged in a five-point Likert scales: 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree, and 1 for strongly disagree.

### Part 3: Additional comments and suggestions

This part included open-ended questions aiming to obtain additional comments regarding students' likes and dislikes about project-based writing instruction and suggestions about the use of project-based writing instruction from the participants.

#### **Validation of the attitude questionnaire**

The attitude questionnaire was validated by three experts with specialization in language and assessment using the *Item-Objective Congruence* (IOC) value. According to Brown (1996), the IOC value should be equal to or higher than 0.5 to confirm the validity of a research instrument. Supposed that the IOC value is lower than 0.5, the revision is needed, and it should be in accordance with the experts' comments and suggestions. The overall IOC value of the attitude questionnaire was 1.00, meaning that the attitude questionnaire was acceptable and appropriate. The validation of the attitude questionnaire is shown in Appendix Q. It is worth noting, however, that the experts recommended some revisions in both English and Thai versions as follows:

First, one expert suggested adding “*the use of project-based writing instruction*” after the main topics “*Writing ability*” and “*Critical thinking skills*” to avoid confusing students.

Second, the language use should be edited in some items. For example, in items 16, 17, and 18, the preposition “*on*” should be added after the verb “reflect.” In item 47, “*During*” should be replaced by “*While*.”

Third, the translation of the word “*neutral*” should be changed from “เห็นด้วยปานกลาง” to “เฉยๆ” to ensure clarity.

Lastly, the other experts asked for more clarification for items 4, 5, 6, 10, 11, and 26. The examples are presented below:

- In items 4 and 26, the stage of inquiry seemed difficult for students to remember the stage of teaching project-based writing instruction. Thus, “*warm-up*” should be inserted as an explanation of the stage.

- In items 5, 6, 10, and 11, the researcher used “*many text types*” which could be unclear for students; therefore, the revision should be “*four text types (procedural, descriptive, narrative, persuasive paragraphs).*”

The revised attitude questionnaire in English is shown in Appendix J, and the revised attitude questionnaire in Thai is presented in Appendix K.

### **Implementing the attitude questionnaire**

The Thai attitude questionnaire was distributed to 24 students at the end of the course in week 15. The Thai version was employed because it was students’ choice. During the pilot study, it seemed that students felt more comfortable reading the statements and answer all questions in Thai. In addition, it really helped them to express their opinion freely without any language barrier. Before administering the attitude questionnaire, the researcher gave an explanation and stood by all students to facilitate them in case they had any questions. It took 30 minutes to complete the attitude questionnaire. After the data were elicited, descriptive statistics of means and standard deviations were conducted. The criteria of the interpretation of means ( $\bar{x}$ ) were adapted from Siritaratn (2007) as follows:

- 4.50 – 5.00 meant students strongly agreed with project-based writing instruction.
- 3.50 – 4.49 meant students agreed with project-based writing instruction.
- 2.50 – 3.49 meant students were indifferent towards project-based writing instruction.
- 1.50 – 2.49 meant students disagreed with project-based writing instruction.
- 1.00 – 1.49 meant students strongly disagreed with project-based writing instruction.

Additional comments from part 3 of the attitude questionnaire were analyzed using content analysis. In addition, inter-rater reliability was undertaken to ensure

reliability of the analysis. If there was a disagreement between raters, they discussed their disagreement to reach the final conclusion.

### **3.4.5 The semi-structured interview protocol**

Beside the data from the attitude questionnaire, the semi-structured interview protocol was included in this study to gain in-depth data regarding students' attitudes towards the use of project-based writing instruction. The questions for the semi-structured interview protocol were based on Poonpon (2017). It comprised a list of 11 questions. Questions 1-7 were designed to investigate students' attitude towards project-based writing instruction and how project-based writing instruction helped to improve students' writing ability and critical thinking skills, while Questions 8-10 explored students' attitudes towards the advantages and disadvantages of project work. The last question asked for further suggestions for improvement of the course.

### **Validation of the semi-structure interview protocol**

Every question for the semi-structured interview protocol was validated by three experts with specialization in language and assessment using the *Item-Objective Congruence* (IOC) value. According to Brown (1996), the IOC value should be equal to or higher than 0.5 to confirm the validity of a research instrument. If the IOC value is lower than 0.5, revision is then needed, and the revision made should be in accordance with the experts' comments and suggestions. The overall IOC value of the the semi-structured interview protocol was 1.00, meaning the questions for the semi-structured interview protocol were acceptable. The validation of the semi-structured interview protocol is shown in Appendix R. However, two experts recommended making revisions in both English and Thai versions of the semi-structured interview protocol. The first expert (expert A) pointed out that the language used in the interview protocol should be made clearer and the contents of both the English and the Thai versions should be parallel. The second expert (expert B) suggested adding more details to make the questions more understandable and deleting a phrase from the last question. The original and revised versions of the semi-structured interview protocol are presented in Table 9.



Table 9: Original and revised versions of the semi-structured interview protocol

Original versions	Revised versions
<b>Expert A</b>	
1. Can you explain what project-based writing instruction is? <i>How?</i>	1. Can you explain what project-based writing instruction is? <i>Please explain what it is.</i>
1. นักศึกษาสามารถอธิบายได้ไหมว่าการสอนการเขียนโดยใช้โครงงานคืออะไร <i>เป็นอย่างไร</i>	1. นักศึกษาสามารถอธิบายได้ไหมว่าการสอนการเขียนโดยใช้โครงงานคืออะไร <i>จงอธิบาย</i>
4. How is your writing ability in terms of content, organization, vocabulary, grammatical accuracy, and mechanics such as spelling, punctuation marks, and capitalization before and after <i>using</i> of project-based writing instruction?	4. How is your writing ability in terms of content, organization, vocabulary, grammatical accuracy, and mechanics such as spelling, punctuation marks, and capitalization before and after <i>the use</i> of project-based writing instruction?
4. ความสามารถทางการเขียนของนักศึกษา ด้านเนื้อหา การเรียบเรียงเนื้อหาของนักศึกษา การเลือกใช้คำศัพท์ การใช้ไวยากรณ์ในการเขียน และกลไกทางภาษา (การสะกดคำ การใช้เครื่องหมายวรรคตอน และการใช้อักษรตัวใหญ่) ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร	4. ความสามารถทางการเขียนของนักศึกษา ด้านเนื้อหา การเรียบเรียงเนื้อหาของนักศึกษา การเลือกใช้คำศัพท์ การใช้ไวยากรณ์ในการเขียน และกลไกทางภาษา <i>เช่น</i> การสะกดคำ การใช้เครื่องหมายวรรคตอน และการใช้อักษรตัวใหญ่ ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร
6. How are your critical thinking skills in terms of analyzing, problem-solving, decision-making, reasoning, and evaluating skills before and after <i>using</i> of project-based writing instruction?	6. How are your critical thinking skills in terms of analyzing, problem-solving, decision-making, reasoning, and evaluating skills before and after <i>the use</i> of project-based writing instruction?
6. ทักษะการคิดอย่างมีวิจารณญาณของนักศึกษา <i>เช่น</i> ทักษะการวิเคราะห์ ทักษะการ	6. ทักษะการคิดอย่างมีวิจารณญาณของนักศึกษา <i>ในด้าน</i> ทักษะการวิเคราะห์ ทักษะการ

Original versions	Revised versions
แก้ปัญหา ทักษะการตัดสินใจ ทักษะการใช้เหตุผล และทักษะการประเมินผล ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร	แก้ปัญหา ทักษะการตัดสินใจ ทักษะการใช้เหตุผล และทักษะการประเมินผล ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร
<b>Expert B</b>	
3. Which instruction do you prefer between traditional method focusing on drilling and project-based writing instruction? Why?	3. <u>For any English courses involving writing</u> , which instruction do you prefer between traditional method focusing on drilling and project-based writing instruction? Why?
3. นักศึกษาชอบวิธีการสอนแบบใดระหว่างการสอนแบบดั้งเดิมที่เน้นการฝึกฝนและการสอนการเขียนโดยใช้โครงงาน เพราะอะไร	3. <u>สำหรับวิชาภาษาอังกฤษที่เกี่ยวข้องกับการเขียน</u> นักศึกษาชอบวิธีการสอนแบบใดระหว่างการสอนแบบดั้งเดิมที่เน้นการฝึกฝนและการสอนการเขียนโดยใช้โครงงาน เพราะอะไร
5. Which activity helped you to improve your writing ability? Why?	5. Which activity <u>in project-based writing instruction</u> helped you to improve your writing ability? Why?
5. กิจกรรมใดที่ช่วยให้นักศึกษาพัฒนาความสามารถทางการเขียน เพราะอะไร	5. กิจกรรมใดของการสอนการเขียนโดยใช้โครงงานที่ช่วยให้นักศึกษาพัฒนาความสามารถทางการเขียน เพราะอะไร
7. Which activity helped you to improve your critical thinking skills? Why?	7. Which activity <u>in project-based writing instruction</u> helped you to improve your critical thinking skills? Why?
7. กิจกรรมใดที่ช่วยให้นักศึกษาพัฒนาทักษะการคิดอย่างมีวิจารณญาณ เพราะอะไร	7. กิจกรรมใดของการสอนการเขียนโดยใช้โครงงานที่ช่วยให้นักศึกษาพัฒนาทักษะการคิดอย่างมีวิจารณญาณ เพราะอะไร

Original versions	Revised versions
11. What is your suggestion to make this course more interesting and useful <i>for your junior friends</i> ?	11. What is your suggestion to make this course more interesting and useful?
11. นักศึกษามีข้อเสนอแนะอะไรที่จะทำให้รายวิชานี้ น่าสนใจและเป็นประโยชน์ <i>ต่อรุ่นน้องของนักศึกษา</i>	11. นักศึกษามีข้อเสนอแนะอะไรที่จะทำให้รายวิชานี้ น่าสนใจและเป็นประโยชน์

The revised version of the English semi-structured interview protocol is shown in Appendix L, and the revised version of the Thai semi-structured interview protocol is presented in Appendix M.

### Implementing the semi-structure interview protocol

The semi-structured interview protocol was scheduled after the course ended in week 15. Nine students who were willing to provide information and express their opinions were interviewed. They were divided into three groups: low, medium, and high proficiency, with three interviewees in each group. The interview lasted approximately 30 minutes. Before the interview, the researcher informed the students that the interviews would be audio-recorded. The Thai language was used in the interview to ensure accuracy of the data provided by the students. The data elicited from the interviews were transcribed and analyzed using content analysis, and inter-raters' reliability was undertaken.

### 3.5 Data collection

The data were collected every Thursday afternoon for 15 weeks in the first semester of the academic year 2019 starting from August to December, 2019 at Srinakharinwirot University. The steps involved in the 15-week data collection are presented in Table 10.

Table 10: The steps involved in the 15-week data collection

Week	Details
Week 1	<ul style="list-style-type: none"> <li>➤ The pre-writing and critical thinking test of procedural and descriptive paragraphs was administered to students.</li> <li>➤ Students were given an orientation about the course and explained about the project-based writing instruction model.</li> </ul>
Week 2 -14	<ul style="list-style-type: none"> <li>➤ Students studied four units in the semester. Each unit took three weeks to finish. The details were as follows: <ul style="list-style-type: none"> <li>- In weeks 2-4, students learned how to write a procedural paragraph and completed the tasks as well as a mini-project (creating a brochure).</li> <li>- In weeks 5-7, students learned how to write a descriptive paragraph and completed the tasks as well as a mini-project (creating a booklet).</li> <li>- Week 8 was the mid-term examination week.</li> <li>- In weeks 9-11, students learned how to write a narrative paragraph and completed the tasks as well as a mini-project (creating a poster).</li> <li>- In weeks 12-14, students learned how to write a persuasive paragraph and completed the tasks as well as a mini-project (creating a review).</li> </ul> </li> <li>➤ In each unit, students followed three steps: planning the project, developing the project, and evaluating the project.</li> <li>➤ In each unit, there was a student-teacher conference to discuss the mini-project and any problems they may have.</li> <li>➤ Students were required to write their reflective journals reporting what they had learned in each week, assignments, and work in progress of their project work. They had to send their reflective journal to the teacher every week</li> </ul>

Week	Details
	➤ Nine students were interviewed for the stimulated recall after ending each unit in weeks 4, 7, 11, and 14.
Week 7	➤ The post-writing and critical thinking test of procedural and descriptive paragraphs was administered to students.
Week 9	➤ The pre-writing and critical thinking test of narrative and persuasive paragraphs was administered to students.
Week 15	<ul style="list-style-type: none"> <li>➤ Students presented their final project based on the question “What will you do if you want to promote Thailand among foreigners?”</li> <li>➤ The post-writing and critical thinking test of narrative and persuasive paragraphs was administered to students.</li> <li>➤ The attitude questionnaire was distributed to students.</li> <li>➤ The semi-structured interviews were conducted.</li> </ul>

### 3.6 Data analysis

In this study, a mixed-method research design using quantitative and qualitative data collection was employed. The following section presents the analysis of data collected to answer each of the research questions.

*Research question 1: 1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?*

To answer this question, the pre-test and the post-test scores based on the writing rubric were analyzed using the paired-sample *t*-test. The tests were checked by two inter-raters. One was the researcher and other was an experienced English teacher to ascertain the reliability of the scoring process of the test. Moreover, the inferential statistics of Cohen's *d* was calculated to determine the effect of the project-based writing instruction on students' writing ability whether the effect size was small ( $d = 0.20$ ), moderate ( $d = 0.50$ ), large ( $d = \geq 0.80$ ), or very large ( $d = \geq 1.20$ ) according to Cohen (1988). Furthermore, qualitative data obtained from the students' reflective journals and the stimulated recall were analyzed using content analysis. Two inter-

raters, who were the researcher and an experienced English teacher, were used to ensure reliability of the analysis.

*Research question 2: 2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?*

To answer this question, the pre-test and the post-test scores based on the critical thinking rubric were analyzed using the paired-sample *t*-test. The tests were checked by two inter-raters: the researcher and an experienced English teacher to ensure the reliability of the scoring process of the test. To determine the effect of the project-based writing instruction on students' critical thinking skills, the inferential statistics of Cohen's *d* was calculated to determine whether the effect size was small ( $d = 0.20$ ), moderate ( $d = 0.50$ ), large ( $d = \geq 0.80$ ), or very large ( $d = \geq 1.20$ ), according to Cohen (1988). Also, qualitative data obtained from the students' reflective journals and the stimulated recall were analyzed using content analysis with two inter-raters to ensure reliability of the analysis.

*Research question 3: 3. What are Thai EFL students' attitudes towards project-based writing instruction?*

To answer this question, the data elicited with the attitude questionnaire were quantitatively analyzed by means of descriptive statistics of mean and standard deviation. In addition, the data from the students' reflective journals and the semi-structured interview were analyzed using content analysis, also with two inter-raters to ensure reliability.

### **3.7 Chapter summary**

This study employed a mixed-method research design to obtain both quantitative and qualitative data in order to investigate the effects of project-based writing instruction on students' writing ability and critical thinking skills as well as to explore students' attitudes towards project-based writing instruction. Five research instruments were designed for this study: 1) the pre-test and post-test of writing ability and critical thinking skills, (2) the students' reflective journals, (3) the stimulated recall,

(4) the attitude questionnaire, and (5) the semi-structured interview protocol. After implementing the project-based writing instruction, quantitative and qualitative data were analyzing using the paired-sample *t*-test, descriptive statistics, and content analysis. The summary of research questions, research instruments, data obtained, and data analysis are illustrated in Table 11 below.

Table 11: Summary of research questions, research instruments, data obtained, and data analysis

Research questions	Research instruments	Data obtained	Data analysis
1. What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?	The pre-test and post-test of writing ability and critical thinking skills	Pre-test and post-test scores	Paired-sample <i>t</i> -test (mean and standard deviation)
	The stimulated recall	Statements from the interview protocol	Content analysis
	The students' reflective journals	Statements from the journals	Content analysis
2. What are the effects of project-based writing instruction on critical thinking skills of Thai EFL	The pre-test and post-test of writing ability and critical thinking skills	Pre-test and post-test scores	Paired-sample <i>t</i> -test (mean and standard deviation)
	The stimulated recall	Statements from the	Content analysis

Research questions	Research instruments	Data obtained	Data analysis
undergraduate students?		interview protocol	
	The students' reflective journals	Statements from the journals	Content analysis
3. What are Thai EFL students' attitudes towards project-based writing instruction?	The attitude questionnaire	Questionnaire scores	Descriptive statistics (mean and standard deviation)
	The semi-structured interview protocol	Statements from the interview protocol	Content analysis
	The students' reflective journals	Statements from the journals	Content analysis



## CHAPTER IV

### FINDINGS

The purpose of this chapter is to present the findings of the effects of project-based writing instruction on writing ability and critical thinking skills together with the attitudes towards the implementation of project-based writing instruction of Thai EFL undergraduate students. Both quantitative and qualitative data were analyzed and presented to answer three research questions. There are three parts as follows:

The first part reports the effects of the project-based writing instruction on students' writing ability to answer Research Question 1.

The second part shows the effects of the project-based writing instruction on students' critical thinking skills to answer Research Question 2.

The third part presents students' attitudes towards project-based writing instruction to answer Research Question 3.

#### **4.1 The effects of the project-based writing instruction on students' writing ability**

*Research question 1: What are the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students?*

*Hypothesis 1: The post-test mean score of writing would be significantly higher than the pre-test mean score after implementing project-based writing instruction.*

To investigate the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students, the quantitative data obtained from the pre-test and post-test of writing ability and critical thinking skills were analyzed. The results of the comparison between the pre-test and post-test scores of writing ability in four text types are shown below:

The paired-sample *t*-test was conducted to compare the mean scores of student's writing ability in four text types before and after the implementation of the project-based writing instruction. As displayed in Table 12, the paired-sample *t*-test revealed a significant difference between the pre-test mean score (mean = 31.39; S.D. = 5.95) and the post-test mean score of students' writing ability (mean = 53.66; S.D. = 4.92) at a

0.000 level of significance with a large effect size ( $d = 0.81$ ). Of four text types, writing ability in descriptions was the most enhanced, while writing ability in narratives was the least enhanced.

Table 12: Overall results of the comparison between the pre-test and post-test scores of writing ability in four text types

Writing ability in text types	Pre-test		Post-test		t	Sig.	d
	Mean	S.D.	Mean	S.D.			
Procedures	6.58	2.30	12.18	2.20	9.27	0.000	0.61
Descriptions	7.60	1.96	13.54	1.93	12.22	0.000	0.70
Narratives	8.75	2.48	13.62	1.91	7.67	0.000	0.55
Expositions	8.45	1.91	14.31	1.64	14.05	0.000	0.73
Overall scores	31.39	5.95	53.66	4.92	17.01	0.000	0.81

\*  $p < 0.05$ ;  $n = 24$

Moreover, each writing element of all text types was analyzed. As displayed in Table 13, the post-test mean scores of all writing elements of four text types were higher than the pre-test mean scores with statistical significance at a 0.000 level of significance. Of five writing elements of four text types, organization and content were the most improved, while vocabulary was the least improved.

Table 13: Overall results of the comparison between the pre-test and post-test scores of writing elements of four text types

Writing elements of text types	Pre-test		Post-test		t	Sig.	d
	Mean	S.D.	Mean	S.D.			
Content	6.02	2.14	11.31	1.44	13.90	0.000	0.68
Organization	3.25	1.62	12.79	1.69	22.53	0.000	0.89
Vocabulary	10.20	1.25	11.47	0.71	4.63	0.000	0.28
Grammatical accuracy	4.16	2.07	6.93	2.13	5.01	0.000	0.31
Mechanics	7.75	2.64	11.14	1.54	6.12	0.000	0.39

\*  $p < 0.05$ ;  $n = 24$

In summary, project-based writing instruction could develop students' writing ability in all text types according to the overall statistical analysis showing that there was a significant increase between the pre-test and the post-test scores. Therefore, the hypothesis for the first research question stating that "the post-test mean score of writing would be significantly higher than the pre-test mean score after implementing project-based writing instruction" was confirmed.

To support the quantitative data that project-based writing instruction could enhance students' writing ability, the qualitative data from the stimulated recall and students' reflective journals were included. It was found that students perceived that all elements of writing ability consisting of content, organization, vocabulary, grammatical accuracy, and mechanics were improved, as shown below:

#### All five writing elements

*"I could improve all of my writing ability. For content, I could see many interesting narratives, and I learned that my friends could finish their stories in 250 words amazingly. For organization, I truly understood that there were differences between the topic sentence and the beginning of the story. Now I knew how to distinguish them. For vocabulary, there were many genres such as love stories, horror stories, and adventure stories. I could learn many new words such as 'enigma' or 'abolish'. For grammar, I learned how to use the past tense in the context more confidently. For mechanics, I found myself improving the use of punctuation marks such as full stops and commas after reading many friends' paragraphs."* (Student #23, Week 11: Unit 3)

#### Content and organization

*"After writing any text types for a while, I felt that I could improve the content and organization a lot. I hardly went round in circles. My ideas were well organized."* (Student #6, Week 10: Unit 3)

#### Mechanics

*"I could use capitalization and punctuation marks, especially full stops and commas better. At first, I truly forgot what the teacher taught since these topics*

*were new for me. So, I reviewed the teacher's handout and googled more when I wrote my own paragraph."* (Student #1, Week 6: Unit 2)

Apart from gaining the data of students' improvement of writing ability, the factors to foster their writing ability were found. The following findings were divided into six themes: the work of the model text, explicit instruction, collaborative learning, interaction, feedback, and writing a reflective journal.

### **The work of the model text**

The findings showed that the model text was one of the factors to support students to improve their writing ability. When students started reading the model text of each unit, some students looked for the organization of the paragraph and saw how each element was written, as illustrated below:

*"I thought that each text type had different structures, so I started looking at the patterns first and saw how to write a topic sentence and a concluding sentence."* (Student #8 Unit 1)

*"When I read the model text, I looked at the first sentence, which was the topic sentence. I tried to see how to write it first and how to open the beginning of the story later."* (Student #7 Unit 3)

Besides, students used the model text as the guideline to construct their own writing as some of them described below:

*"I started the topic sentence with 'There are three reasons...' because I looked at the model text."* (Student #3 Unit 4)

*"I took the words from the teacher's handout such as 'spectacular view', 'picturesque beach', and 'exquisite shore' and then included them in my writing. It was very useful. I planned to use other words in my final project as well."* (Student #8 Unit 2)

### **Explicit instruction**

The findings indicated that when the teacher taught, explained the lessons, and had students practice doing exercises related to organization and language focus of

each text type, students perceived that it was the good starting point for them to understand the lessons, as presented below:

*“I had not understood how to write a topic sentence and the beginning of the story after reading the model text by myself. When the teacher taught us, I remembered that I read it again and listened to what she explained. Then I could realize and see the differences between a topic sentence and the beginning of the story.” (Student #5, Week 5: Unit 2)*

*“Personally, the best way to make me improve my writing ability was when the teacher taught the lessons, provided the examples, and let us do exercises. It made me understand and picture the overall concepts quickly. Also, it was helpful for me when I practiced writing on my own.” (Student #18, Week 13: Unit 4)*

*“The teacher always emphasized when to add commas. It made me remember and use commas correctly. Frankly speaking, I had never known its usage before. Now I knew that I needed to add a comma between sentences if I used ‘While’ at the beginning of the sentence. (Student # 18, Week 9: Unit 3)*

### **Collaborative learning**

Collaborative learning was the learning environment allowing students to work together in a small group to achieve the goal. In this study, it was found that doing exercises as a whole class was an activity that helped promote students’ writing ability with fun, as one of them described below:

*“I liked when the teacher let the whole class help one another to distinguish the main elements of the paragraph, add time-order signals, and make up the topic sentences based on the given topics after teaching the concept of the organization. It was the best practice for me who was not good at writing.” (Student #2, Week 2: Unit 1)*

### Interaction

Interaction refers to an occasion when people communicate with each other or people react to objects. In this study, it was found that there were two interactions: between students and between a student and the object, which could be friends' writing or the relevant information on any websites students searched and looked for. These interactions could be the factor enhancing students' writing ability, as shown in the following excerpts:

*"Unlike 'everyday', Yaya told me that the word 'every' and 'night' must be written separately, but we still wondered if it was true. Then we googled together. It showed that 'every night' came from every plus night while 'everyday' was an adjective meaning 'daily' and 'every day' had the same structure as 'every night'."* (Student #1 Unit 3)

*"I thought I could develop my writing ability when I read my friends' work. I noticed that my friends had different writing styles to create their paragraphs. The more I read, the more I could collect good examples and adapt them to my writing later."* (Student #4, Week 14: Unit 4)

*"I loved watching videos about cooking on Facebook. I noticed that a cook would say that 'add more water, and let it cook for 3-4 minutes.' So, I thought that it might be OK to add a period of time as part of my cooking steps in the paragraph."* (Student #4 Unit 1)

*"I visited TripAdvisor to explore what foreigners commented on any hotels. It was very good. It made me get some ideas, and I could see how to write a review."* (Student #8 Unit 4)

With these interactions, students could gain knowledge and use it in a particular situation when needed, as shown below:

*"Grading friend's writing was challenging, but useful for me. It helped me to use all I had learned to check all important writing elements for my friends."* (Student #12, Week 4: Unit 1)

### Feedback

The findings reported that feedback from peers and the teacher enabled students to write better. As for peer feedback, when students received peer feedback, there was a group discussion to clarify the issues they did not understand, which helped students to realize their weaknesses and sharpen them to be better. The evidence is presented as follows:

*“I liked the moment when we discussed errors and clarified them until we understood all of them. Such a great exchange!” (Student #13, Week 6: Unit 2)*

*“I felt unsure whether I wrote the topic sentence correctly, so I waited for Jasmine’s feedback. If I had had any questions, I could have asked her to clarify them all. She was smarter than me.” (Student #8 Unit 2)*

*“My friend told me that I used ‘many’ too much. She suggested me to use other words such as ‘various’ and ‘a lot of’. I thought that her feedback helped me to know my weak point and learn more words.” (Student #5 Unit 2)*

Besides peer feedback, teacher feedback played a role to promote students’ writing ability. Comments and examples of the correct writing from the teacher guided students to know their errors and improve their writing ability to be better, as illustrated below:

*“Teacher feedback helped me to check my own writing and knew my flaws. After reading her comments, I knew that I still had problems about the content and grammar.” (Student #13, Week 13: Unit 4)*

*“Ohh, the teacher’s sentence was smoother than mine. She made my two topic sentences became one topic sentence. I would like to write something like this.” (Student #7 Unit 2)*

*“OMG! It was full of red on my paper. The teacher divided my long and incorrect sentence into two sentences and added very big full stops at the end of the sentences. It made me know that I used run-on sentences again.” (Student #8 Unit 2)*

### **Writing a reflective journal**

The findings indicated that writing a reflective journal promoted students to make progress on their writing ability since students had opportunities to review what they learned from the instructional materials and reflect their understanding through their writing, as presented below:

*“In the classroom, I thought that I understood what the teacher taught. However, when I started writing a reflective journal, I totally forgot everything. I must pick up the handout and read all lessons again. After reviewing them, I found out that I misunderstood between the text type and writing process. I thought that a procedural paragraph was writing process. Actually, it was a type of paragraph. Writing the reflective journal really helped me to understand the lessons better.” (Student #6 Unit 1)*

Although most students reported their progress on all writing elements through the work of the model text, explicit instruction, collaborative learning, interaction, feedback, and writing a reflective journal, some students claimed that vocabulary, grammatical accuracy and mechanics were still considered problematic for them. The evidence is presented below:

#### Vocabulary

*“When I scored my friends’ writing, especially vocabulary, I might know the meaning of the word, but I might not really understand how to use each word accurately in the context. So, I felt unsure about the score of the vocabulary I should give to my friends. I thought I needed to increase my vocabulary knowledge and experience to use words in the context more.” (Student #3 Unit 2)*

*“I was uncertain about the vocabulary all the time when I rated my friends’ work. Probably, my vocabulary knowledge was not enough to check if my friends used words appropriately and correctly. I had just read the whole paragraph and used the context to help me to understand vocabulary.” (Student #2 Unit 4)*



### Grammatical accuracy

*“I found that my grammar needed improving. It was my weakness. I thought that although the teacher taught us very well, I could not improve my grammatical knowledge immediately. It was not overnight success. I needed more time to practice.” (Student #18, Week 13: Unit 4)*

### Mechanics

*“I was not sure about mechanics. It was new for me, so I was not confident to evaluate my own writing and friends’ writing. I still asked my friends about how to use full stops and commas.” (Student #15, Week 10: Unit 3)*

*“I thought I was not able to use full stops and commas correctly although the teacher taught us many times. I was confused about where to add a comma when I used ‘so’ and ‘and’ in the sentence.” (Student #1, Week 13: Unit 4)*

From the extracts above, it showed that more time, practice, and the opportunity of the exposure to vocabulary, grammatical accuracy, and mechanics were required for students in order to have better understanding of these three writing elements and use them in their writing. Moreover, such findings could explain why the effect size of vocabulary ( $d = 0.28$ ), grammatical accuracy ( $d = 0.31$ ), and mechanics ( $d = 0.39$ ) reported in the quantitative data was small. It could be assumed that overall, project-based writing instruction could develop students’ writing ability, yet it might not be able to improve vocabulary, grammatical accuracy, and mechanics completely.

## **4.2 The effects of the project-based writing instruction on students’ critical thinking skills**

Research question 2: *What are the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students?*

Hypothesis 2: *The post-test mean score of critical thinking skills would be significantly higher than the pre-test mean score after implementing project-based writing instruction.*

To examine the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students, the quantitative data gained from the pre-test and post-test of writing ability and critical thinking skills were analyzed. The results of the comparison between the pre-test and post-test scores of critical thinking skills in four text types are presented below:

The paired-sample *t*-test was conducted to compare the mean scores of student's critical thinking skills in four text types before and after the implementation of the project-based writing instruction. As shown in Table 14, the paired-sample *t*-test revealed a significant difference between the pre-test mean score (mean = 44.40; S.D. = 5.30) and the post-test mean score of students' critical thinking skills (mean = 65.14; S.D. = 5.71) at a 0.000 level of significance with a moderate effect size ( $d = 0.78$ ). Of four text types, critical thinking skills in procedures were the most enhanced, while critical thinking skills in narratives were the least enhanced.

Table 14: Overall results of the comparison between the pre-test and post-test scores of critical thinking skills in four text types

Critical thinking skills in text types	Pre-test		Post-test		t	Sig.	d
	Mean	S.D.	Mean	S.D.			
Procedures	7.96	2.87	16.33	1.85	12.65	0.000	0.75
Descriptions	11.47	2.82	15.87	1.92	6.39	0.000	0.46
Narratives	12.83	1.88	16.18	3.03	5.00	0.000	0.31
Expositions	12.12	2.15	16.75	1.73	10.17	0.000	0.59
Overall scores	44.40	5.30	65.14	5.71	16.45	0.000	0.78

\*  $p < 0.05$ ;  $n = 24$

Moreover, each critical thinking skill of all text types was analyzed. As displayed in Table 15, the post-test mean scores of all critical thinking skills of four text types were higher than the pre-test mean scores with statistical significance at a 0.000 level of significance. Of five critical thinking skills of four text types, problem-solving was the most improved, while analyzing was the least improved.

Table 15: Overall results of the comparison between the pre-test and post-test scores of critical thinking skills of four text types

Critical thinking skills of text types	Pre-test		Post-test		t	Sig.	d
	Mean	S.D.	Mean	S.D.			
Analyzing	10.80	2.08	14.56	1.13	8.83	0.000	0.56
Reasoning	8.75	1.78	12.85	1.79	9.09	0.000	0.57
Evaluating	6.97	1.81	10.77	2.32	7.38	0.000	0.46
Decision-making	9.91	2.24	14.37	1.57	10.17	0.000	0.57
Problem-solving	7.95	1.87	12.58	1.46	11.67	0.000	0.66

\*  $p < 0.05$ ;  $n = 24$

In conclusion, project-based writing instruction could enhance students' critical thinking skills in all text types according to the overall statistical analysis showing that there was a significant increase between the pre-test and the post-test scores. Therefore, the hypothesis for the second research question stating that "the post-test mean score of critical thinking skills would be significantly higher than the pre-test mean score after implementing project-based writing instruction" was confirmed.

To support the quantitative data that project-based writing instruction could improve students' critical thinking skills, the qualitative data from the stimulated recall and students' reflective journals were included. It was found that students perceived that all critical thinking skills, namely analyzing, reasoning, evaluating, decision-making, and problem-solving were enhanced, as shown below:

#### All critical thinking skills

*"I could not believe that I could develop all critical thinking skills. For analyzing, the teacher always let me analyze the organization, language focus, and scenarios. It was helpful for me to practice analyzing. For reasoning, I hardly gave reasons why I liked this or that in the past, but this course trained me to practice giving reasons for everything starting from the reasons to select my own topic to the reasons to vote for the best writing of my group. Because the teacher required us to provide reasons all the time, it helped me to improve my reasoning. For evaluating, the activity of giving peer feedback promoted me*

*to evaluate better. Also, it helped me to feel more confident to give comments to my friend when I had the peer review checklist to be the guideline. For decision-making, it was improved when I selected the best writing of my own group many times. This activity helped me to be more confident to make decisions in different situations. For problem-solving, every week there must be some problems for me to solve both individual work and group work. So, I would say that my problem-solving was enhanced step-by-step. (Student #9, Week 13: Unit 4)*

*“After working on all projects, all of my five critical thinking skills were developed. I felt that they went together. What I really liked was that I unconsciously got used to comparing choices and selecting the best one. From that, I started analyzing and evaluating the situation before making a final decision.” (Student #19, Week 14: Unit 4)*

### Analyzing

*“I felt that I used my thinking more. I gradually started analyzing and tried to consider something with reasons.” (Student #5, Week 5: Unit 2)*

### Reasoning

*“Comparing myself to my past self, I amazed myself that I noticed something more carefully and tried to find reasons for doing something unconsciously.” (Student #19, Week 11: Unit 3)*

In addition, the data from the stimulated recall revealed that all students agreed that they could develop all skills of critical thinking including analyzing, reasoning, evaluating, decision-making, and problem-solving through each stage of project-based writing instruction. Interestingly, when students were asked about the most developed critical thinking skill, they provided different answers. Some of them answered decision-making. The others mentioned problem-solving, as illustrated below:

*“For me, the skill of decision-making was improved a lot. I had always hesitated to select anything for many years, but this course supported me to choose the*

*best option together with providing the reasonable reasons. It was useful for me to have a strong skill of decision-making.” (Student #2 Unit 4)*

*“Problem-solving was developed the most for me. In the past, I hardly tried to find the way out. I let others like my mother or my friends help me. Now, I felt that I did not fear to encounter any problems. I handled with the difficulties better and discovered that where there's a will, there's a way. Just calm down and think!” (Student #4 Unit 4)*

Furthermore, there were some students stating that it was difficult for them to determine the most critical thinking skill they could develop because they believed that all skills of critical thinking were progressed, as shown in the following excerpts:

*“I could not give exact answers that how much I could improve my critical thinking skills, but I had opportunities to sharpen them all the time and felt that I thought more critically. I could define the problems and solve them. I could evaluate and explain why A was more interesting than B. Then I knew why I chose A, not B. However, it depended on the situation I was involved in. It was likely that I could not find the way out and make it worse.” (Student #5 Unit 4)*

*“It was difficult to say which critical thinking skill was develop the most because I thought that all skills were better. I could use all of them in my daily life.” (Student #7 Unit 4)*

Apart from obtaining the data of students' improvement of critical thinking skills, the factors to foster these skills were also found. The following findings were categorized into nine themes: questioning, classroom discussion, the use of the real-world tasks, searching for information, collaborative learning, social interaction through feedback, the process of trial and error, assessments, and writing a reflective journal.

### **Questioning**

The findings showed that using questions to ask students about any issues could promote students to think critically, as described in the following extracts:

*“Normally, I had just read any texts without thinking or looking at something in detail. It was like a text was just a text. Nothing was special. So, when the teacher asked us to analyze the language focus and read each sentence carefully, I realized that it was true that every single sentence needed the specific grammar points such as using relative clauses to explain something more.” (Student #6 Unit 2)*

*“When the teacher asked us why we selected these steps of cooking, I thought that it could help me develop reasoning although it was an easy question.” (Student #22, Week 2: Unit 1)*

### **Classroom discussion**

Letting the whole class work together and share their answers could help students to think more critically, as illustrated below:

*“While the whole class was discussing the story about the elevator, I was listening to it so that I could continue the event and check if my friends put events in order or not.” (Student #6 Unit 3)*

### **The use of the real-world tasks**

The use of the real-world scenarios could foster students to think more critically. The findings indicated that students’ critical thinking skills might be called for when students started considering the given scenarios and planned their work to complete the tasks, as illustrated in the following excerpts:

*“Reading Apinya’s scenario required me to define her problems and find the best solutions for her. This activity allowed me to practice solving problems. I thought that if I had understood one’s problems, I could have found the best way to fix them. In this case, I helped Apinya to select interesting Thai recipes and create a brochure adding how to cook each dish to promote her cooking class in each region.” (Student #23, Week 2: Unit 1)*

*“When I had received Kavee’s case, I defined his problem first so that I could make sure I was on the right track and move to the next step of working.”*

*(Student #5, Week 5: Unit 2)*

*“According to the scenario, we could travel to anywhere in Thailand to do a survey and write a review later. Therefore, in the presentation, our concept was about the field trip of the staff who explored the hotel to get some information to write a review for their boss. We did like this because we would like to show the process we got the information to write the review for the boss.” (Student #8 Unit 4)*

### **Searching for information**

Searching for information to do the project work required students to think critically in terms of the credibility of any sources, as reported below:

*“To get details to write a review about the selected restaurant in Ayutthaya, I searched for more information on many websites. After exploring all of them, there were different reviews about this restaurant written in Thai and English, which were interesting for me. However, the comments on TripAdvisor were the most useful and reliable for me. They could help me to know foreigners’ real experiences and feelings.” (Student #6 Unit 4)*

*“When I searched for steps of cooking ‘Green Curry with Chicken’ on the websites, I needed to compare a lot of information and look for the best instructions of cooking this dish that were easy to understand and concise.” (Student #2, Week 2: Unit 1)*

*“To get the good examples to support the main points of my persuasive paragraph, I searched for and compared the information on many websites. Finally, to take it or not, I looked at the credibility of the sources. I would say that this activity helped me to evaluate something better.” (Student #17, Week 13: Unit 4)*

### **Collaborative learning**

In the environment of collaborative learning, students' critical thinking skills could be fostered since it required to help one another to achieve the goals, as some of them stated that:

*“When the teacher had us work together to number the pictures, I thought I could practice analyzing. I had to think which picture happened first.” (student #10, Week 9: Unit 3)*

*“When we revised and edited the story collaboratively, we thought that this story was for shooting a film to show the beauty of Thailand in the future. So, I spent time pondering the setting used in the story. I would like the audience to visit the places we described in the story.” (Student #4 Unit 3)*

### **Social interaction through feedback**

In the process of working on the project work, feedback played a role to promote students' critical thinking skills since it allowed students to interact with one another to exchange their ideas and discuss their writing to get the best version for their project work, as described in the following extracts:

*“After receiving peer feedback, I did not believe in what my partner commented immediately. I read it carefully and ask my partner about the unclear points. Then I listened to her answers and considered if her explanations were reliable.” (Student #7 Unit 2)*

*“After getting peer feedback, I wondered why she added ‘s’ after the noun since I was sure that that word was an uncountable noun. Then I discussed with my friend immediately. It was found that I was right, but my friend was wrong. I explained everything until my friend accepted it. I thought that this activity helped me to practice reasoning.” (Student #8, Week 6: Unit 2)*



### **The process of trial and error**

The findings showed that when students involved in the process of trial and error to solve problems to complete their project work, they could develop their critical thinking skills, as illustrated below.

*“I liked the activity of creating a product. It helped me to know how to solve problems while working on the brochure. After adding the texts in the brochure, I found that it was impossible to add all details in one page, so I changed the brochure template from the open gate fold brochure to the z-fold brochure. (Student #12, Week 3: Unit 1)*

*“In the poster, we would like to add a photo of a boy referring to the main character named Austin. Unfortunately, it was hard for us to find photos of the boy without watermarks on the Internet. In fact, we tried to remove them, but it was not successful and time-consuming. Therefore, we solved the problem by photographing one of my friends who was small like a child and changing the name together with the gender of the main character in the story from ‘Austin’ to ‘Joy’. Now, we got the perfect poster matching the story.” (Student #1 Unit 3)*

*“The problem was that we did not have enough members to act as a boss in our presentation. Actually, we tried to record the video for the part of the boss, but it did not work. So, I used Joylada, a chat application, to solve this problem instead. It was easy to use. I just typed the conversations between the boss and the staff. Then I captured the entire screens and add them in PowerPoint. When we gave a presentation, we just acted and clicked the slides to show the conversations. From that, we could have the boss.” (Student #5 Unit 4)*

### **Assessments**

The findings indicated that providing students the opportunities to act as evaluators to give feedback, suggestions, and scores supported them to practice justifying not only their own strengths and weaknesses, but also others’, which enhanced their critical thinking skills. The evidence is shown below:

*“Having used rubrics to evaluate friends’ presentations many times helped me to determine the strong and weak points of their presentations. I thought that I was more confident to judge others and give suggestions.” (Student #3 Unit 4)*

*“When we read our reviews together, Ariel’s review was the best in terms of content. She supported her main points with the fact and statistics which increased the credibility. Moreover, the way she mentioned the facilities was interesting and clear, while Mulan and I just included general information using our opinions. It was not as strong as Ariel did. From that, Ariel’s review was selected.” (Student #9 Unit 4)*

*“I liked the presentation of 3How group, but I did not vote for this group because although everyone in the group acted well and the role play was funny, it was not related to the scenario given. That was a big mistake. If they had read Kavee’s case more carefully, I would not have hesitated to vote for 3How group.” (Student #5 Unit 2)*

### **Writing a reflective journal.**

It was found that writing a reflective journal was one way to reinforce students’ critical thinking skills because it required students to ponder their own learning and reflect their thinking through answering each question, as one of them stated as follows:

*“Writing a reflective journal, I had to review and think of what I learned, what I did, and what I found. After that, I answered all questions with selected examples. For me, if I had not recalled everything, I could not have answered all of the questions.” (Student #1 Unit 1)*

In conclusion, after the use of project-based writing instruction including questioning, classroom discussion, the use of the real-world tasks, searching for information, collaborative learning, social interaction through feedback, the process of trial and error, assessments, and writing a reflective journal, students’ critical thinking skills were developed

### 4.3 Students' attitudes towards project-based writing instruction

*Research question 3: What are Thai EFL students' attitudes towards project-based writing instruction?*

To explore the attitudes of Thai EFL undergraduate students towards the project-based writing instruction, the research instruments were an attitude questionnaire, a semi-structured interview protocol, and students' reflective journals. The quantitative data were analyzed by means of descriptive statistics (Mean and Standard deviation), while the qualitative data were analyzed using content analysis. The results are reported based on the following topics: (1) general information of the participants, (2) students' overall attitudes towards project-based writing instruction, (3) students' attitudes towards the use of project-based writing instruction in improving their writing ability, (4) students' attitudes towards the use of project-based writing instruction in improving their critical thinking skills, (5) students' attitudes towards learning process of project-based writing instruction, (6) students' attitudes towards advantages and disadvantages of working on a project, and (7) students' additional comments and suggestions.

#### 4.3.1 General information of the participants

The first part of the questionnaire was designed to gain general information of the participants in terms of their gender, age, English learning experience, frequency of English writing per week, students' perceptions towards their levels of writing ability and critical thinking skills before and after implementing project-based writing instruction, background knowledge or experience about project-based learning, learning styles, and preferred number of students for group work.

There were 24 participants responding the questionnaire. All of them were the first-year university students from the Faculty of Humanities majoring in English. As shown in Table 16, the majority of the participants were female (70.83%). Most of them were 19 years old (45.83%). They have studied English for 13 years (45.83%). Regarding frequency of English writing, they mainly wrote for one or two days per week (41.66%). On the subject of project-based learning, 75% of students did not know this teaching approach, and 87.5% never experienced using project-based learning in

any other subjects when they were in the high school. However, there were a few participants knowing and experiencing project-based learning from taking the course such as science, physics, and individual study. In terms of learning styles, 75% of students preferred working in groups because of the following reasons. First, they could help to solve problems and support one another. Second, they would like to share and exchange their ideas in groups. Third, they would like to improve their collaborative skills. Finally, it could save time to finish their assignments. Yet, 25% of students selected individual work because it was more convenient for them to collect and manage all data by themselves. It also saved their time to make decisions and finish the project work faster. Finally, three students per group was the preferred number for group work (37.50%). More details about general information of the participants are presented in Table 16.

Table 16: General information of the participants (n = 24)

<b>Demographic profile</b>	<b>n</b>	<b>Percentage</b>
<b>Gender</b>		
- Male	7	29.16
- Female	17	70.83
<b>Age</b>		
- 18 years old	10	41.66
- 19 years old	11	45.83
- 20 years old	3	12.50
<b>English learning experience</b>		
- 12 years	10	41.66
- 13 years	11	45.83
- 14 years	3	12.50
<b>Frequency of English writing per week</b>		
- Every day	7	29.16
- 3-5 days	7	29.16
- 1-2 days	10	41.66
<b>Knowing project-based learning</b>		
- Yes	6	25

- No	18	75
<b>Project-based learning experience</b>		
- Yes	3	12.50
- No	21	87.50
<b>Learning style</b>		
- Individual work	6	25
- Group work	18	75
<b>Preferred number of students per group</b>		
- 2 students	1	4.16
- 3 students	9	37.50
- 4 students	8	33.33
- 5 students	5	20.83
- 6 students	1	4.16

In addition, students' perceptions towards levels of writing ability and critical thinking skills before and after implementing project-based writing instruction (PWI) are presented. Table 17 showed that before implementing project-based writing instruction, students perceived that the levels of their writing ability and critical thinking skills were weak (mean = 1.81; S.D. = 0.50) and average (mean = 2.53; S.D. = 0.61), respectively. In contrast, after implementing project-based writing instruction, students indicated that the level of their writing ability was good (mean = 3.82; S.D. = 0.48). In the same vein, the level of their critical thinking skills was good (mean = 3.79; S.D. = 0.43). The most enhanced elements of writing ability were content and organization, while the most improved element of critical thinking skills was evaluating.

Table 17: Students' perceptions towards levels of writing ability and critical thinking skills before and after implementing project-based writing instruction

Topics	Before implementing			After implementing		
	PWI			PWI		
	Mean	S.D.	Level	Mean	S.D.	Level
<b>Writing ability</b>						
- Content	1.37	0.76	Very weak	3.91	0.65	Good
- Organization	1.58	0.65	Weak	4.12	0.79	Good
- Vocabulary	2.16	0.81	Weak	3.66	0.70	Good
- Grammatical accuracy	1.79	0.72	Weak	3.50	0.58	Good
- Mechanics	2.16	0.81	Weak	3.91	0.65	Good
<b>Total</b>	<b>1.81</b>	<b>0.50</b>	<b>Weak</b>	<b>3.82</b>	<b>0.48</b>	<b>Good</b>
<b>Critical thinking skills</b>						
- Analyzing	2.62	0.82	Average	3.95	0.62	Good
- Reasoning	2.54	0.93	Average	3.91	0.71	Good
- Evaluating	2.08	0.97	Weak	3.54	0.65	Good
- Decision- making	2.62	0.71	Average	3.87	0.61	Good
- Problem-solving	2.79	0.72	Average	3.66	0.63	Good
<b>Total</b>	<b>2.53</b>	<b>0.61</b>	<b>Average</b>	<b>3.79</b>	<b>0.43</b>	<b>Good</b>

Note: 4.50-5.00 = Very good, 3.50-4.49 = Good, 2.50-3.49 = Average  
 1.50-2.49 = Weak, 1.00-1.49 = Very weak

To conclude, it could be assumed that students improved their writing ability including content, organization, vocabulary, grammatical accuracy, and mechanics together with their critical thinking skills such as analyzing, reasoning, evaluating, decision-making, and problem-solving after the use of the project-based writing instruction.

### 4.3.2 Students' overall attitudes towards project-based writing instruction

Students' overall attitudes towards the use of project-based writing instruction were summarized. As shown in Table 18, descriptive statistics of the mean score and standard deviation indicated that overall, students had positive attitudes towards project-based writing instruction (items 1-50; mean = 4.26; S.D. = 0.34).

Table 18: Overall results of students' attitudes towards project-based writing instruction

Items	Topics	Mean	S.D.	Meaning
1-2	students' attitudes towards the use of project-based writing instruction in improving their writing ability	4.35	0.52	Positive
24	students' attitudes towards the use of project-based writing instruction in improving their critical thinking skills	4.29	0.55	Positive
3-23, 25-43	students' attitudes towards learning process of project-based writing instruction	4.29	0.38	Positive
44-50	students' attitudes towards advantages and disadvantages of working on a project	4.08	0.32	Positive
<b>Total</b>		<b>4.26</b>	<b>0.34</b>	<b>Positive</b>

Note: 4.50-5.00 = Very positive, 3.50-4.49 = Positive 2.50-3.49 = Neutral  
1.50-2.49 = Negative, 1.00-1.49 = Very negative

Apart from the quantitative data, the qualitative data from the semi-structured interview protocol showed students' positive attitudes towards the implementation of project-based writing instruction. To begin with, students believed that it was systematic and the objectives were clearly identified, and this enabled students to set the goals and more easily reach them, as can be seen in the following excerpt:

*"Personally, I was OK with PWI since I saw what I had to do each week clearly in the course syllabus. I understood that we would learn the content*

*and get a scenario to solve the problem in the first week. Then we would come back to meet our friends to discuss more about the scenario and help one another to edit our writing and come up with the presentation in the second week. Lastly, we would give a presentation and show our product to the class. With these clear stages, it could help me to prepare myself to learn.”*  
(Student #4)

In addition, most students totally agreed that they preferred project-based writing instruction than the traditional way of learning because it was more interesting and provided an opportunity for students to develop their writing ability, critical thinking skills, and other skills through the process of working on projects, as seen in the following extract below:

*“I preferred this kind of teaching. I felt that I could do many interesting things that I had never done before. For example, in the past, I hardly gave a presentation, but in this course, I could practice writing, thinking, and presenting my products to my friends and the teacher. I felt that I was more confident to speak in front of many people, and I just realized that I had the presentation skills! I was so proud of myself and my products I created with my friends as well.”* (Student #7)

To sum up, students’ overall attitudes towards project-based writing instruction were positive. Due to the systematic teaching plans and exciting process of working on the project work that could promote students’ writing ability, critical thinking skills, and others, project-based writing instruction satisfied most students. Consequently, it was not surprising that students preferred project-based writing instruction to the traditional way of teaching.

#### **4.3.3 Students’ attitudes towards the use of project-based writing instruction in improving their writing ability**

Items 1-2 were created to investigate students’ attitudes towards implementing project-based writing instruction to improve their writing ability. The mean score showed that overall, students had positive attitudes towards project-based writing



instruction in improving their writing ability (mean = 4.35; S.D. = 0.52). It was found that students “agreed” that the use of project-based writing instruction could improve their writing ability (item 1, mean = 4.29; S.D = 0.69), and they were able to use writing process consisting of prewriting, drafting, revising, editing, and publishing to write a paragraph (item 2, mean = 4.41; S.D = 0.58) as shown in Table 19.

Table 19: Students’ attitudes towards the use of project-based writing instruction in improving their writing ability

Questionnaire items	Mean	S.D.	Level
1. Overall, the use of PWI improves my writing ability.	4.29	0.69	Agree
2. I can construct a paragraph through the writing process (prewriting, drafting, revising, editing, and publishing) better.	4.41	0.58	Agree
<b>Total</b>	<b>4.35</b>	<b>0.52</b>	<b>Agree</b>

Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral  
1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree

The results in Table 19 also supported the results from the questionnaire in Table 17 presenting that after the use of the project-based writing instruction, students’ perception towards their level of writing ability was improved from “weak” to “good”. All in all, students had positive attitude towards the use of project-based writing instruction in improving their writing ability.

In addition, the results from the semi-structured interview protocol indicated that after the use of project-based writing instruction, students agreed that their writing ability could be improved. The evidence to show their progress on five writing elements such as content, organization, vocabulary, grammatical accuracy, and mechanics was reported as follows:

#### Content

*“I had no ideas what the content was about at the beginning. I just kept writing without the goal. I listened to my heart. However, after the teacher taught me, I knew what the topic was about and where I should start. Consequently, I could hit the points and come up with any ideas relating to the topic.” (Student #7)*

### Organization

*“Talking about organization, I could guarantee that not only I but also all students improved this element. I could identify each part perfectly. Also, when I wrote any paragraphs, I realized that it must consist of a topic sentence, supporting sentences, and a concluding sentence.” (Student #4)*

### Vocabulary

*“I only selected to use easy words in the past, but now I tried to use new words I learned from each unit. For example, in unit 2, I included the words ‘fantastic’ and ‘magnificent’ in my writing.” (Student #6)*

### Grammatical accuracy

*“My grammar was much better. When I was a high school student, the test format was only the multiple choice. I just selected the best answers. I never understood how to use grammar and apply it to my writing. After the course, I progressively understood that each text type needed different grammar. For example, I had seriously misunderstood that I could use the present tense to narrate the whole story. Right now, I knew that I was wrong. I needed to use the past tense to write a narrative paragraph. Moreover, my grammatical errors were decreased.” (Student #5)*

### Mechanics

*“Generally, I knew capitalization rules and how to use full stops, while the knowledge of using commas was just 10%. After that course, I thought that I had more confident to use commas in any sentences. I realized that commas should be inserted before ‘and’ if there were more than two nouns.” (Student #1)*

Moreover, according to students’ reflective journals, it was found that students were able to use writing process to construct any texts, which could help promote their writing ability as illustrated in the following excerpts:

*“I found that planning before writing was helpful. It made my paragraph smooth and understandable.” (Student #17, Week 3: Unit 1)*

*“My writing ability was improved. I took less time to finish my writing because I understood writing process and practiced writing any texts many times.” (Student #5, Week 13: Unit 4)*

To conclude, the findings from the qualitative data were in line with the ones from the questionnaire, that is, the implementation of project-based writing instruction was useful and enabled students to write better. Therefore, their attitudes towards project-based writing instruction were positive.

#### **4.3.4 Students’ attitudes towards the use of project-based writing instruction in improving their critical thinking skills**

Item 24 was created to investigate students’ attitudes towards implementing project-based writing instruction to develop their critical thinking skills. Based on the mean score, it showed that project-based writing instruction could promote students to think more critically (mean = 4.29; S.D. = 0.55) as shown in Table 20.

Table 20: Students’ attitudes towards the use of project-based writing instruction in improving their critical thinking skills

Questionnaire items	Mean	S.D.	Level
24. Overall, the use of PWI improves my critical thinking skills.	4.29	0.55	Agree

Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral  
1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree

The result in Table 20 also supported the results from the questionnaire in Table 17 presenting that after the use of the project-based writing instruction, students’ perception towards their level of critical thinking was improved from “average” to “good”. In short, students had positive attitudes towards the use of project-based writing instruction in improving their critical thinking skills.

Furthermore, the findings from the semi-structured interview protocol reflected that students could develop their critical thinking skills including analyzing, reasoning,

evaluating, decision-making, and problem-solving through the use of project-based writing instruction, as some of them described below:

#### Analyzing

*“I analyzed better. Before taking this course, I could not identify the topic sentence or the concluding sentence. I did not know what the main point was, what supporting details were, or what the examples were. Now, I thought that I understood more.” (Student #1)*

#### Reasoning

*“I felt that I could slightly give reasons better. At the beginning, I might not be able to show the best reasonable reasons, but I felt more confident to give reasons, especially in the persuasive paragraph. No more my feelings. I thought I gave reasons better because the teacher said many times that to support anything or convince someone, we needed reasons, not feelings.” (Student #8)*

#### Evaluating

*“I could compare something better. I knew what was good and what was bad. In the past, I just listened to other’s ideas. Now I felt that I could evaluate myself and others. Probably, it was because of using the rubrics to evaluate my work and friends’ many times.” (Student #7)*

#### Decision-making

*“Formerly, I used my feelings, and I just thought that I liked it. Currently, when making decisions, I considered reasons. It was because the teacher always let us give reasons in all assignments. I was slightly familiar with thinking of reasons before I made any decisions. I thought that decision-making and reasoning should go together.” (Student #5)*

#### Problem-solving

*“I felt that I could solve problems more easily. I knew what to do next or how to handle with the problems because I had a lot of experience and went through*

*trial and error along the process of working on all of the projects.” (Student #3)*

Finally, the findings from the qualitative data were in line with the ones from the questionnaire, that is, the process of working on all projects helped promote students’ critical thinking skills. Therefore, it could be inferred that students were satisfied with the use of project-based writing instruction.

#### **4.3.5 Students’ attitudes towards learning process of project-based writing instruction**

In the learning process of project-based writing instruction, it consisted of three stages: planning the project, developing the project, and evaluating the project. To investigate students’ attitudes towards these learning process of project-based writing instruction to improve their writing ability and critical thinking skills, items 3-23 (writing ability) and items 25-43 (critical thinking skills) were constructed respectively.

To begin with, the overall data revealed that students had positive attitudes towards learning process of project-based writing instruction (mean = 4.29; S.D. = 0.38). Of three project-based writing instruction stages, students were satisfied with the stage of developing the project the most (mean = 4.34; S.D. = 0.40), followed by the stage of evaluating the project (mean = 4.28; S.D. = 0.43) and the stage of planning the project (mean = 4.22; S.D. = 0.40). Moreover, students “agreed” that all of the project-based writing instruction stages helped them to write better (mean = 4.28; S.D. = 0.35) and to think more critically (mean = 4.30; S.D. = 0.41). The students’ attitudes mean scores of learning process are illustrated in Table 21 below.

Table 21: Students' attitudes towards learning process of project-based writing instruction

	<b>Stage 1: Planning the project</b>		<b>Stage 2: Developing the project</b>		<b>Stage 3: Evaluating the project</b>		<b>Total of 3 stages</b>	
	<b>Mean</b>	<b>S.D.</b>	<b>Mean</b>	<b>S.D.</b>	<b>Mean</b>	<b>S.D.</b>	<b>Mean</b>	<b>S.D.</b>
Writing ability	4.15	0.41	4.33	0.41	4.29	0.45	<b>4.28</b>	<b>0.35</b>
Critical thinking skills	4.27	0.44	4.34	0.45	4.28	0.44	<b>4.30</b>	<b>0.41</b>
<b>Total of each stage</b>	<b>4.22</b>	<b>0.40</b>	<b>4.34</b>	<b>0.40</b>	<b>4.28</b>	<b>0.43</b>	<b>4.29</b>	<b>0.38</b>

Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral  
1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree

The results from each stage of project-based writing instruction were presented in the following section. It started with the project-based writing instruction stage 1: planning the project, the project-based writing instruction stage 2: developing the project, and the project-based writing instruction stage 3: evaluating the project, respectively.

#### 4.3.5.1 The project-based writing instruction stage 1: Planning the project

Items 3-6 and items 25-29 were constructed to investigate students' attitudes towards the stage of planning the project focusing on writing ability and critical thinking skills. Based on the overall results, students "agreed" that the stage of planning the project enabled them to write better (mean = 4.15; S.D. = 0.41) and think more critically (mean = 4.27; S.D. = 0.44). Providing the model text in the 'planning the project' stage helped them to write each text type, namely procedures, descriptions, narratives, and expositions better (item 5, mean = 4.58; S.D. = 0.50) and analyze the

organization (item 28, mean = 4.70; S.D. = 0.46) as well as language use referring to vocabulary, grammatical accuracy, and mechanics (item 27, mean = 4.41; S.D. = 0.65) of each text type well. The data from other items showed that students were also satisfied with shared writing, followed by the warm up activity in terms of enhancing both writing ability and critical thinking skills. The students' attitudes mean scores of the stage of planning the project are illustrated in Table 22 below.

Table 22: Students' attitudes towards the stage of planning the project

Questionnaire items	Mean	S.D.	Level
<b>Writing ability</b>			
3. Overall, the stage of planning the project helps me to write better.	4.41	0.58	Agree
4. The stage of inquiry (warm-up) stimulates me to write.	3.79	0.65	Agree
5. The stage of modeling helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.	4.58	0.50	Strongly agree
6. The stage of shared writing (composing a paragraph <u>as a whole class</u> ) helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.	3.83	0.70	Agree
<b>Total</b>	<b>4.15</b>	<b>0.41</b>	<b>Agree</b>
<b>Critical thinking skills</b>			
25. Overall, the stage of planning the project helps me to think more critically.	4.45	0.65	Agree
26. Questions used in the stage of inquiry (warm-up) help me to think more critically.	3.87	0.67	Agree
27. The model texts used in stage of modeling help me to analyze <u>the language use</u> .	4.41	0.65	Agree

28. The model texts used in stage of modeling help me to analyze the way to construct a paragraph. 4.70 0.46 Strongly agree

29. The stage of shared writing (composing a paragraph as a whole class) helps me to think more critically. 3.91 0.71 Agree

	<b>Total</b>	<b>4.27</b>	<b>0.44</b>	<b>Agree</b>
Note:	4.50-5.00 = Strongly agree, 1.50-2.49 = Disagree,	3.50-4.49 = Agree 1.00-1.49 = Strongly disagree	2.50-3.49 = Neutral	

To conclude, students had positive attitudes towards the project-based writing instruction stage of planning the project. They agreed that this stage could help improve their writing ability and critical thinking skills.

Moreover, the results from the semi-structured interview protocol could support the quantitative data. It was found that students were satisfied with activities in the first stage or planning the project. Students stated that providing the model text and composing a paragraph as a whole class could enhance their writing ability and critical thinking skills.

As for writing ability, students stated that using the model text to teach them assisted them to write better as shown in the following excerpts:

*“The most activity that helped me to improve my writing was reading the model text. It was very helpful and useful for me when I wrote my own paragraph.”*  
(Student #6)

*“When the teacher taught the model text, it helped me to notice and see how the writer wrote each text type.”* (Student #7)

In addition, composing a paragraph as a whole class helped students to write better as illustrated below:

*“When the whole class helped one another to rearrange sentences about the story in the elevator, it was fun and helped me to think of the content.”* (Student #2)



Regarding critical thinking skills, students agreed that the model text helped them to analyze the way to construct a paragraph and the necessary grammar as some of them described:

*“When the teacher let us analyze the model text, it could help me to improve my analyzing. I could distinguish each main element of the paragraph such as a topic sentence, supporting sentences, and a concluding sentence.” (Student #3)*

*“The activity that the teacher had us find the organization of the paragraph and circle the verbs or adjectives could help me to practice analyzing.” (Student #5)*

Also, composing a paragraph as a whole class also helped students to think more critically as shown below:

*“I recalled that there was an activity we needed to rearrange the pictures. At that moment, I was not sure about two pictures. So, I discussed with my friends and helped one another to analyze which picture came first.” (Student #5)*

Based on the data from the interviews, students thought that the activities such as modeling and composing a paragraph as a whole class together in the first stage of project-based writing instruction could foster them to write better and think more critically. Therefore, it could be concluded that students had positive attitudes towards the project-based writing instruction stage of planning the project.

#### **4.3.5.2 The project-based writing instruction stage 2: Developing the project**

Items 7-13 and items 30-35 were created to investigate students' attitudes towards the stage of developing the project focusing on writing ability and critical thinking skills respectively. Based on the overall results, students “agreed” that the stage of developing the project enabled them to write better (mean = 4.33; S.D. = 0.41) and think more critically (mean = 4.34; S.D. = 0.45). Students could apply what they learned from the planning stage to construct their paragraph correctly and effectively, that is, they considered the organization and language use such as vocabulary, grammatical accuracy, and mechanics of each text type when they created their own paragraph (item 8, mean = 4.25; S.D. = 0.60). On the subject of collaborative writing

and independent writing, most students “agreed” that these activities encouraged them to write all text types better (items 9, 10, and 11). However, most students seemed to think that independent writing enabled them to write each text type better (item 11, mean = 4.20; S.D. = 0.58) rather than collaborative writing (item 10, mean = 4.08; S.D. = 0.71). Interestingly, when it was time to brainstorm or come up with new ideas to complete assignments, students believed that working and discussing in groups and collaborative writing helped them to think more critically (items 31 and 32, mean = 4.25; S.D. = 0.60) rather than independent writing (item 33, mean = 4.08; S.D. = 0.65).

Moreover, most students “strongly agreed” that the teacher’s guidelines gained from a student-teacher conference played an important role for them to write better (item 12, mean = 4.62; S.D. = 0.49) and think more critically (item 34, mean = 4.66; S.D. = 0.56).

In terms of the materials used in the course, students “strongly agreed” that the materials were useful for them, especially to develop their writing ability (item 13, mean = 4.66; S.D. = 0.48), followed by to improve their critical thinking skills (item 35, mean = 4.45; S.D. = 0.72). The students’ attitudes mean scores of the stage of developing the project are presented in Table 23 below.

Table 23: Students’ attitudes towards the stage of developing the project

Questionnaire items	Mean	S.D.	Level
<b>Writing ability</b>			
7. Overall, the stage of developing the project helps me to write better.	4.50	0.65	Strongly agree
8. I can apply what I have learned from the planning stage to construct my paragraph correctly and effectively.	4.25	0.60	Agree
9. Working and discussing in groups help me to write better.	4.04	0.75	Agree
10. The stage of collaborative writing (composing a paragraph <u>in groups</u> ) helps me to	4.08	0.71	Agree

write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.

11. The stage of independent writing

(composing a paragraph individually) helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.

4.20 0.58 Agree

12. A student-teacher conference helps me to write better.

4.62 0.49 Strongly agree

13. The materials are useful to develop my writing ability.

4.66 0.48 Strongly agree

### Total

4.33 0.41 Agree

### Critical thinking skills

30. Overall, the stage of developing the project helps me to think more critically.

4.37 0.64 Agree

31. Working and discussing in groups help me to think more critically.

4.25 0.60 Agree

32. The stage of collaborative writing

(composing a paragraph in groups) helps me to think more critically.

4.25 0.60 Agree

33. The stage of independent writing

(composing a paragraph individually) helps me to think more critically.

4.08 0.65 Agree

34. A student-teacher conference helps me to think more critically.

4.66 0.56 Strongly agree

35. The materials are useful to develop my critical thinking skills.

4.45 0.72 Agree

### Total

4.34 0.45 Agree

Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral  
1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree

To summarize, students had positive attitudes towards the project-based writing instruction stage of developing the project. They agreed that this stage could improve their writing ability and critical thinking skills.

Furthermore, the results from the semi-structured interview protocol and students' reflective journal could support the quantitative data as follows:

First, participating in writing independently, students reported that their writing ability and critical thinking skills were strengthened.

Regarding writing ability, most of the students mentioned the usefulness of writing independently as follows:

*“When I wrote individually, it really helped me improve my writing because I could get hands-on experience and apply what the teacher had taught me to my writing.” (Students #1)*

*“The best way to help develop my writing ability the most was writing my first draft individually. I spent time reviewing the lessons and applying them to my paragraph. For me, the more I wrote, the more accurate my writing was.” (Student #8)*

Concerning critical thinking skills, independent writing supported students to think more critically, as some of them reported below:

*“When I started writing, I read the scenario given again. Then I planned and thought why I selected this or that, which allowed me to think reasonably and critically. Without the mini-projects or the final project, I thought I just developed merely my writing ability.” (Student #1)*

*“Planning to write each text type was the first important step. I needed to analyze the scenario thoroughly one more time since the content I wrote led to the way I designed and created the product together with the presentation. To make everything corresponding many times, I thought I could use five skills of critical thinking better.” (Student #5)*

Second, a student-teacher conference was considered important to support students to work more smoothly. It could help students to come up with ideas and plan better, as described in the following extracts:

*“It was hard for me to finalize the topic because there were many things in Thailand I was interested in. Therefore, meeting the teacher in the student-*

*teacher conference could help me to get some ideas and make a decision about the final topic.” (Student #24, Week 7, Unit 2)*

*“I loved the moment when there was a student-teacher conference. The teacher’s suggestions were useful and helpful for us to see the light and have more confidence to go on conducting the project work.” (Student #10, Week 9: Unit 3)*

Third, students reflected that they were satisfied with the instructional materials such as the handouts, self-check forms and peer review checklists, scoring rubrics, students’ reflective journals, and YouTube employed in this course. They revealed that YouTube was an authentic material supporting them to learn the content in the real world, as illustrated as follows:

*“My friends and I agreed that we liked the instructional handouts in this course. It was easy to read and understand.” (Student #10, Week 12: Unit 4)*

*“Self-check forms and peer review checklists were the useful guidelines for students to know how to start writing and what to check. They benefited me a lot.” (Student #5, Week 7: Unit 2)*

*“I really liked when the teacher distributes the rubrics and taught us to use them to evaluate others’ work. It was really useful for me to know how to evaluate myself and my friends. Also, I understood how the teacher rated my skills.” (Student #1, Week 14: Unit 4)*

*“I was confident that I understood everything after the class, but I was not. Therefore, writing a reflective journal was a good way to check myself and help me to understand the lessons better. I liked it.” (Student #20, Week 2: Unit 1)*

*“I liked when the teacher let us search for the steps of cooking ‘Green Curry with Chicken’ on any websites, watch the video clip about cooking this dish on YouTube, and finally select the best instructions. It helped me to learn and see the real examples from the real sources.” (Student #6, Week 2: Unit 1)*

Based on the aforementioned qualitative data, it showed the satisfaction of participating in the activity of independent writing and the student-teacher conference

and using the instructional materials provided in this course. Thus, it could be concluded that students' attitudes towards the project-based writing instruction stage of developing the project were positive.

#### **4.3.5.3 The project-based writing instruction stage 3: Evaluating the project**

Items 14-23 and items 36-43 were designed to investigate students' attitudes towards the stage of evaluating the project focusing on writing ability and critical thinking skills. Based on the overall results, students "agreed" that the stage of evaluating the project encouraged them to write better (mean = 4.29; S.D. = 0.45) and think more critically (mean = 4.28; S.D. = 0.44). In this 'evaluating the project' stage, students "agreed" that presenting projects helped them to revise their writing (item 15, mean = 3.79; S.D. = 0.65) and think more critically (item 37, mean = 4.08; S.D. = 0.58).

Regarding writing reflective journals, it could help students to reflect on the content (item 17, mean = 4.58; S.D. = 0.65), experience (item 18, mean = 4.54; S.D. = 0.77), and language they learned as well as to think more critically (items 16 and 38, mean = 4.25; S.D. = 0.79) respectively.

In terms of scoring rubrics, students "strongly agreed" that all of them were appropriate to measure their writing ability (item 19, mean = 4.54; S.D. = 0.65) and their critical thinking skills (item 39, mean = 4.50; S.D. = 0.51).

Moreover, using self-assessment, peer assessment, and teacher assessment together played significant roles to help students to write better and think more critically. Most students were satisfied with teacher assessment the most. They "strongly agreed" that teacher feedback helped them to write better (item 22, mean = 4.83; S.D. = 0.38) and think more critically (item 42, mean = 4.66; S.D. = 0.56), followed by peer assessment, and self-assessment.

The students' attitudes mean scores of the stage of evaluating the project are presented in Table 24 below.

Table 24: Students' attitudes towards the stage of evaluating the project

Questionnaire items	Mean	S.D.	Level
<b>Writing ability</b>			
14. Overall, the stage of evaluating the project helps me to write better.	3.79	0.77	Agree
15. Presenting projects helps me to revise my writing.	3.79	0.65	Agree
16. Writing reflective journals helps me to reflect on the <u>language</u> I have learned.	4.25	0.79	Agree
17. Writing reflective journals helps me to reflect on the <u>content</u> I have learned.	4.58	0.65	Strongly agree
18. Writing reflective journals helps me to reflect on the <u>experience</u> I have learned.	4.54	0.77	Strongly agree
19. The scoring rubric is appropriate to measure my writing ability.	4.54	0.65	Strongly agree
20. <u>Self-assessment</u> helps me to write better.	4.00	0.78	Agree
21. <u>Peer assessment</u> helps me to write better.	4.00	0.72	Agree
22. <u>Teacher assessment</u> helps me to write better.	4.83	0.38	Strongly agree
23. Using self-assessment, peer assessment, and teacher assessment together help me to write better.	4.58	0.58	Strongly agree
<b>Total</b>	<b>4.29</b>	<b>0.45</b>	<b>Agree</b>
<b>Critical thinking skills</b>			
36. Overall, the stage of evaluating the project helps me to think more critically.	4.29	0.69	Agree
37. Presenting projects helps me to think more critically.	4.08	0.58	Agree
38. Writing reflective journals helps me to think more critically.	4.25	0.79	Agree

39. The scoring rubric is appropriate to measure my critical thinking skills.	4.50	0.51	Strongly agree
40. <u>Self-assessment</u> helps me to think more critically.	3.91	0.77	Agree
41. <u>Peer assessment</u> helps me to think more critically.	4.08	0.65	Agree
42. <u>Teacher assessment</u> helps me to think more critically.	4.66	0.56	Strongly agree
43. Using self-assessment, peer assessment, and teacher assessment together help me to think more critically.	4.50	0.65	Strongly agree
<b>Total</b>	<b>4.28</b>	<b>0.44</b>	<b>Agree</b>

Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral  
1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree

According to Table 24, it could be assumed that students had positive attitudes towards the project-based writing instruction stage of evaluating the project. They agreed that this stage could improve their writing ability and critical thinking skills.

In addition, the results from the semi-structured interview protocol and students' reflective journal could support the quantitative data as follows:

First, students reported that they could improve their critical thinking skills through the stage of evaluating the project which required students to present their projects and evaluate their friends' products and performances, as presented in the following extracts:

*"Evaluating friends' products and presentations could help me to practice reasoning and evaluating." (Student #4)*

*"After all presentations, I had to vote for the best product and presentation. That activity helped me to think critically since I must make decisions and provide three reasons explaining why I vote for my friends." (Student #6)*

Second, writing reflective journals helped promote students' writing ability and critical thinking skills as some of the students stated below:



*“Writing reflective journals urged me to go back to look at the handouts again to answer all of the questions. It also allowed me to practice writing at the same time.” (Student #4)*

*“Reflective journals helped me to think. I must recall, plan, organize, and present my understanding through my messages.” (Student #1)*

Third, various types of assessments such as self-assessment, peer assessment, and teacher assessment played an important role to make students satisfied with project-based writing instruction. They also helped promote students’ writing ability and critical thinking skills, as shown in the excerpts below:

*“I liked self-assessment, peer assessment, and teacher assessment. All of them helped me to check my understanding, improve my writing to be more accurate, and review the lessons.” (Student #3)*

*“I liked the process of conducting a project, especially receiving peer feedback and teacher feedback. Both helped me to know my grammatical errors and motivated me to improve my writing to be better.” (Student #1)*

*“When I checked and gave feedback to my partner, I could improve my own writing ability and critical thinking skills. I could review what I had learned, and I must evaluate if my partner constructed a well-organized paragraph or not.” (Student #7)*

Based on the aforementioned qualitative data, it showed the after participating in the activities from the stage of evaluating the project and experiencing using various types of assessments, students felt satisfied with them. Therefore, it could be concluded that students’ attitudes towards the project-based writing instruction stage of evaluating the project were positive.

In conclusion, students were satisfied with all learning stages of the project-based writing instruction including the ‘planning the project’ stage, the ‘developing the project’ stage, and the ‘evaluating the project’ stage. Thus, students’ attitudes towards learning process of project-based writing instruction were positive.

#### 4.3.6 Students' attitudes towards advantages and disadvantages of working on a project

Items 44-50 were constructed to reveal students' attitudes towards advantages and disadvantages of working on a project. The overall mean score reported that students "agreed" that working on a project had both benefits and drawbacks (mean = 4.08; S.D. = 0.32). Regarding advantages of working on project work, students "strongly agreed" that working on a project helped to increase their collaborative learning (item 45, mean = 4.66; S.D. = 0.63) and their responsibilities (item 44, mean = 4.62; S.D. = 0.64) respectively. Furthermore, students "agreed" that working on a project provided them an opportunity to use authentic materials (item 46, mean = 4.37; S.D. = 0.71). For disadvantages of working on project work, students mostly "agreed" that working on a project made them stressed (item 48, mean = 4.00; S.D. = 0.58), and it was time-consuming (item 49, mean = 3.70; S.D. = 0.55). In addition, students had a "neutral" attitude towards difficulties in exchanging ideas with their friends during working on a project (item 47, mean = 2.91; S.D. = 1.24). Lastly, students "agreed" that they could apply project-based learning in other English courses after the implementation of project-based writing instruction (item 50, mean = 4.33; S.D. = 0.63). The mean scores of students' attitudes towards advantages and disadvantages of working on a project are presented in Table 25 below.

Table 25: Students' attitudes towards advantages and disadvantages of working on a project

Questionnaire items	Mean	S.D.	Level
44. Working on a project helps me to increase my responsibility.	4.62	0.64	Strongly agree
45. Working on a project helps me to increase my collaborative learning (working with others).	4.66	0.63	Strongly agree
46. Working on a project gives me a chance to use authentic materials.	4.37	0.71	Agree

47. During working on a project, I have difficulties in exchanging ideas with my friends.	2.91	1.24	Neutral
48. Working on a project makes me stressed.	4.00	0.58	Agree
49. Working on a project is time-consuming.	3.70	0.55	Agree
50. I think I can apply project-based learning in other English courses.	4.33	0.63	Agree
<b>Total</b>	<b>4.08</b>	<b>0.32</b>	<b>Agree</b>
Note: 4.50-5.00 = Strongly agree, 3.50-4.49 = Agree 2.50-3.49 = Neutral 1.50-2.49 = Disagree, 1.00-1.49 = Strongly disagree			

According to Table 25, it could be assumed that students had both positive and negative attitudes towards working on a project.

To support the quantitative data from the questionnaire, the data gained from the semi-structured interview protocol and students' reflective journals were included. Students reported both pros and cons of project-based writing instruction along the process of working on the project. Therefore, the data were categorized into two themes: advantages of working on a project and disadvantages of working a project.

With regard to the advantages of working on a project, students developed other skills and aspects except writing ability and critical thinking skills while engaging in organizing their project work as shown as follows:

### **Responsibility**

Working on a project could increase students' responsibility as one of them described:

*"I thought that I was more responsible because all assignments had deadlines. I could not act like a high-school student who could submit homework late. Also, I felt that when my friends made an appointment, I must join them to discuss each project so that we could help one another complete it."* (Students #2)

### **Collaboration**

Students realized there were various benefits they could reap while working collaboratively on a project, as exemplified below:

*“I learned to work with others as a team. When we started working, we divided tasks based on our expertise. We shared everything we found and always helped one another. I thought I was lucky that my group never quarreled when working. Probably, we selected to work on what we could do the best, so we hardly had any problems to work together and felt fun.” (Students #9)*

### **Creativity**

Students could boost their creativity while working on the project work as shown below:

*“I could improve my creativity from creating the product and the presentation of each unit.” (Students #5)*

### **Confidence in giving a presentation**

Students increased their confidence in giving presentations as one of them illustrated:

*“When I was a high school student, I selected to be a listener rather than a speaker. Then when the teacher would like us to give the presentation, I felt really nervous. Umm, it was because I did not know all friends in the class well, I felt awkward to speak in front of a lot of friends. However, it was better when I presented my project in the third time. I had more confidence and dared to speak more.” (Students #9)*

### **Leadership**

Students developed their leadership skills as one of them described below:

*“Mostly, I was the one who began to talk about the assignments and suggest directions to my group members. After that, I always checked all work and asked my friends to update what stage they were in so that we could move to*

*the next step. So, I thought probably I could be the leader in the future.”*

*(Student #1)*

### **Adaptability**

Students learned to adapt themselves to new people as shown below:

*“Working in a group needed adaptability. At first, I was shy to talk to my group members because we had just met. However, to improve a good rapport with them and work together happily, I tried to tell jokes and mingle with them.”*

*(Student #6)*

*“I thought that working with other people was challenging. I needed to adapt myself to my new friends. Everyone had different ideas. Therefore, it was important to learn to listen to others and avoid any conflict.”*

*(Student #12, Week 2: Unit 1)*

### **Technology**

Students improved their technology skills, especially the applications when they conduct the projects. One of the students stated as follows:

*“I knew how to use Photoshop a little bit, but when I continued creating the product of each unit, I felt that my skills of using Photoshop were improved. Besides, I learned to use a new application, Canva. This one was amazing. After the process of trial and error, I found out that using Canva on my smartphone was not time-consuming, and it was easier to use this application on the smartphone than on PC.”*

*“After creating many products for all units, I thought of the importance of using technology to complete all projects. I felt that this skill was needed and essential in the future, especially when I got a job. I planned to learn how to use Photoshop more.”*

*(Student #23, Week 14: Unit 4)*

### **Exposure to authentic materials**

Students had an opportunity to use and create authentic materials through working on projects as illustrated below:

*“The process of working on all projects, particularly designing and creating the products, allowed me to learn by doing. I really liked it since I had never done it before. It made me understand how to create a brochure, a booklet, a poster, and a review and also have some hands-on experiences which could benefit me in the future.” (Student #8)*

### **Self-discovery**

Students could discover themselves and their likes while working on the project work as some of them reported as follows:

*“I never knew that I was good at arts. Since I had opportunities to create the products of all units, I could find myself that I had this skill.” (Student #2)*

*“In this course, I felt that I was more confident to speak in front of many people, and I just realized that I had the presentation skills!” (Student #7)*

### **Motivation**

Learning through the use of project-based writing instruction helped students to know their own weaknesses and improve themselves to be better, as one of them stated below:

*“After getting the teacher feedback, I knew that I was not good at writing. There were many errors in my paragraph, but I would try my best to be smarter.” (Student #1, Week 3: Unit 1)*

Furthermore, students knew that their hard work was worth, and it motivated them to work harder to reach the goal, as shown in the following excerpts:

*“After getting the popular vote from my friends, I felt motivated. My final project would be much greater. I strongly believed in my friends and me myself that we could make it.” (Student #9, Week 9: Unit 3)*

Interestingly, student motivation resulted from learning from friends, as presented in the following extracts:

*“I had so much fun while seeing my friends giving their presentations. They were so cool and creative! Seeing their potential inspired me to think of the better product and presentation next time.” (Student #18, Week 4: Unit 1)*

*“I found that my friend’s writing style was attractive. I could not stop reading his story. It was about love, but not a normal one. After reading, I thought my friend was so creative. I would like to write a story like him, so I asked his techniques to plot a story.” (Student #17, Week 10: Unit 3)*

### **Pride**

Having students have their own voice and choice to create any products gave them the pride in ownership, especially when they received an award, as one of them described below:

*“The more I looked at the poster, the happier I was. I would say that I was really proud of myself and my group that we could create such a wonderful poster. It was even better when our group received the popular vote and compliments from everyone.” (Student #22, Week 10: Unit 3)*

### **Applications**

The results showed that project-based learning could be applied in students’ everyday lives and other English courses, which was considered its advantages. Students mentioned about critical thinking skills the most as presented below:

*“I thought that critical thinking skills could be applied in many situations in my daily life. For instance, when I grew up and became the second-year student, I guessed that there must be something I needed to make decisions such as selecting the selective courses.” (Student #2)*

*“Obviously, I thought I knew how to plan better. Next year, I intended to visit Krabi. I started planning and pondered the best period to go, places to visit, and accommodation to stay.” (Student #9)*

*“Taking this course, I could improve grammar, analyzing, and decision-making, which I could apply all of them in other subjects. For example, having difficulty completing any assignments of any subjects, I would thought of the skill of analyzing. If I understood and define the problem, I could find the right solution.” (Student #7)*

Based on the aforementioned reports, project-based writing instruction was advantageous. It showed that learning through project-based writing instruction supported students to learn and gain other necessary skills including responsibility, collaboration, creativity, confidence in giving a presentation, leadership, adaptability, and technology. project-based writing instruction increased the opportunity to learn through authentic materials and show students’ pride through the products. It also helped students to discover themselves and motivated themselves to be better. With all benefits, project-based writing instruction was applied in students’ everyday lives and other English courses.

Despite the positive reports above, several disadvantages of working on a project were found throughout the process of conducting their project work as students mentioned below:

### **Insufficient time**

Students mentioned that project-based writing instruction was time-consuming. A three-week period for one unit seemed too short for them to learn lessons and complete a mini-project, as illustrated below:

*“The length of time to complete each mini-project was not enough for me. In three weeks, I must study all lessons, prepare my writing, revise and edit my writing, and prepare a product as well as a presentation. It was quite tough for me.” (Student #2)*



*“I did not like when I must hurry to complete the product in one week. Sometimes, it did not meet my expectation, for example, when I created a booklet, I needed to design, decorate, and set a lot of pages. It was time-consuming.” (Student #3)*

### **Stress**

Since project-based writing instruction required students to complete many assignments, students felt worried and stressed. Some of the them reported as follows:

*“I felt that this course was really difficult for me. There were many assignments and projects to complete. I was not sure if I could pass this course or not” (Student #13: Week 2: Unit 1)*

*“I was not good at English. I felt stressed because writing had many details to concern. Besides, there were a lot of assignments, and all looked difficult for me.” (Student #14: Week 3: Unit 1)*

### **Loads of assignments**

It was found that workloads in this course burdened students. They thought that the amount of work to be done exceeded, which could be an obstacle for them to express their full potential to create a product and give a presentation, as illustrated below:

*“I would say that tasks to do in this course were too much. I could not produce a masterpiece for the teacher.” (Student #9)*

*“It seemed that the teacher kept giving the new tasks such as writing a reflective journal, searching for information for the final project, and planning the mini-project all the time. I felt that I did not have time to take a break.” (Student #15, Week 5: Unit 2)*

Besides, most students mentioned writing a weekly reflective journal the most. They claimed that it was not essential for them to reflect their ideas with a word limit every week as some of them described:

*“I did not like when the teacher told students to write their reflective journals at least 50 words for each question. I knew it was good, but it would be better if the teacher let us write freely.” (Student #7)*

*“When the teacher set the number of the words in writing reflective journals, I had difficult time to write it because I had no ideas to answer some questions in 50 words every week, for example, the questions asking about things to do this week and the process of working in groups.” (Student #1)*

### **Difficulty in negotiation with friends**

Students had difficulty in negotiation and compromise with their friends. This course was in the first semester; therefore, all students did not get to know one another well. They had to adapt themselves to work with new friends, which concerned many students. Some of them stated that:

*“Working with new friends slightly concerned me. We had just met and had not known one another very well. I did not know their working style, responsibilities, and likes. I hoped we could get along well.” (Student #21: Week 3: Unit 1)*

*“In my group, one of the members did not care much about the outcome or the product. She just wanted to finish all assignments without looking at the quality, but I cared about my scores. I would like to do my best. In fact, she might think that I was picky and bossy, but I tried to explain everything. Hopefully, she would understand me.” (Student #4)*

### **Lack of equipment**

Some students shared their difficulty of lacking equipment to work on project work. Not every student had their own laptops to complete the project work; therefore, it was not convenient for them to work, as described below:

*“Some of my friends did not have equipment to work on the project work, especially a laptop. They needed to borrow others, their roommates. So, it was quite difficult to complete each project fast. If they went home on weekend,*

*there was no problem since they could use their own computers at home in Bangkok.” (Student #3)*

*“Unfortunately, I did not have my own laptop, so I borrowed my roommate’s or went to the library to finish the projects.” (Student #6)*

As mentioned above, project-based writing instruction had drawbacks in terms of time-consuming process, stress, heavy loads of assignments, and difficulty in negotiation between friends. Moreover, lacking a technological tool could be the hindrance to learn through project-based writing instruction.

To conclude, the implementation of project-based writing instruction had both upside and downside for students. Even though there were some obstacles for students while working on their project work, the benefits of project-based writing instruction outweighed the drawbacks and led students to improve many important skills essential in the 21<sup>st</sup> century.

#### **4.3.7 Students’ additional comments and suggestions**

This section reported the additional comments and suggestions from students gained from students’ reflective journals and the semi-structured interview protocol.

As for students’ additional comments, based on students’ reflective journals, it was also found that most students had positive attitudes towards project-based writing instruction in terms of the final project and topics of all units. The findings are presented as follows:

To begin with, the final project asking “What will you do if you want to promote Thailand for foreigners?” was deemed interesting for students to do, as some of them reported at the beginning of the course as follows:

*“I felt interested in the final project. It excited me since the question for the final project allowed us to think of the reality, not just the theory in the textbook.” (Student #6, Week 2: Unit 1)*

*“The final project interested me. It felt good when I had my own choice to select the topic and create the product I liked.” (Student #7, Week 2: Unit 1)*

*“I was thinking of the design of the final project. I was excited to use my creativity to create the final product.” (Student #5, Week 3: Unit 1)*

Another interesting finding was concerning the topics of all units. It was surprising to see that Thailand was the topic of interest for most students. It seemed that they enjoyed learning new knowledge about Thailand such as foods, tourist attractions, festivals, hotels, restaurants, and so on while searching for the information used for their writing, as illustrated in the following extracts:

*“While searching for the information about famous recipes in the South of Thailand, I found that Thai foods were very exotic and interesting. There were many Thai foods that I had never known before. The mini-project of Unit 1 opened my world.” (Student #18, Week 3: Unit 1)*

*“I liked Unit 2. Searching for more information about Chanthaburi, I found many kinds of tourist attractions such as seas, waterfalls, mountains, and so on. Doing this mini-project motivated me to travel around Thailand.” (Student #8, Week 5: Unit 2)*

*“The topics of all units were interesting. I thought that all mini-projects and the final project were related to Thailand somehow. I liked it since I could gain new knowledge about Thailand such as foods, tourist attractions, festivals, and so on while exploring many websites to get the relevant information.” (Student #4, Week 13: Unit 4)*

Regarding students' suggestions, the following findings obtained from the semi-structured interview protocol were divided into four aspects: assignments, the number of projects, time, and teaching.

First, one of the assignments students mentioned the most was writing a reflective journal. Students suggested decreasing writing a reflective journal, as some of them described:

*“In fact, the teacher could let students write one reflective journal per one unit because umm, I did not learn new things every week.” (Student #1)*

*“Writing a reflective journal was beneficial for me to review lessons, but honestly, I thought it was too much to write a reflective journal including the same questions every week. The teacher should have only one reflective journal per one unit. That would be better for us to crystallize our thoughts about learning and teaching.” (Student #8)*

Second, some students advised that the number of projects should be decreased, as exemplified below:

*“Learning four text types was OK, but completing four mini-projects was too much. The teacher should allow students to select only two favorite text types to create the products and presentations. At the end, it was possible to do the final project in order to have students show all they had learned, their personal aptitudes, and their abilities.” (Student #3)*

Third, it was regarding the time to complete each mini-project. Students felt that they had less time to create their work; therefore, they suggested that teacher should increase the period of time to work on project work, as illustrated in the following excerpt:

*“Three weeks per one unit was not sufficient for me to prepare the product and presentation. How could I say? Uhhh, time to write my own paragraph was fine, but I needed more time to prepare the script for the presentation and the product of the unit.” (Student #1)*

Fourth, with regard to teaching, students gave suggestions about content and activities. In terms of content, students suggested teaching more English grammar lessons, as described as follows:

*“Well, I would like the teacher to add and teach more English grammar lessons because I would like to be smarter and write better.” (Student #2)*

All in all, to design the future course to be better, students suggested reconsidering the number of writing a reflective journal as well as the number of projects and extending time to complete each project work. Moreover, students would like teacher to add more English grammar lessons.

#### 4.4 Summary

The findings from the present study revealed that after the implementation of project-based writing instruction, students significantly improved their writing ability in content, organization, vocabulary, grammatical accuracy, and mechanics. However, some students reported the problems regarding vocabulary, grammatical accuracy, and mechanics. As for students' critical thinking skills, it was found that all critical thinking skills, namely analyzing, reasoning, evaluating, decision-making, and problem-solving were strengthened. Moreover, most students had positive attitudes towards the use of project-based writing instruction.



## **CHAPTER V**

### **SUMMARY, DISSCUSSION, AND RECOMMENDATIONS**

This final chapter is divided into six parts, namely (1) summary of the study, (2) summary of the findings, (3) discussion of the research findings, (4) implications of the findings, (5) limitations of the study, and (6) recommendations for further research.

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

The objectives of this study were 1) to investigate the effects of project-based writing instruction on writing ability of Thai EFL undergraduate students; 2) to examine the effects of project-based writing instruction on critical thinking skills of Thai EFL undergraduate students; and 3) to explore the attitudes of Thai EFL undergraduate students towards project-based writing instruction. This study employed a mixed-method research with a one-group, pre-test-post-test design which compared the improvement of students' writing ability and critical thinking skills before and after the use of project-based writing instruction. Also, students' attitudes towards project-based writing instruction were explored. In this study, project-based writing instruction was implemented in a compulsory course entitled "EN131 Basic Writing" for 15 weeks in the first semester of the academic year 2019. The participants were 24 first-year students majoring in English from the Faculty of Humanities, Srinakharinwirot University. They were assigned to the researcher by the Department of English as an intact group.

There were two phases of the project-based writing instruction intervention. The first phase was the development of project-based writing instruction involving studying related theories and research, conducting a survey of students' topics of interest, constructing lesson plans, developing and validating instruments of the study, and conducting a pilot study. The second phase was implementation of project-based writing instruction, or the main study. The experiment was carried out every Thursday from August to December for 15 weeks in the first semester of the academic year 2019 at Srinakharinwirot University. This course consisted of four units, namely Unit 1: Writing a procedural paragraph (Let's cook!), Unit 2: Writing a descriptive paragraph

(Let's go!), Unit 3: Writing a narrative paragraph (It's movie time!), and Unit 4: Writing a persuasive paragraph (Tell me what you think!). Each unit took three weeks to complete. At the beginning of the course, there were the employment of the pre-writing and critical thinking test of procedural and descriptive paragraphs as well as the orientation of the course. After that, students learned each unit through three stages of project-based writing instruction to complete each mini-project every three weeks. The three stages of teaching are briefly described below.

- In the first stage or planning the project, there were five activities for students to engage in: 1) Warm-up aiming to activate students' background knowledge, 2) Reading a model text aiming to prepare students for the lessons, 3) Learning the content and language aiming to provide writing instruction for students to learn and apply knowledge in their projects, 4) Shared writing aiming to promote students' critical thinking skills and let them practice writing together with the class and the teacher, and 5) Receiving a scenario aiming to foster students' critical thinking skills and have them plan the project.
- In the second stage or developing the project, students were required to write their paragraph independently and bring it to the class in order to receive peer feedback. After that, students chose the best paragraph of their group and worked collaboratively to polish it to come up with the best version. Finally, there was a student-teacher conference for students to ensure students understand project work.
- In the third stage or evaluating the project, students gave a presentation and showed the product of each unit such as a brochure, a booklet, a poster, and a review to the class. Then everyone evaluated each group's performance and products and then voted for the best presentation and products. At the end, the teacher provided feedback to students and wrapped up the lessons of the unit.

During weekly classes, from week 2 to 14, students were required to write their reflective journals. Moreover, the stimulated recall method was used in an attempt to find out students' improvement of writing ability and critical thinking skills at the end of each unit. In week 7, the post-writing and critical



thinking test of procedural and descriptive paragraphs was administered to students after ending Unit 2: Writing a descriptive paragraph (Let's go!). In week 9, there was the employment of the pre-writing and critical thinking test of narratives and expositions. In week 15, the post-writing and critical thinking test of narratives and expositions, the attitude questionnaire, and the semi-structured interview protocol were finally utilized to elicit both quantitative and qualitative data. After collecting all data, they were analyzed both quantitatively and qualitatively using the paired-sample *t*-test, descriptive statistics, and content analysis. The findings of the study are reported in the next section.

## **5.2 Summary of the findings**

The findings of the study were summarized according to the research questions below:

### **5.2.1 English writing ability**

The results of the paired-sample *t*-test showed that the post-test mean score of writing ability was statistically significantly higher than the pre-test mean score after implementing project-based writing instruction. The development of organization improved most, while the progress on vocabulary improved the least. Moreover, the analysis of the stimulated recall and students' reflective journals revealed that the use of three project-based writing instruction stages enabled students to make a good progress on all writing elements comprising content, organization, vocabulary, grammatical accuracy, and mechanics. However, some students were still concerned with vocabulary, grammatical accuracy, and mechanics.

### **5.2.2 Critical thinking skills**

The results of the paired-sample *t*-test showed that the post-test mean score of critical thinking skills was statistically significantly higher than the pre-test mean score after implementing project-based writing instruction. Statistically, problem-solving was improved more than other skills, while analyzing was least developed. In addition,

the qualitative data gained from the stimulated recall and students' reflective journals indicated that three stages of project-based writing instruction could enable students to think critically. Interestingly, the most developed critical thinking skill varied among nine students purposively selected for qualitative data collection. They reported that evaluating, decision-making, and problem-solving was the skills they could improve the most.

### **5.2.3 Students' attitudes towards project-based writing instruction**

Students' attitudes towards project-based writing instruction were positive in all domains: teaching plans, content, assessments, instructional materials, the application of knowledge, and skills in other courses and students' everyday lives. They also perceived the advantages of project-based writing instruction. However, it was worth noting that this method of teaching was unfavorable for a number of students in terms of time-consuming process, stress, heavy workloads, and difficulty in negotiation and compromise with friends.

To sum up, project-based writing instruction could result in noticeable development of English writing ability and critical thinking skills of Thai EFL undergraduate students. Moreover, students had positive attitudes towards the use of project-based writing instruction.

## **5.3 Discussion**

This section presents the discussion of major research findings in accordance with research questions. There are three aspects, namely (1) the effects of project-based writing instruction on improvement of writing ability, (2) the effects of project-based writing instruction on improvement of critical thinking skills, and (3) Thai EFL students' attitudes towards project-based writing instruction.

### **5.3.1 The effects of project-based writing instruction on improvement of writing ability**

A comparison of the pre-test and post-test mean scores revealed that students' writing ability increased with statistical significance after the implementation of project-based writing instruction. These results were consistent with the results of previous studies conducted by Alotaibi (2020), Affandi and Sukyadi (2016), Aghayani and Hajmohammadi (2019), Newprasit and Seepho (2015), Poonpon (2017), and Sholihah (2017). All of these studies investigated the effectiveness of project-based learning in the language classroom and found that using the project-based learning approach could enhance students' writing ability and other English skills. The reasons why project-based writing instruction could effectively promote writing ability of students in this study can be discussed as follows:

First, project-based writing instruction strengthens students' writing ability through the use of the model text and explicit instruction. In this study, it was found that students were satisfied with teaching contents and language when the model text was used explicitly. The positive findings were derived from the careful design of project-based writing instruction. That is to say, Fried-Booth (1986) has suggested including the practice of language skills at the early stage, stating that it is necessary to include skill practice in project-based learning to help students gain input so that they can move to the next step more easily. Moreover, to teach writing, students are expected to see and analyze the examples of the text types they need to construct in terms of organization and salient language features of the particular text types and do exercises such as editing errors to understand structures and linguistics features (Hyland, 2004a). The idea of teaching students to analyze the examples of the text or the model text is supported by Macbeth (2010) who has investigated the use of models and found that offering directions on how to generate important features in writing models such as a thesis statement, a topic sentence, and supporting sentences yielded desirable outcomes for students who followed these guidelines, especially for novice writers. To sum up, the model text and explicit instruction are crucial supplements in the first stage of developing the project, which provides students background knowledge and facilitates them when trying to understand language demands used in

the particular situation such as searching for any relevant information to carry out the project work (Ballantyne, 2016).

Second, project-based writing instruction enhanced students' writing ability through collaborative learning. In this study, students were given the scenario of the project work to analyze and write a paragraph to correspond with the scenario, create the product, and give a presentation. To complete the project work, students went through the experience in the class where students had a chance to create the target text with the teacher and their friends, think of the answers for questions or scenarios framed by the teacher, discuss, share their ideas with friends, listen to all ideas, absorb knowledge, and communicate to one another to get the answers. This kind of environment promoted collaborative learning. Collaborative learning allows students to construct new knowledge and reach the agreement among their group (Littlewood, 2000; Matthews, 1996). The usefulness of collaborative learning environment found in this study was consistent with the study conducted by Aghayani and Hajmohammadi (2019) who reported that the use of project-based learning enhanced students' writing ability and promoted the environment of collaborative learning, which was more favorable for students than the implementation of traditional teaching.

Third, project-based writing instruction enhanced students' writing ability through learning by doing, which is the theory proposed by Dewey (1938). In this theory, two principles were emphasized: continuity and interaction to support one's learning. Continuity referred to the growth or development of students from gaining experience in any situations, while interaction was an occasion when two or more things or people reacted to one another. This took place in this study when students were working both individually and with their friends, and such experiences became an important factor that supported students to learn by actually doing the work. Furthermore, to build continuity or arouse students to learn, it is necessary to set the goals for students and put them in their curiosity to move forward. Based on this theory, the project-based writing instruction implemented in this study was effective to promote students' learning since it had the obvious goals for students to reach. That is, students had to complete the project work of each unit by considering the given scenario and creating the product of the unit for their group. Along the process to reach the final stage, students had a chance to interact with the teacher and their friends to practice doing

exercises on the writing process and exchange ideas with one another, thus allowing them to gain experience from interaction with other students in the group. Furthermore, when students started writing individually, interaction went on between individual students and their work. Students reviewed the model text provided by the teacher, watched YouTube clip, and searched for more information from a website. Then they drew on past experience and connected new experience to what they knew to get their text type completed. It could be said that the total experience gained from the interaction between students and their work as well as other students enabled them to write better. This correlated with what Graham (2018) has pointed out that a means for learning by doing involves learning by expansion of experience. Simply put, when constructing any texts, students search for the relevant information and engage in the act of reading. At that moment, students consider how a particular word, phrase, sentence, or structure is used to deliver the meaning. Consequently, students acquire knowledge of writing which is then applied to create their own text types.

Fourth, project-based writing instruction fostered students' writing ability through scaffolding. This is part of the concept of zone of proximal development (ZPD) proposed by Vygotsky (1978) that focuses on social interactions among learners. That is to say, when students have an opportunity to negotiate meaning with friends in groups and learn through dialogue, they can acquire the language from collaborative learning (Ferris & Hedgcock, 2014; Hyland & Hyland, 2006). In the field of second language writing, moreover, feedback is deemed crucial as one of the scaffolded learning techniques to foster students' development of their writing ability (Hyland & Hyland, 2006). In this study, students agreed that peer feedback played an important role to support them to write better. When they exchanged their writing and gave each other feedback, they read the feedback critically, wrote comments, and discussed the feedback in groups to clarify the unclear parts or researched more, which motivated them to polish their work to achieve the best possible results of their work. This concurs with previous studies (e.g., Farrah, 2012a; Fithriani, 2019; Visser & Sukavatee, 2020) emphasizing the importance of peer feedback on developing writing ability.

Lastly, project-based writing instruction developed students' writing ability through reflective journals. In this study, it was found that students believed that reflection was beneficial. They claimed that writing a reflective journal every week

allowed them to review the instructional handouts of the unit, recall what they had learned and experienced, and then reflected on new knowledge and skills gained from doing each activity of the project work. Similarly, Farrah (2012b) has indicated the positive effects of reflective journals on university students' writing skills, motivation, creativity, and critical thinking skills. Moreover, Hussein et al. (2020) agree that writing reflective journals should be implemented in a writing course to enhance students' writing ability. They also suggest that teachers could get students to write online reflective journals to improve creative writing.

Based on the aforementioned explanations, it could be concluded that students' writing development was shaped through the use of the model text, explicit instruction, the environment of collaborative learning, scaffolding, and writing reflective journals, all of which are influenced by the theory of learning by doing focusing on continuity and interaction and Vygotskian views. Therefore, it could be concluded that project-based writing instruction has proven to be an effective way of teaching to enhance students' writing ability. However, it is worth noting that there are certain problems that students encountered when trying to write paragraphs in project-based writing instruction, which are presented in the next section.

#### **5.3.1.1 Problems encountered by students when implementing project-based writing instruction**

This study found that students were able to construct their paragraphs well and develop their skills to write content and organize paragraphs the most, but they still had certain difficulties when it came to vocabulary, grammatical accuracy, and mechanics. These findings could be explained in the following section. The content and organization of students were developed significantly. This was probably because project-based learning consisting of the process and project gives the importance to planning and searching for relevant information to complete the project (Stoller, 2012), In so doing, students learn to be careful and make sure that the content and organization of their writing are accurate and they are put in a logical order. In terms of improvement of content, organization, vocabulary, grammatical accuracy, and mechanics, students who participated in the present study perceived that they were difficult and there was still room for improvement because of the following problems:

When writing, the students in this study found that they had problems with English vocabulary due to inadequate vocabulary knowledge. They had difficulty using words in their writing despite the fact that they knew the meanings of the words. Similarly, Dan et al. (2017) have reported that the usage of English words was not easy for students. Wrong choices of words are one of the most common mistakes found in paragraph writing because students have limited exposure to the usage of each word and know only basic definitions of the words. In this study, students struggled to select suitable words to use in their paragraphs. Moreover, they lacked knowledge of parts of speech, word formation such as prefixes and suffixes, and recall of vocabulary to use. Insufficient vocabulary knowledge could be a barrier that hinders students from producing a good piece of writing (Rodsawang, 2017).

As for problems with grammatical accuracy, the students made numerous grammatical mistakes in their paragraph writing. One plausible explanation is that students were familiar with a traditional way of teaching English that relies heavily on grammar instruction. As a result, students generally lack training in how to apply grammatical rules in written communication. They are more familiar with memorization of grammatical rules for multiple-choice tests. In brief, the grammar-translation approach is deemed ineffective for promoting communicative English as language cannot be learned in isolation, but in meaningful contexts instead (Frodesen & Holten, 2003).

Concerning problems with mechanics, students mentioned in the present study that using commas and periods correctly in English sentences was a struggle for them since they had never been taught punctuation marks in their high school. It was a new experience for them. Consequently, students lacked confidence to evaluate their own writing and their friends' writing when it came to mechanics. This could be a result of inadequate teaching (Dan et al., 2017). Moreover, it could have resulted from the fact that students applied their knowledge of the Thai language when writing their English texts. Since there are no periods at the end of sentences in Thai, students overlooked the necessity to use periods, resulting in a grammatical mistake called run-on sentences. This phenomenon is known as "interlingual interference," which is a result of language transfer caused by learners' first language (Brown, 1980).

In summary, the students encountered certain problems and obstacles when developing writing ability with project-based writing instruction. Such problems and obstacles may have been caused by a lack of exposure to English writing, traditional approaches of teaching, and language differences between the first language and the English language. In this study, the use of project-based writing instruction might not be able to improve vocabulary, grammatical accuracy, and mechanics of students to a satisfactory extent because the present study aimed to improve students' writing through the use of project work and the teacher did not have much time to focus on development of knowledge of vocabulary, grammatical accuracy, and mechanics while emphasizing the process of working on a project. Besides, the number of writing tasks depended on the number of projects, and in this study, students were required to write only four essays for four mini-projects and an essay for the final project, which may not have been sufficient for students to get exposure to writing. Therefore, to overcome these weaknesses of project-based learning, teachers can provide consistent support and make more resources available to increase input for students (Sumarni, 2015) which could enable students to further practice writing on their own.

### **5.3.2 The effects of project-based writing instruction on improvement of critical thinking skills**

The results from quantitative data and qualitative data revealed that students' critical thinking skills increased significantly after the implementation of project-based writing instruction in terms of analyzing, reasoning, evaluating, decision-making, and problem-solving skills. These positive results concurred with previous studies (e.g., Beckett & Miller, 2006; Efendi et al., 2020; Fatmawati, 2018; Gujral & Adipattaranan, 2018; Zhang, 2018) reporting that project-based learning helped promote critical thinking skills of students. Interestingly, the results gained from various research instruments including the pre- and post-tests, the stimulated recall, the attitude questionnaire, and the semi-structured interview protocol yielded similar findings despite some variations. That is to say, the results from the tests showed that students developed problem-solving skill the most, while they improved analyzing skill the least. Moreover, the qualitative data from the stimulated recall indicated that not only problem-solving but also decision-making improved more than other skills. Additional



findings from the attitude questionnaire showed that evaluating skills could be strengthened more than other critical thinking skills, while evaluating, decision-making, and problem-solving were developed most in students' opinions indicated in the semi-structured interviews. Based on these findings, it could be concluded that critical thinking skills of problem-solving, decision-making, and evaluating could be developed with project-based writing instruction.

There are four possible explanations for such findings. First, students did not have the same level of thinking due to different processes of socialization such as family, peer groups, and school (Luria, 1976). Second, according to Budsankom et al. (2015), intellectual characteristics of students have direct effects on their critical thinking skills. One student was able to analyze the scenario well, whereas the other could not do it until getting support from the teacher, for instance. In addition, topic familiarity is an important factor for critical thinking skill development. In this study, when students were familiar with a topic, situation, or problem, they would be more able to perform as they needed to rely on their cognition when constructing their pieces of writing. Such a finding was consistent with the finding reported by Indah (2017) that the topic familiarity could trigger critical thinking skills and affected writing performance. Lastly, out-of-class learning experience was found to be another factor influencing students' development of critical thinking skills. It was possible that students applied what they had learned outside class in their writing in addition to what the teacher had provided in class, which is beneficial for students without formal teaching of the teacher (Taber, 2018). These factors could help explain why students who received the same instruction developed different critical thinking skills differently and to a different extent.

There are different reasons why project-based writing instruction was found to have a positive effect on students' critical thinking skill development in this study, as discussed below:

First, project-based writing instruction made students think critically through questioning. In this study, the teacher had a set of questions and used them to guide students when they analyzed the organization and linguistic features of each particular text type. Questioning was employed in different activities throughout the instruction.

For example, there were guided questions for students to think and answer to practice thinking in the exercises, the mini-projects, the reflective journals, the evaluation, and in the final project. This teaching technique yielded good outcome as found in previous studies (e.g., Arend, 2009; Zhao et al., 2016), that questioning was positively related to critical thinking skills because it could stimulate students to think critically.

Second, project-based writing instruction fostered critical thinking through classroom discussion. In this study, shared writing was an activity designed to let the whole class and the teacher exchange ideas and help one another to complete exercises and activities. They would do many exercises such as learning the ways to construct the main elements of the paragraph and essential grammatical points together in the classroom. Also, students had a chance to practice searching for information on the Internet as part of working on the project work before presenting it to the class. Classroom discussion supports students to think of their own answers, present them to the class, learn alternative viewpoints, and interpret their friends' opinions (Hansen & Salemi, 2012).

Third, project-based writing instruction promoted students to think critically through the use of real-world tasks. In this study, project work was the highlight of the study that encouraged students to think critically. It provided an opportunity to let students engage in real-world tasks to solve problems. For example, when students received the scenario to conduct the project work, they were expected to analyze the causes of the problems in the given scenario, come up with the plans to solve them, and make a final decision. Through the process of working on the project work, students could be exposed to many sources and gain knowledge from involving in those activities. Consequently, students' critical thinking skills could be enhanced. Using real-world tasks to develop critical thinking skills was in line with the study conducted by Bean (2011) which documented that problem-centered writing assignments facilitated critical thinking rather than topic-centered ones. Therefore, it could be summarized that using real-world tasks played an important role to generate and grow ideas.

Fourth, project-based writing instruction including searching for information as part of the process of doing project work enhanced students' critical thinking skills. To produce a text for the project, students searched for information and took time to

analyze and evaluate the credibility of the sources. Students reported that they gathered a lot of information from different websites, compared and contrasted different information, and selected it to use in their writing carefully. By doing so, it encouraged them to think critically. This result was consistent with what Fisher (2011) has indicated. He regarded critical thinking as a vital skill when using the Internet to get information “since anyone can put anything on the Internet, it can be very difficult to distinguish good sources of information from poor ones—to separate the wheat from the chaff—to find credible, reliable, and authoritative sources of information, and to do this reasonably quickly” (p. 184). In addition, such findings were in line with the study of Al Sharadgah (2014) who investigated the effectiveness of an Internet-based writing program on improving students’ critical thinking skills. He found that students in the experimental group could develop their critical thinking skills better than those in the control group due to engagement in thinking critically when searching for information on a given topic, when learning in the environment of collaboration, when using the writing process, and when receiving the writing tasks stimulating critical thinking. Therefore, the writing process should be promoted as a means of engaging students in critical thinking.

Fifth, project-based writing instruction supported students’ critical thinking skills through collaborative learning. In this study, almost all of the activities students participated in allowed them to work together, especially doing the project work. Each stage of working starting from planning to evaluating the project boosted up collaboration. In this learning environment, students worked together with fun, shared each other’s success, dared to give feedback for better solutions and outcomes for their project, and encouraged one another to accomplish the learning outcomes (Johnson et al., 1994). Such engagement brought about students’ learning and fostered their critical thinking. In the same vein, Chitchuen and Sanpatchayapong (2016) found that the process of project-based learning promoted students’ development of reading comprehension and collaborative learning where students could make decision, share work and responsibilities, solve problems, and learn how to work with other people, and this eventually led to critical thinking development. Likewise, Ghavifekr (2020) asserted that collaborative learning stimulated students’ critical thinking, and students

were satisfied with this kind of learning environment. Therefore, collaboration could be one of the factors to build critical thinking of language learners.

Sixth, project-based writing instruction supporting social interaction through peer feedback enhanced critical thinking of students. In this study, students agreed that peer feedback could nurture their critical thinking skills. When students received or offered feedback, they opened the floor for communication and discussion, and their critical thinking skills were called for to analyze the overall texts of their friends, explain the reasons why they wrote such comments, judge whether their friends' writing was strong or weak, and decide if the comments were reliable. In so doing, social interaction was enhanced. Students were not only engaged in critical thinking when responding to friends' writing (Ferris & Hedgcock, 2014), but they also interacted with one another to discuss strengths and weaknesses of their work and exchanged ideas. It was then deemed a social activity that allowed students to learn from others and be exposed to multiple perspectives within their group (Moon, 2008). As Vygotsky (1978) has proposed, learning a language involves communication with other people which could support interpersonal communication that enable individuals to move to the process of internalizing, which promotes the higher-order thinking process. The findings were in the line with what Okita (2012) has explained, indicating that peer learning is one of the effective means to enhance social interaction which plays a significant role in learning and thinking skill development.

Seventh, project-based writing instruction enabled students to engage in the process of trials and errors, which fostered critical thinking. In this study, the process of conducting the project allowed students to encounter problems and required them to find solutions to overcome them. While working on the project, there were many issues and problems students encountered. For example, the number of group members was not enough to do a role-play. To solve this problem, students came up with alternatives and tried them out until they got the desired solution, which was using technology as a tool to help them solve the problems wisely and creatively. In doing so, it could be seen that the process of learning by trials and errors promoted students' critical thinking skills, especially problem-solving. Snyder and Snyder (2008) claim that learning should be designed to let students discover information and solve problems through trials and errors by themselves, and this facilitates critical thinking. McPeck (1981) affirms that

critical thinking could be shaped through problem-solving. Thus, it could be summed up that project-based writing instruction was heuristic teaching that supported the development of critical thinking skills of students.

Eighth, project-based writing instruction enabled students to think critically through assessment activities. In this study, students had a chance to evaluate their own and their friends' writing products with reasons to support their evaluation, and this forced them to think critically. In so doing, students learned how to analyze, reason, evaluate, make decisions, and solve problems. Such activities were important for promotion of critical thinking skill of evaluation, as confirmed by Boss and Krauss (2007), Busciglio (2016), Larmer (2020), Stoller (2012), and Thomas (2000).

Lastly, project-based writing instruction developed students' critical thinking skills through the use of reflective journals. This study found that most students perceived the helpfulness of writing a reflective journal to promote their critical thinking skills when they reflected on their language use, paragraph contents, and experience they had through their writing. Such an activity allows students to stop, think, and reflect, which is a process of psychological development (Vygotsky, 1978). These findings corresponded with the studies of Xhaferi and Xhaferi (2017) and Vong and Kaewurai (2017) who included writing a reflective journal to promote students' critical thinking skills and found that students developed positive attitudes from writing a reflection. Therefore, based on a realization that critical thinking skills can be derived from reflective writing, Moon (2008) and Colley et al. (2012) encourage teacher to integrate reflective writing assignments in the writing course to promote deeper understanding about what have been learned and foster critical thinking.

By and large, with all of these aforementioned explanations, it could be concluded that the implementation of project-based writing instruction is promising to promote students' critical thinking skills.

### **5.3.3 Thai EFL students' attitudes towards project-based writing instruction**

According to the study findings, most of the students in this study had positive attitudes toward the use of project-based writing instruction. In the attitude questionnaire, they, for the most part, agreed with statements showing positive

attitudes. In addition, the data obtained from the semi-structured interview protocol and students' reflective journals yielded similar findings. The findings regarding students' attitudes toward project-based writing instruction are divided into six topics: teaching plans, contents, assessments, instructional materials, application of knowledge and skills, and advantages and disadvantages of project-based writing instruction.

### **Teaching plans**

The study findings revealed that students had positive attitudes towards teaching plans of project-based writing instruction. Taber (2018) has mentioned that teaching is the activity provided for students to bring about their learning. Therefore, designing the activity should be carefully done. Project-based writing instruction was created in this study following Vygotsky's developmental theory and the idea of the zone of proximal development (ZPD) focusing on the scaffolding instruction and the key elements of project-based learning proposed by Larmer (2020).

In this study, there were three main stages of teaching: planning the project, developing the project, and evaluating the project. All of these three stages satisfied students very well. They stated that project-based writing instruction was a systematic and active teaching approach, which enabled them to see the clear objectives and reach the goals more easily with enjoyment. These positive attitudes could be explained that given the importance of characteristics and key elements of project-based learning, the model of project-based writing instruction gave the real-world tasks as the projects that students had to complete. In trying to complete the project, students were urged to learn and work actively, resulting in development of their language learning and critical thinking. To give more details, when students received challenging scenarios that were real-world tasks, they had to think and come up with their products and presentations. This could create the sense of ownership in students. Then they had freedom to question, seek information, create, revise, and present their work to the audience, after which they had the opportunity to reflect on what they had done and learned. Through this process, students worked with peers and with the teacher who was on a stand-by for help, and students may have also experienced the feeling of fun as well. Such findings were in congruence with those reported by Wongdaeng and Hajihama (2018) that students had positive attitudes towards project-based learning since the project

work enabled them to work actively with enjoyment with their friends. Moreover, previous studies undertaken by Hovardas et al. (2014) and Van de Pol et al. (2010) have demonstrated that scaffolding from peer and teachers played a significant role to support students' learning.

### **Contents**

This study revealed that students had positive attitudes towards the contents of project-based writing instruction. Thailand was the big theme applied in the study to provide the opportunity for students to explore how to cook Thai dishes and describe Thai tourist attractions of each region, Thai festivals, Thai hotels, Thai restaurants, etc. Students found such activities enjoyable, and they also gained new knowledge about the aforementioned topics while searching for the relevant information necessary for their project work. They claimed that they could explore local cultures and gain more cultural knowledge, which inspired them to study more about their own culture. It was obvious that the contents relevant to students' lives interested students to engage in learning well. In the same vein, Puakprom (2016) found that cultural lessons related to students' culture or community increased students' interest and motivation to learn English more since students realized the importance of their own culture and would like to improve their language skills to be used in the future. This idea is then seen as an important starting point to develop students' intercultural awareness as Baker (2012) has claimed that everyone has their own culture and uses it as a vital base of knowledge in general communication. Knowledge, skills, and attitudes developed by language learners as well as their cultural awareness can be utilized in understanding specific cultures and in communicating across diverse cultures. All of these are essential to undertake successful intercultural communication. Therefore, an incorporation of local cultures into an English course is recommended.

### **Assessment**

This study revealed that students had positive attitudes towards assessments of project-based writing instruction. Students agreed that using all forms of assessment in this study gave them positive outcomes in terms of their improvement of writing ability and critical thinking skills. The findings concurred with previous studies. For example,

Vasu et al. (2016) found that students were satisfied with the combination of self-assessment, peer assessment, and teacher assessment. Even though students perceived all feedback as highly useful, teacher feedback was perceived to be the most powerful, especially explicit feedback the teacher provided to students, while peer feedback was perceived to be the least useful. Moreover, students had positive attitudes toward the use of self-assessment in the writing class. Another positive effect of combined peer-teacher feedback on Thai students' writing accuracy was supported by Nguyen (2018). The results showed that peer-teacher feedback played an important role to reduce students' writing errors and make substantial contributions to students' progress on writing accuracy. In addition, Seenak and Adunyarittigun (2019) found the effectiveness of incorporating self-assessment and peer assessment to foster Thai EFL students' intonation learning. The researchers found that these two forms of assessment benefited students because of self-reflections and interactions with peers.

However, among three forms of assessments, students totally agreed they trusted the feedback from the teacher and highly valued it the most. Similarly, Barr and Chinwonno (2016) and Maarof et al. (2011) have reported that teacher feedback was perceived to be the most crucial for students. It was because 1) students believed that teacher feedback was helpful for their progress on writing ability; 2) students valued and appreciated teacher feedback that served all aspects; 3) students felt frustrated when receiving confusing feedback such as symbols, circles, single-word comments, and unclear questions that were difficult to revise their texts; and 4) students felt satisfied when getting the combination between encouragement and constructive criticism for development (Ferris & Hedgcock, 2014).

### **Instructional materials**

The findings revealed that students had positive attitudes towards instructional materials used in this study. Project-based writing instruction was designed following the concept of scaffolding, so all materials were carefully chosen as Taber (2018) has suggested that the teacher who would like to implement scaffolding instruction in any courses should design and prepare materials that could facilitate students' development and foster students to be an independent learner. In this study, students agreed that materials such as handouts, self-check forms, peer review checklists, scoring rubrics,



students' reflective journals, and YouTube video clips were useful for them to help develop their writing ability and critical thinking skills, and they were easy to use. As for YouTube video clips, because of their authenticity, they offered a good resource to provide authentic contents for students to learn and to explore how to organize ideas, select appropriate words for their writing, and acquire some grammar points. Such findings were congruent with the study of Ulla et al. (2020), which found that YouTube was one of Internet-based applications effective in English language teaching. The teacher could use YouTube for listening assessment or start the class and let students discuss what they have listened to and watched on YouTube.

### **The application of knowledge and skills**

This study showed that implementation of project-based writing instruction supported students to apply what they had learned such as steps of working on the project work, knowledge of writing ability, and critical thinking process from this course in other English courses. Such a finding was similar to the findings reported in a previous study conducted by Siritaratn (2007) that students agreed that the method of doing a project from the English oral communication course could be applied in other courses. Furthermore, students pointed out that they could use critical thinking skills in their everyday life such as when they bought something or when they had to select an elective course at the university. This was an ability that resulted from learning how to make decisions along the process of working on the projects. As Stoller (2006). (2006) has pointed out, the use of project-based learning could improve decision-making and build students to become better decision makers.

### **Advantages and disadvantages of project-based writing instruction**

Based on the findings, students expressed their opinions that project-based writing instruction came with both pros and cons. With reference to students' attitudes towards advantages of working on the project work, the results indicated that project-work writing instruction could promote writing ability, critical thinking skills, as well as other affective factors such as students' self-esteem. It also enhanced collaborative learning, responsibilities, creativity, confidence in giving a presentation, leadership, adaptability, technology skills, self-discovery, motivation, and pride in terms of the

sense of ownership. These findings were consistent with findings of previous studies. For instance, Newprasit and Seepho (2015) found that students had positive attitudes toward the implementation of project-based learning since it not only increased English language competency in listening, speaking, reading, and writing, but it also improved the environment of working in groups, which in turn fostered their responsibilities. Likewise, Affandi and Sukyadi (2016) have reported that students' higher writing achievement, students' improved critical thinking skills, and students' motivation increased after teaching through project-based learning. Astawa et al. (2017) have also pointed out that through the implementation of project-based learning, students could increase their enthusiasm, confidence in presenting their work, creativity, self-esteem, and collaborative learning. By the same token, Yimwilai (2020) investigated the effects of project-based learning on critical reading and 21<sup>st</sup> century skills in an EFL classroom. She discovered that using project-based learning helped promote students' critical reading skills and other essential skills such as collaboration skills, IT skills, and communication skills. Students perceived that project-based learning increased their self-esteem development as well. Finally, Ghobrini (2020) claimed that the use of project-based learning could aid students to improve essential professional skills such as leadership, public speaking, time management, and interpersonal skills.

Despite a number of advantages of project-based writing instruction claimed by students, project-based writing instruction was also found to be disadvantageous for some students in terms of time-consuming procedures, stress, heavy workloads, and difficulty in negotiation with friends, which were similar to what was previously reported in the studies of Siritaratn (2007), Sumarni (2015), and Affandi and Sukyadi (2016) stating that project-based learning required a lot of time to complete the project work. It was also stressful (Siritaratn, 2007), and came with full loads of work (Brown, 2020; Harmer & Stokes, 2014). Besides, there was some difficulty in negotiation and compromise, especially for students who had just met and never worked together (Sumarni, 2015). Therefore, it is worth noting that the teacher should provide students with clear objectives of each assignment, sufficient explanation of how to carry out the assignment, and offer guidance to minimize stress and anxiety on part of students. The teacher should always stand by to support students throughout the course.

All in all, due to its teaching plans, contents, forms of assessment, instructional materials, and application of knowledge and skills in other areas, students had positive attitudes towards project-based writing instruction. Even though there were some drawbacks of project-based writing instruction mentioned by students, it was not beyond the teacher's ability to help students overcome such drawbacks. The findings of this study clearly supported the conclusion that benefits of project-based writing instruction outweighed the drawbacks claimed by students.

#### **5.4 Implications of the findings**

The findings of this study highlighted that the implementation of project-based writing instruction yielded students' improvement of writing ability and critical thinking skills at a significant level, and it also satisfied students. Based on such findings, the following implications can be recommended for teachers who would like to try out project-based writing instruction to develop their students' writing ability and critical thinking:

First, project-based writing instruction was considered effective to promote students' writing ability and critical thinking. However, it was found that students still had some difficulties related to their knowledge of vocabulary, grammar, and mechanics. Therefore, it is recommended that the instructor should be aware of their students' language proficiency before designing the lesson plans. In case students' vocabulary, grammar, and mechanics are not strong, extra support is needed to ensure that they would not obstruct students' efforts to do project work to develop their writing and critical thinking.

Second, teacher scaffolding and peer scaffolding play a vital role in students' success in the improvement of writing ability and critical thinking. Throughout the course, the instructor should provide consistent support such as helping students to use all instructional materials, guiding them on what to focus on in their learning, and suggesting alternatives to overcome all problems and obstacles students face. Moreover, peer scaffolding, which promotes a variety of domains such as interaction, collaborative learning, sharing responsibilities and ideas, and facilitating students' problem-solving processes, is another factor to assist students to achieve their goals.

However, the proficiency levels of students in each group should be taken into account because students who are at a lower level of language proficiency may feel that they become a burden to their friends who have a higher level of proficiency.

Third, the combination of self-assessment, peer assessment, and teacher assessment should be included since project-based learning is vital to focus on not only the product, but also the process of learning. If students have a chance to be exposed to different forms of assessments, they should have more chances to develop their writing ability and critical thinking skills as they are going through a process of writing, idea sharing, analyzing, and evaluating while working both individually and collaboratively with the teacher and their peers.

Fourth, in this study, students claimed that conducting four mini-projects and a final project together with writing a reflective journal every week constituted a very heavy workload for them. They caused stress and pushed them to work frantically to get all work completed in time. To prevent this, the teacher needs to carefully consider the number of mini-projects and final project and allowing students to select only the projects that interest them. Put another way, teachers should make sure that students have sufficient time to create their project work more effectively, focusing on quality rather than quantity. As for a reflective journal, it is recommended that it be included in the assignment, but the teacher should carefully consider the frequency of writing a reflective journal. Also, students should be allowed to have freedom to reflect on what they have learned without a word limit and without a restriction in the language they can use to relieve the sense of burden the students may experience.

Lastly, the role of technology should be taken into account when students are involved in the process of working on project work, especially when searching for relevant information on the Internet and creating each product. Therefore, the teachers need to ensure that there is enough facility for students to utilize. If students lack facilities and equipment to learn and achieve their goals, their improvements on writing ability and critical thinking skills may not be fully achieved.

### 5.5 Limitations of the study

There are certain limitations of the study which were worth mentioning as follows:

First of all, the research design utilized in this study was a one-group, pre-test post-test design. There were some threats to validity in terms of history and testing. Without the control group to compare the results from the pre-test and post-test, it may be difficult to confirm with confidence whether students' improvement came from the treatment effect or not since the students were also enrolled in another English course in the same semester. In other words, the students received formal English instruction and had more exposure to the English language outside this course. Moreover, the use of pre-test and the post-test may have resulted in undesirable practice effects as well.

Second, only 24 first-year undergraduate students participated in this study, which was deemed to be a rather small sample size. Therefore, the findings could not be generalized to other groups of language learners in other contexts of learning.

Finally, this study was conducted for 15 weeks. With this time constraint, it might be impossible to see the full development of students' writing ability and critical thinking skills after the treatment.

### 5.6 Recommendations for future research

The following recommendations are made for those who wish to conduct research on project-based writing instruction in the future:

Firstly, a true experimental design with a control group and randomization should be carried out to better determine the effectiveness of project-based writing instruction on improvement of students' writing ability and critical thinking skills. A comparison of the pre-test and post-test scores from the experimental group and the control group should enable researchers to determine the effectiveness of project-based writing instruction with more confidence.

Secondly, research should be undertaken with different student populations such as non-English major students in other settings so as to gain better understanding

of effectiveness of project-based writing instruction when implemented with students with different demographic characteristics and language backgrounds.

Last but not least, a longitudinal study should be undertaken to examine the long-term effects of project-based writing instruction on developments of students' writing ability and critical thinking skills to gain more empirical evidence to support further implementation of project-based writing instruction.



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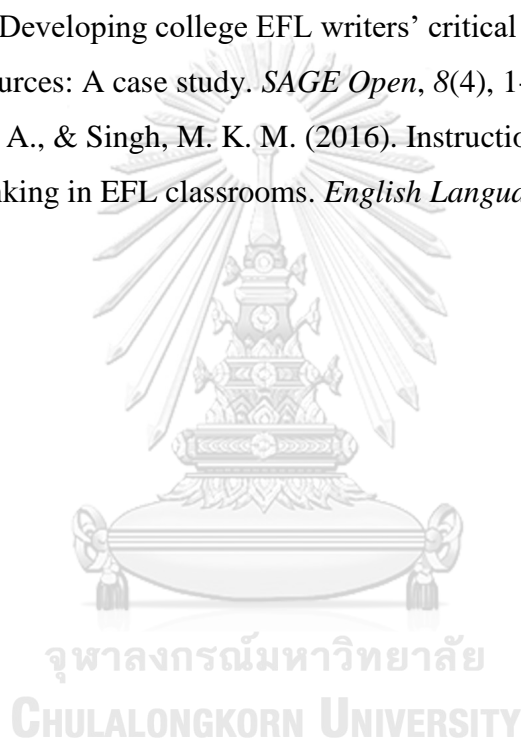
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## Appendix A: The results of a learner survey

### The results of a learner survey

To know learners' needs and design the instructional model, the mini-learner survey was distributed to 40 students. Here were the results of the topics students were interested in. They indicated that entertainment, business, travel, and food were the most attractive for students.

Rank	Topics of interest	Frequency	Percent
1	Entertainment (music and movie)	27	16.87
2	Business	19	11.87
3	Travel	15	9.37
4	Food	14	8.75
5	History	13	8.12
6	Vacation	11	6.87
	Daily life	11	6.87
7	Culture	9	5.62
	Future career		
8	Language	7	4.37
9	University	5	3.12
10	Friend	4	2.50
11	Health	3	1.87
	Science and Technology		
	Sport		
	Environment		
12	Family	2	1.25
13	Social issues	1	0.62
	World		
14	Nature	0	0.00



## Appendix B: Scope and sequence of the project-based writing instruction (PWI)

### Scope and sequence of the project-based writing instruction (PWI)

Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
				Writing	Critical thinking	
1				<ul style="list-style-type: none"><li>- Students take the pre-writing and critical thinking test of procedures and descriptions.</li><li>- Teacher introduces the course and the process of Project-based Writing Instruction.</li><li>- Students form groups of 3 students each.</li><li>- Teacher gives a driving question “<i>What will you do if you want to promote Thailand for foreigners?</i>” to let students think about the final project as homework.</li></ul>		<ul style="list-style-type: none"><li>- The pre-writing and critical thinking test of procedures and descriptions</li></ul>
Week 1: Teacher drives a question “What will you do if you want to promote Thailand for foreigners?” to let students come up with ideas for the final project.						







Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
				Writing	Critical thinking	
5	2(1) Writing a descriptive paragraph (Let's go!)	Creating a booklet	Planning the project	<p><b><u>Warm-up</u></b></p> <ul style="list-style-type: none"> <li>- Teacher warms up students with guiding questions to activate their background knowledge.</li> </ul> <p><b><u>Reading a model text</u></b></p> <ul style="list-style-type: none"> <li>- Students read the model text of the descriptive paragraph.</li> </ul> <p><b><u>Learning content and language</u></b></p> <ul style="list-style-type: none"> <li>- Teacher teaches what a descriptive paragraph is and lets students practice doing exercises regarding the organization and language features of procedures.</li> </ul> <p><b><u>Shared writing</u></b></p> <ul style="list-style-type: none"> <li>- Teacher introduces the writing process to students.</li> <li>- Students practice doing exercises and using the writing process and a writer's self-check form with teacher and friends.</li> </ul> <p><b><u>Receiving a scenario</u></b></p> <ul style="list-style-type: none"> <li>- Teacher gives students a scenario of the unit.</li> <li>- Students work in groups, discuss the scenario, and determine the final outcomes.</li> <li>- Students set their roles and write an outline for their project plan and timetable.</li> </ul> <p><b><u>Outside the class</u></b></p> <ul style="list-style-type: none"> <li>- Students write their reflective journals.</li> </ul>	<p><b><u>Analyzing</u></b></p> <ul style="list-style-type: none"> <li>- Students analyze warm-up questions, the model text of the descriptive paragraph considering the organization and the language focus, and the scenario.</li> </ul> <p><b><u>Decision making</u></b></p> <ul style="list-style-type: none"> <li>- Students help one another to make a decision and choose the best region for their group.</li> </ul> <p><b><u>Problem solving</u></b></p> <ul style="list-style-type: none"> <li>- Students define the problem from the given scenario.</li> </ul>	<ul style="list-style-type: none"> <li>- Observation</li> <li>- Writing exercises</li> <li>- Students' reflective journal</li> </ul>

Week 5 (Developing the project): Students collect information.

Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
				Writing	Critical thinking	
6	2(2) Writing a descriptive paragraph (Let's go!)	Creating a booklet	Developing the project	<i>Outside the class</i>	<b>Reasoning</b> - Students give reasons why they select that province. - Students give reasons and explanations when they provide feedback to their friends. - Students give reasons why they select that booklet design.	<ul style="list-style-type: none"><li>- A writer's self-check form</li><li>- A descriptive paragraph of tourist attractions for one day trip</li><li>- Observation</li><li>- Writing exercises</li><li>- A peer review checklist</li><li>- Scoring rubric</li><li>- Students' reflective journal</li></ul>
				<b>Independent writing</b> - Students write their own descriptive paragraph following the writing process.		
				<b>Collaborating writing</b> - Teacher reviews the lessons and demonstrates how to use a peer review checklist. - Students sit in groups. - Students send the first draft of the descriptive paragraph to their partner to receive feedback. - Students receive peer feedback, revise, and edit their first draft. - Students vote for the best writing in their group and make a revision to get the best version. They may write collaboratively to get the new version if desired. - Students send all drafts of the descriptive paragraph to teacher. - There is a student-teacher conference.	<b>Evaluating</b> - Students consider the credibility of the sources of information. - Students compare and contrast the data. - Students evaluate the reliability of peer feedback. - Students use their evaluating when voting for the best writing of their group.  <b>Decision making</b> - Students make a decision about the best sources of information used in their writing, the best writing of their group, and the best booklet design.  <b>Problem solving</b> - Students define the problems they may have, think of many alternatives, and find the best solution.	
				<i>Outside the class</i>	<b>Creating a product</b> - Students discuss the booklet design and create it. - Students write their reflective journals.	
Week 6 (Developing the project): Students collect information.						







Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
10	3(2) Writing a narrative paragraph (It's movie time!)	Creating a poster	Developing the project	<b>Writing</b>	<b>Critical thinking</b>	<ul style="list-style-type: none"><li>- A writer's self-check form</li><li>- A narrative paragraph of synopsis</li><li>- Observation</li><li>- Writing exercises</li><li>- A peer review checklist</li><li>- Scoring rubric</li><li>- Students' reflective journal</li></ul>
				<b><i>Outside the class</i></b> <b><u>Independent writing</u></b> <ul style="list-style-type: none"><li>- Students write their own narrative paragraph following the writing process.</li></ul>	<b><u>Reasoning</u></b> <ul style="list-style-type: none"><li>- Students give reasons and explanations when they provide feedback to their friends.</li><li>- Students give reasons why they select that poster design.</li></ul>	
				<b><u>Collaborating writing</u></b> <ul style="list-style-type: none"><li>- Teacher reviews the lessons and demonstrates how to use a peer review checklist.</li><li>- Students sit in groups.</li><li>- Students send the first draft of the narrative paragraph to their partner to receive feedback.</li><li>- Students receive peer feedback, revise, and edit their first draft.</li><li>- Students vote for the best writing in their group and make a revision to get the best version. They may write collaboratively to get the new version if desired.</li><li>- Students send all drafts of the narrative paragraph to teacher.</li><li>- There is a student-teacher conference.</li></ul>	<b><u>Evaluating</u></b> <ul style="list-style-type: none"><li>- Students consider the credibility of the sources of information.</li><li>- Students compare and contrast the data.</li><li>- Students evaluate the reliability of peer feedback.</li><li>- Students use their evaluating when voting for the best writing of their group.</li></ul> <b><u>Decision making</u></b> <ul style="list-style-type: none"><li>- Students make a decision about the best sources of information used in their writing, the best writing of their group, and the best poster design.</li></ul>	
				<b><i>Outside the class</i></b> <b><u>Creating a product</u></b> <ul style="list-style-type: none"><li>- Students discuss the poster design and create it.</li><li>- Students write their reflective journals.</li></ul>	<b><u>Problem solving</u></b> <ul style="list-style-type: none"><li>- Students define the problems they may have, think of many alternatives, and find the best solution.</li></ul>	

Week 10 (Developing the project): Students develop the final project.



Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
				Writing	Critical thinking	
12	4(1) Writing a persuasive paragraph (Tell me what you think!)	Creating a review	Planning the project	<p><b>Warm-up</b></p> <ul style="list-style-type: none"> <li>- Teacher warms up students with guiding questions to activate their background knowledge.</li> </ul> <p><b>Reading a model text</b></p> <ul style="list-style-type: none"> <li>- Students read the model text of the persuasive paragraph.</li> </ul> <p><b>Learning content and language</b></p> <ul style="list-style-type: none"> <li>- Teacher teaches what a persuasive paragraph is and lets students practice doing exercises regarding the organization and language features of procedures.</li> </ul> <p><b>Shared writing</b></p> <ul style="list-style-type: none"> <li>- Teacher introduces the writing process to students.</li> <li>- Students practice doing exercises and using the writing process and a writer's self-check form with teacher and friends.</li> </ul> <p><b>Receiving a scenario</b></p> <ul style="list-style-type: none"> <li>- Teacher gives students a scenario of the unit.</li> <li>- Students work in groups, discuss the scenario, and determine the final outcomes.</li> <li>- Students set their roles and write an outline for their project plan and timetable.</li> </ul>	<p><b>Analyzing</b></p> <ul style="list-style-type: none"> <li>- Students analyze warm-up questions, the model text of the persuasive paragraph considering the organization and the language focus, and the scenario.</li> </ul> <p><b>Decision making</b></p> <ul style="list-style-type: none"> <li>- Students help one another to make a decision and choose the best region for their group.</li> </ul> <p><b>Problem solving</b></p> <ul style="list-style-type: none"> <li>- Students define the problem from the given scenario.</li> </ul>	<ul style="list-style-type: none"> <li>- Observation</li> <li>- Writing exercises</li> <li>- Students' reflective journal</li> </ul>
Week 12 (Developing the project): Students develop the final project.				<p><b>Outside the class</b></p> <ul style="list-style-type: none"> <li>- Students write their reflective journals.</li> </ul>		

Week	Unit	Mini-project	Stage of PWI	Teaching procedure		Assessment
				Writing	Critical thinking	
13	4(2) Writing a persuasive paragraph (Tell me what you think!)	Creating a review	Developing the project	<b>Outside the class</b> <b>Independent writing</b> - Students write their own persuasive paragraph following the writing process.	<b>Reasoning</b> - Students give reasons and explanations when they provide feedback to their friends. - Students give reasons why they select that review design.	- A writer's self-check form - A persuasive paragraph of reviewing one topic for TripAdvisor - Observation - Writing exercises - A peer review checklist - Scoring rubric - Students' reflective journal
				<b>Collaborating writing</b> - Teacher reviews the lessons and demonstrates how to use a peer review checklist. - Students sit in groups. - Students send the first draft of the persuasive paragraph to their partner to receive feedback. - Students receive peer feedback, revise, and edit their first draft. - Students vote for the best writing in their group and make a revision to get the best version. They may write collaboratively to get the new version if desired. - Students send all drafts of the persuasive paragraph to teacher. - There is a student-teacher conference.	<b>Evaluating</b> - Students consider the credibility of the sources of information. - Students compare and contrast the data. - Students evaluate the reliability of peer feedback. - Students use their evaluating when voting for the best writing of their group.  <b>Decision making</b> - Students make a decision about the best sources of information used in their writing, the best writing of their group, and the best review design.	
				<b>Outside the class</b> <b>Creating a product</b> - Students discuss the review design and create it. - Students write their reflective journals.	<b>Problem solving</b> - Students define the problems they may have, think of many alternatives, and find the best solution.	

Week 13 (Developing the project): Students develop the final project.



## Appendix C: The lesson plans of Unit 1

### The lesson plans of Unit 1

**Unit 1:** Writing a procedural paragraph

**Lesson:** Let's cook!

**Week:** 2-4

**Stage:** Planning the project

**Duration:** 3 periods (3 hours/ period)

**Learning outcomes:**

- Students can explain what a procedural paragraph is.
- Students can identify and analyze the organization of the procedural paragraph.
- Students can identify and analyze the language focus of the procedural paragraph.
- Students can use the writing process such as prewriting, drafting, revising, editing, and publishing to write a procedural paragraph.
- Students can research related information to write the content in their brochures.
- Students can work collaboratively to complete their brochures.
- Students can create their brochures of how to cook food.
- Students can present their brochures.

**Background knowledge:**

- Introduction to writing a paragraph
- Characteristics of good writing
- Grammar: Subject and verb agreement, Present simple tense, Type of sentences, Sentence fragments, Run-on sentences, Capitalization, Punctuation marks

**Materials:**

- A computer connected to the Internet
- A projector
- PowerPoint

- YouTube (<https://www.youtube.com/watch?v= TIqdORNoug>)
- Handouts
- Worksheets
- Examples of brochures
- A writer's self-check form
- A peer-review checklist
- A Post-it Note
- Scoring rubrics
- Student's reflective journal
- Form of project work report

**Content:**

- Organization of a procedural paragraph
- Time-order signals in a procedural paragraph
- Imperative sentences
- Modal verbs
- Writing process

**Assessment / Evaluation:**

- Students write a summary of writing a procedural paragraph.
- Students write a procedural paragraph using the writing process: prewriting, drafting, revising, editing, and publishing.
- Students are engaged in class and group discussion.
- Students work in groups and present their brochure of how to cook food.
- Students evaluate friends' procedural paragraphs and the design of brochure and provide feedback for one another.
- Students write their reflective journals.
- Students write their form of project work report stating the topic, the final outcomes, the product, the project plan, and sources of information.


**Role:**

- |          |  |
|----------|--|
| Teacher  | - Discussion leader, facilitator, coach, evaluator                         |
| Students | - Students, summarizers, thinkers, writers, editors, presenters, evaluator |






Procedures	Objectives
	students to understand the content before learning the content and language focus.
<p><b><u>Activity 3: Learning content and language (40 minutes)</u></b></p> <p>4. Teacher teaches students about a procedural paragraph and the organization of the procedural paragraph using the PowerPoint.</p> <p>5. Teacher asks the following questions to have students analyze the model text and then shows the answers on the PowerPoint.</p> <p style="padding-left: 40px;">Q1. What is the topic?</p> <p style="padding-left: 40px;">Q2. What is the purpose of this paragraph?</p> <p style="padding-left: 40px;">Q3. What is the topic sentence of this paragraph?</p> <p style="padding-left: 40px;">Q4. List eight steps of boiling eggs.</p> <p style="padding-left: 40px;">Q5. What is the concluding sentence?</p> <p>6. Teacher asks the following questions to have students analyze the language focus of the model text.</p> <p style="padding-left: 40px;">Q1. Can you give me some examples of time-order signals from the model text?</p> <p style="padding-left: 40px;">Q2. Why do you need to use time-order signals in a procedural paragraph?</p> <p style="padding-left: 40px;">Q3. Can you tell me the words used to describe the steps of boiling eggs?</p> <p style="padding-left: 40px;">Q4. What is the part of speech of these words?</p>	<p>1. This activity trains students to identify and analyze the organization and the language focus of the procedural paragraph.</p> <p>2. This activity helps students to summarize about writing a procedural paragraph.</p>

Procedures	Objectives						
<p>Q5. What structure do you use to explain the steps of boiling eggs?</p> <p>7. Teacher asks students to summarize the organization of the procedural paragraph and then fill out the information in the table in the PowerPoint.</p> <div> <p><b>ORGANIZATION IN A PROCEDURAL PARAGRAPH</b></p> <p>A procedural paragraph consists of three parts: a topic sentence, supporting sentences, and a concluding sentence.</p> <table border="1"> <tr> <td><b>A topic sentence</b></td><td> <ul style="list-style-type: none"> <li>The topic sentence introduces the topic and tell the reader to look for</li> <li>The words such as _____ and suggestions are used in the paragraph.</li> </ul> <p>Ex: Use this step-by-step process to boil your eggs perfectly.</p> <p>These simple instructions clearly show how to boil your eggs perfectly.</p> </td></tr> <tr> <td><b>Supporting sentences</b></td><td> <ul style="list-style-type: none"> <li>The supporting sentences are the steps and details about each step in the process.</li> <li>_____ should be included to guide the reader from step to step.</li> </ul> <p>Ex: First, put the eggs in the saucepan.</p> <p>Next, tap the cooked eggs gently.</p> <p>The last step is to serve the eggs with noodles.</p> </td></tr> <tr> <td><b>A concluding sentence</b></td><td> <ul style="list-style-type: none"> <li>The concluding sentence can mention the topic again to remind the reader what the paragraph is about.</li> <li>It can sum up the results of following the whole process.</li> </ul> <p>Ex: You have now boiled egg to enjoy with any kinds of foods</p> <p>With these easy steps, you will get the perfectly boiled eggs.</p> </td></tr> </table> </div> <p>8. Teacher asks students to wrap up the language focus of the procedural paragraph.</p> <p>9. Teacher asks students to work with their friends to write the topic sentences, identify and use time-order signals, and identify imperative verbs together with modal verbs in the worksheet.</p> <div> <p><b>Write a topic sentence.</b></p> <ul style="list-style-type: none"> <li>How to fry eggs without oil</li> <li>How to make American breakfast</li> <li>How to make pancakes</li> <li>How to make rice balls in sweet coconut milk</li> <li>How to make pizza</li> <li>How to make Tom Yum Soup with prawns</li> </ul> <p>Ex: You can boil eggs in ten minutes by following these simple steps.</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>➤ Anyone can _____ by taking these steps.</p> <p>➤ It is easy to _____ if you _____.</p> <p>➤ Follow these instructions to _____.</p> <p>➤ To _____ just _____.</p> <p>➤ These simple directions show how to _____.</p> </div> <div> <p>Identify the imperative verbs.</p>  <p><b>How to make a grilled cheese sandwich</b></p> <p>This is how to make a grilled cheese sandwich. _____ First of all, _____ prepare two slices of bread. Second, _____ spread butter on each slice of bread and place it in a hot skillet. Then _____ place a slice of cheese on the bread and the second slice of bread on top. The next step is to _____ by the sandwich on both sides until it turns golden brown. At the end, _____ cut it in half and _____ eating it. Now you know how to make a delicious grilled cheese sandwich.</p> </div>	<b>A topic sentence</b>	<ul style="list-style-type: none"> <li>The topic sentence introduces the topic and tell the reader to look for</li> <li>The words such as _____ and suggestions are used in the paragraph.</li> </ul> <p>Ex: Use this step-by-step process to boil your eggs perfectly.</p> <p>These simple instructions clearly show how to boil your eggs perfectly.</p>	<b>Supporting sentences</b>	<ul style="list-style-type: none"> <li>The supporting sentences are the steps and details about each step in the process.</li> <li>_____ should be included to guide the reader from step to step.</li> </ul> <p>Ex: First, put the eggs in the saucepan.</p> <p>Next, tap the cooked eggs gently.</p> <p>The last step is to serve the eggs with noodles.</p>	<b>A concluding sentence</b>	<ul style="list-style-type: none"> <li>The concluding sentence can mention the topic again to remind the reader what the paragraph is about.</li> <li>It can sum up the results of following the whole process.</li> </ul> <p>Ex: You have now boiled egg to enjoy with any kinds of foods</p> <p>With these easy steps, you will get the perfectly boiled eggs.</p>	<p>3. This activity helps students to write a topic sentence and use time-order signals in a procedural paragraph.</p>
<b>A topic sentence</b>	<ul style="list-style-type: none"> <li>The topic sentence introduces the topic and tell the reader to look for</li> <li>The words such as _____ and suggestions are used in the paragraph.</li> </ul> <p>Ex: Use this step-by-step process to boil your eggs perfectly.</p> <p>These simple instructions clearly show how to boil your eggs perfectly.</p>						
<b>Supporting sentences</b>	<ul style="list-style-type: none"> <li>The supporting sentences are the steps and details about each step in the process.</li> <li>_____ should be included to guide the reader from step to step.</li> </ul> <p>Ex: First, put the eggs in the saucepan.</p> <p>Next, tap the cooked eggs gently.</p> <p>The last step is to serve the eggs with noodles.</p>						
<b>A concluding sentence</b>	<ul style="list-style-type: none"> <li>The concluding sentence can mention the topic again to remind the reader what the paragraph is about.</li> <li>It can sum up the results of following the whole process.</li> </ul> <p>Ex: You have now boiled egg to enjoy with any kinds of foods</p> <p>With these easy steps, you will get the perfectly boiled eggs.</p>						
<p><b>Activity 4: Shared writing (80 minutes)</b></p> <p>10. Teacher introduces the writing process and explains each process to students.</p> <p>11. Teacher gives students an assignment about how to cook Green Curry with Chicken and has them complete the process diagram as below.</p>	<p>1. This activity trains students to use writing process in writing a</p>						

Procedures	Objectives
<div> </div> <p>12. Students work in their group, brainstorm, and organize ideas about how to cook Green Curry with Chicken. They are allowed to search for the information on the Internet.</p> <p>13. Each group selects their own process to cook Green Curry with Chicken. They help one another to draft a procedural paragraph of cooking this dish. Teacher works with each group as needed.</p> <p>14. Each group presents how to cook Green Curry with Chicken to the class.</p> <p>15. Teacher distributes a worksheet to students, opens the video of cooking Green Curry with Chicken from YouTube, and has students sequence sentences in their worksheet.</p> <p>16. Teacher asks students to compare their steps of cooking Green Curry with Chicken with the steps from the video. Then students have to analyze and judge which one is better.</p> <p>17. Teacher introduces the writer's self-check form to students and demonstrates how to use it to check the content and language focus.</p>	<p>procedural paragraph.</p> <p>2. This activity trains students to search for related information on the Internet.</p> <p>3. This activity helps students to work in groups.</p> <p>4. This activity trains students to use their critical thinking skills to complete the task.</p>
<p><b><u>Activity 5: Receiving a scenario (40 minutes)</u></b></p> <p>18. Teacher gives a scenario of the unit to students.</p>	<p>1. This activity</p>

Procedures	Objectives
<p><i>“Apinya is the owner of the hostels in four regions of Thailand: North, Central, Isaan (Northeastern Thailand), and Southern Thailand. The most outstanding point of her hostels in each region is to include the Thai cooking class for foreign customers to join. Now, she would like to promote more Thai foods and how to cook them to the foreign customers. She is thinking of three dishes with their cooking steps and the brochure designs for each region. What kind of Thai dishes should she include in the cooking class? Which of the three dishes should be suggested to her as the most popular one of each region? What about the brochure designs? Please help Apinya to choose the dishes for each region and design brochures.”</i></p> <p>19. Students work in their group and discuss the scenario.</p> <p>20. Teacher leads students to talk about the scenario showing more questions to activate students to think of and determine the final outcomes. The lists of the questions are as follows:</p> <p>Q1. What does Apinya do?</p> <p>Q2. Do you think her business is good or bad? Why?</p> <p>Q3. Why does she want to promote Thai foods?</p> <p>Q4. If you were Apinya, how would you get some information to improve your Thai cooking class?</p> <p>Q5. What kind of dishes are interesting to include in the cooking class? Why? How do you know?</p> <p>Q6. How will you present all dishes in the brochure to the foreign customers?</p> <p>21. Teacher provides useful websites for brochure designs as below.</p> <p>(Tips to create a brochure)</p>	<p>helps students to use their critical thinking skills to complete the task.</p> <p>2. This activity helps students to determine the outcomes.</p> <p>3. This activity helps students to know their own role.</p> <p>4. This activity helps students to understand the process of planning their project.</p>

Procedures	Objectives
<ul style="list-style-type: none"> <li>• <a href="https://99designs.com/blog/marketing-advertising/brochure-design/">https://99designs.com/blog/marketing-advertising/brochure-design/</a></li> </ul> <p>(Examples to help students get ideas about brochure designs)</p> <ul style="list-style-type: none"> <li>• <a href="https://www.pinterest.com/dnacreativeshoppe/brochure-design-layout/">https://www.pinterest.com/dnacreativeshoppe/brochure-design-layout/</a></li> <li>• <a href="https://www.pinterest.com/mamaimaiiz/brochure-food/">https://www.pinterest.com/mamaimaiiz/brochure-food/</a></li> </ul> <p>(Brochure designs)</p> <ul style="list-style-type: none"> <li>• <a href="https://www.psprint.com/layout-templates/brochures-printing/">https://www.psprint.com/layout-templates/brochures-printing/</a></li> <li>• <a href="https://www.vecteezy.com/free-vector/brochure-design">https://www.vecteezy.com/free-vector/brochure-design</a></li> </ul> <p>22. Teacher gives students guiding questions to prepare themselves to have a student-teacher conference in the next class.</p>  <p>23. Students set their roles and write an outline for their project plan and timetable.</p>	<p>5. This activity prepares students to feel familiar with the format of the tests.</p>
<p><b><i>Outside the classroom</i></b></p> <p>24. Students write their reflective journal.</p>	<p>This assignment helps students to reflect on their writing ability, critical thinking skills, and</p>

Procedures	Objectives
	the project work.

**Class session 2: (180 minutes)**

Procedures	Objectives
<p><i>Outside the classroom</i></p> <p><b><u>Activity 6: Independent writing</u></b></p> <p>25. Each student independently writes how to cook their own dish following the writing process and using a writer's self-check form.</p>	<p>1. This activity allows students to practice using writing process to write a procedural paragraph.</p> <p>2. This activity helps students to search for related information on the Internet.</p>
<p><b><u>Activity 7: Collaborative writing (180 minutes)</u></b></p> <p>26. Teacher reviews the organization and the language focus of a procedural paragraph as well as writing process.</p> <p>27. Teacher introduces the peer review checklist to students and demonstrates how to use it when they check their friends' writing.</p> <p>28. In their own group, students prepare their writing and send it to their partner to receive feedback. Teacher walks around the classroom to monitor and facilitate students as needed.</p> <p>29. Teacher tells students to return the first draft and the peer review checklist to the owner and make necessary changes after receiving peer feedback.</p>	<p>1. This activity reminds students of the knowledge of a procedural paragraph and writing process.</p> <p>2. This activity train students to give feedback to their friends.</p> <p>3. This activity supports students to write collaboratively.</p> <p>4. This activity trains students to evaluate their friends' writing.</p> <p>5. This activity helps students to understand the process of developing their project.</p>

Procedures	Objectives
<p>30. Students share their revised texts in their group and help one another to decide the best dish to present to the class in the next stage. Students write the voted dish in the voting form and provide reasons why they select that dish. In case students are not satisfied with the selected text, they can write collaboratively to get the new or better one.</p> <p>31. Students prepare themselves to discuss their mini-project with teacher in a student-teacher conference. In this conference, students report their plans and challenges. Then teacher provides support, guidance, or materials as students require and gives feedback before students present their mini-project task.</p> <p>32. Students send all drafts to teacher.</p>	<p>6. This activity helps teacher to monitor students closely and know their problems.</p>
<p><b><i>Outside the classroom</i></b></p> <p><b><u>Activity 8: Creating a product</u></b></p> <p>33. Students receive teacher feedback via LINE application and make necessary changes.</p> <p>34. In their own group, students discuss the brochure design and create it.</p> <p>35. Students write their reflective journal.</p>	<p>1. This activity trains students to work online.</p> <p>2. This assignment helps students to reflect on their writing ability, critical thinking skills, and the project.</p>

**Class session 3: (180 minutes)**

Procedures	Objectives
<p><b><u>Activity 9: Giving a presentation (90 minutes)</u></b></p> <p>36. Teacher demonstrates how to use scoring rubrics to rate students' writing and</p>	<p>1. This activity is to practice giving a presentation.</p>

Procedures	Objectives
<p>presentation.</p> <p>37. In their own group, students set their roles to evaluate their friends' writing and presentation.</p> <p>38. Teacher lets each group start giving a presentation.</p>	
<p><b><u>Activity 10: Voting for the best winners (90 minutes)</u></b></p> <p>39. Each group evaluates friends' products and presentations and provides feedback using the scoring rubrics provided.</p> <p>40. After the presentation, each group votes for the best brochure and the best presentation and gives reasons why those groups are selected.</p> <p>41. Teacher announces the popular votes to the class and gives rewards to the winners.</p> <p>42. Teacher gives feedback to each group and wraps up what students have learned in this unit.</p>	<p>1. This activity is to practice using rubrics to evaluate friends' work.</p> <p>2. This activity helps students to understand the process of evaluating their project.</p>
<p><b><i>Outside the classroom</i></b></p> <p>43. Students write their reflective journal.</p>	<p>This assignment helps students to reflect on their writing ability, critical thinking skills, and the project.</p>

-----End of the unit-----



## **Appendix D: Test specifications of the pre-test and post-test of writing ability and critical thinking skills**

### **Test specifications of the pre-test and post-test of writing ability and critical thinking skills**

#### **1. The purpose of the test**

The purpose of the test was to assess the writing ability and critical thinking skills of Thai EFL undergraduate students enrolling the course “EN131 Basic writing”. The test was a low stake test as test results were used to assess students’ achievement at the end of the course. In the test, it consisted of four text types, namely procedures, descriptions, narratives, and expositions.

The scope of the test was based on the course objectives as follows:

1. Students are able to recognize patterns, the organization, and the process of writing.
2. Students are able to apply the correct use of sentence structures, grammar, mechanics, organizational patterns, and the writing process to express ideas in different text types.
3. Students are able to write well-organized, coherent, and unified paragraphs.

#### **2. The TLU situation and TLU tasks**

##### **2.1 Characteristics of the TLU situations:**

The instructor and students met in a comfortable and quiet university classroom containing a computer, an overhead projector and screen, a blackboard, an instructor’s table, students’ desks, and air conditioners. The class met in the afternoon. All students were in an English major who took the course “EN131 Basic writing”. They were expected to finish each task in one hour.

##### **2.2 Characteristics of the TLU tasks:**

The test of writing ability and critical thinking skills comprised four test tasks based on the text types students learned in the course, namely

procedures, descriptions, narratives, and expositions. Each task required students to read the prompt critically and select the best solution with reasons and relevant examples or evidence. Students' writing ability was assessed from five criteria: content, organization, vocabulary, grammatical accuracy, and mechanics, whereas their critical thinking skills were rated from five criteria: analyzing, reasoning, evaluating, decision-making, and problem-solving.

### 3. Characteristics of the test takers

The test takers were 24 Thai students registering for the course "EN131 Basic Writing" as a compulsory course in the first semester of the academic year 2019. Students were seven male and 17 female who were the first-year students majoring in English from Faculty of Humanities, Srinakharinwirot University. Their age was between 18 and 20 years old.

### 4. Definition of the construct to be measured

#### 4.1 Language knowledge

- **Grammatical knowledge**

Knowledge of vocabulary: Students were able to use general and specific word choice related to the topics they learned in each unit such as vocabulary about foods, tourist attractions, festivals, hotels, and restaurants.

Knowledge of morphology and syntax: Students were able to use correct and appropriate sentence structures to write four text types, namely procedures, descriptions, narratives, and expositions.

- **Textual knowledge**

Knowledge of cohesion: Students were able to use connectors to connect information in a paragraph accurately and appropriately.

Knowledge of rhetorical organization: Students were able to organize a paragraph considering the three main components such as a topic sentence, supporting sentences, and a concluding sentence

appropriate for four text types, namely procedures, descriptions, narratives, and expositions.

- **Functional knowledge**

Students were able to express their ideas and feelings and to use language to extend their knowledge of the world through their writing.

- **Sociolinguistic knowledge**

Students were able to use English appropriately in varying situations.

#### 4.2 Strategic competence

- **Goal setting:** Students were able to decide how to respond each prompt and to accomplish the purpose of each prompt, namely to tell the step of doing something, to describe places, to narrate a story, and to persuade someone to agree or disagree in the claims.
- **Planning:** Students were able to generate the plan and decide what elements of language knowledge and background knowledge were necessary for each prompt.
- **Assessment:** Students were able to evaluate the correctness or appropriateness of the response for each prompt.

#### 4.3 Critical thinking skills

Students were able to complete each prompt using their critical thinking skills as follows:

- **Analyzing:** Students were able to identify the problem(s) and the cause(s) of the problem(s) in different situations.
- **Reasoning:** Students were able to provide logical and accurate reasons for the selected and unselected choices with related claims or evidence and arrive at a conclusion.

- **Evaluating:** Students were able to compare and justify the strengths of the selected choice over the other choices based on the prompt or situation.
- **Decision-making:** Students were able to select the best choice or solution in different situations with well-supported reasons.
- **Problem-solving:** Students were able to state the problem(s) and the best solution and present all of them with focused connection.

## 5. Content of the test

### 5.1 Organization of the test

- **Number of tasks:** four tasks (4 prompts) 160 points (40 points each)
- **Description of tasks:**

*Task 1:* Students read the situation about Boom's health critically and answered all questions showing their critical thinking skills. Then they wrote a procedural paragraph telling how to help improve Boom's health between 150 and 200 words.

*Task 2:* Students read the situation about Nui's problem critically and answered all questions showing their critical thinking skills. Then they wrote a descriptive paragraph describing the country selected for Nui's summer course between 150 and 200 words.

*Task 3:* Students read the situation about traveling to somewhere and answered all questions showing their critical thinking skills. Then they wrote a narrative paragraph narrating the biggest problem during the trip between 150 and 200 words.

*Task 4:* students read Pink's situation critically and answered all questions showing their critical thinking skills. Then they wrote a persuasive paragraph showing reasons why Pink should travel to the selected destination between 150 and 200 words.

**5.2 Time allocation:** 4 hours (one hour for each task)

**5.3 Length of input data:** 6 pages in total

## 6. Scoring criteria

**6.1 Criteria for correctness:** There were two scoring rubrics used to score the test of writing ability and critical thinking skills. One was the rubric for assessing writing ability adapted from Jacobs et al. (1981) and *IELTS TASK 2 Writing band descriptors (public version)* n.d.). There were five topics: content, organization, vocabulary, grammatical accuracy, and mechanics rated on a 0-4 scale each. The total scores of writing ability was 20 points. The other was the rubric for assessing critical thinking skills adapted from Halpern (1999), Halpern and Riggio (2002), and Facione (2015). It consisted of five topics including analyzing, reasoning, evaluating, decision-making, and problem-solving rated on a 0-4 scale each. The total scores of critical thinking skill was 20 points. In total, the scores for one test task was 40 points.

**6.2 Scoring procedures:** The scoring rubrics for writing ability and critical thinking skills were used to assess each task and scored by two raters: the researcher and an experienced English teacher. After that, the scores from two raters were averaged. If the scores from two raters are more than 1 point apart, two raters will have a discussion for discrepancy and conclude the final scores.

## 7. Samples of topics

Students were able to see the samples from the scenario in each unit. The topics were related to explaining steps of doing something, describing a place, narrating an experience, and persuading someone to agree or disagree with doing something.

## 8. Plan for evaluating the qualities of good testing practice: reliability, validity, authenticity, impact, and practicality

**8.1 Reliability:** To ascertain the reliability of the scoring process of the test, the test was checked by two inter-raters using the same criteria and rubrics. One was the researcher. The other was an experienced English teacher. Moreover, the test takers were asked to write only their student IDs in order to avoid the raters' bias. Also, the points given by each rater were written down on the separated scoring sheet, so the researcher would not be able to know the scores another rater gave to the students.

**8.2 Validity:** To validate the content and construct of the tests, three experts were asked to examine the tests using the *Item-Objective Congruence* (IOC) value. The overall IOC value was 0.670, which meant that the test was appropriate and acceptable. Furthermore, the test was intended to measure achievement in students' writing ability and critical thinking skills after the implementation of project-based writing instruction (PWI). The scores of the pre-test were compared with the scores of the post-test using the paired-sample *t*-test. The results showed that there was a significant difference between the pre-test and the post-test mean scores of the students' writing ability and critical thinking skills at the 0.000 significant levels.

**8.3 Authenticity:** The test was authentic because it provided different problems in the real world. The prompts directed students to identify the problem(s) arising from the given situations and to suggest ways for solving the problem(s), which was crucial skills to use in everyday lives. Moreover, students had to select the appropriate sentence structures and the correct text type including procedures, descriptions, narratives, and expositions to answer each prompt accurately.

**8.4 Impact:** There were two groups who received washback. The first group was the students. They worked hard and prepare themselves well to succeed in completing and passing the tests. Some students were satisfied with the test because they could apply what they had learned in the class to answer the test. The second group was the instructor. The positive washback was gained after comparing the scores of the pre-test and the post-test. Therefore, it was anticipated that sharing project-based writing instruction to others would be beneficial and useful since with this kind of instruction, it could improve students' writing as well as students' critical thinking skills. Also, project-based writing instruction helped prepare students to gain knowledge of basic writing before they studied how to write a composition in the next course.

**8.5 Practicality:** The test was practical in terms of human resources, material resources, time for designing tasks, administering tests, and scoring and score reporting.

- *Human resources:* For distribution and test proctoring, this test needed one proctor and two raters. The proctor was the researcher, and two raters were the researcher and an experienced English teacher. On the test day, the test was distributed to students. After that, the proctor monitored students while they were doing the test and also answered all questions students may have. When time ran out, the proctor collected the test and made copies for another rater. Two raters used the same scoring rubrics and discussed how to score the test before it had been rated.
- *Material resources:* For material resources developed for this paper-based test, some information from the Internet and from some textbooks was included and used as the materials to construct the test. A classroom, a computer, a printer, paper for printing, and photocopying were the materials to administer the test, which were available at the university. Lastly, pens, scoring

sheets, and students' name lists were the materials to rate the test, which could obtain from the department.

- Time for designing tasks: To design the test tasks, it took five months to finish all process starting from designing the test tasks until trying out the test tasks.
- Administering tests: The test was administered in the afternoon at Building 3, Srinakharinwirot University. Before the test began, the proctor had put the test on the students' desks. After that, all 24 students were allowed to come in the quiet, air-conditioning classroom having a computer, an overhead projector and screen, a blackboard, an instructor's table, and students' desks to finish each test task in one hour using their own stationery items to take the test.
- Scoring and score reporting: Scoring the test was not time-consuming because of the number of students. It took three days to finish rating the test. Moreover, it was not essential to hire other writing raters to score the test because rating the test in the course was part of the job description for lecturers of Srinakharinwirot University.



## Appendix E: The pre-test and post-test of writing ability and critical thinking skills

### Writing and critical thinking test

Name \_\_\_\_\_ ID. \_\_\_\_\_

#### A procedural paragraph

**Time:** 60 minutes

**Score:** 40 points

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What is Boom's problem?
2. What is the cause of Boom's bad health?
3. As a friend of Boom, which of the following suggestions would you give him?  
Explain your selected choice with clear reasons and also explain why you do not select the others with clear reasons.
  - 4) Tell him how to create a healthy diet plan.
  - 5) Tell him how to exercise regularly.
  - 6) Tell him how to take weight loss pills safely.
4. Why is the suggestion you have selected better than the others? Compare it with others and give reasons or evidence to support your answer.
5. Based on your selection in number 3, write a well-organized procedural paragraph **between 150 and 200 words** on how Boom can improve his health.

Boom is your best friend. He is a 19-year-old man who is 188 cm tall and weighs 137 kg. He loves junk food and all things sweet. His daily routine is playing games or watching TV series. He hardly exercises. One day, he asked you to go to hospital with him to get a health checkup because he was feeling unwell. The doctor told him that he had high blood pressure and his cholesterol level was high, which could increase the risk of heart disease. He needs to change his behavior.

### Writing and critical thinking test

Name \_\_\_\_\_ ID. \_\_\_\_\_

#### A descriptive paragraph

**Time:** 60 minutes

**Score:** 40 points

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What is Nui's problem?
2. What is the cause of Nui's problem?
3. Of the three countries, which one is appropriate for Nui? Explain your selected country with clear reasons and also explain why you do not select the others with clear reasons.
4. Why is the country you have selected better than the others? Compare it with the others and give reasons or evidence to support your answer.
5. Based on your selection in number 3, how would you describe your chosen country? Write a well-organized descriptive paragraph about the chosen country **between 150 and 200 words.**

Nui is a first-year student in an international program. After studying in the program for a year, she has found that she has difficulties communicating in English. Therefore, she asks her parents to let her take a summer course abroad, but her parents can give her only 70,000 Baht. Therefore, Nui decides to write to a sponsor to obtain a grant of 80,000 Baht. In this letter, she needs to choose one country (England, America, or Singapore), describe what it is like, and explain why she would like to study there. Most importantly, she must come back to Thailand before 17 August 2020 to prepare for the new semester.



### **Liverpool, England**

<b>Where to study:</b>	University of Liverpool
<b>Course length:</b>	3 weeks
<b>Time to go:</b>	1-24 Jul 20
<b>Cost:</b>	93,800 Baht (including tuition fees, a sightseeing tour hosted by the university, accommodation, airfare, travel insurance, and visa fees)
<b>Where to live:</b>	A single room in the dormitory (near the university)
<b>Interesting things:</b>	Museums, theatres, galleries, the Beatles, Anfield Football Stadium
<b>Weather:</b>	Cold
<b>Crime rate:</b>	Low



### **New York, America**

<b>Where to study:</b>	New York Language Center
<b>Course length:</b>	8 weeks
<b>Time to go:</b>	18 Jun 20 – 17 Aug 20
<b>Cost:</b>	145,000 Baht (including tuition fees, airfare, travel insurance, and visa fees)
<b>Where to live:</b>	Host family
<b>Interesting things:</b>	The Statue of Liberty, Empire State Building, Brooklyn Bridge, Central Park, historic neighborhoods, and numerous world-famous museums
<b>Weather:</b>	Cold
<b>Crime rate:</b>	High



## Singapore

<b>Where to study:</b>	Hawthorn Language School
<b>Course length:</b>	4 weeks
<b>Time to go:</b>	1-30 Jun 20
<b>Cost:</b>	69,000 Baht (including tuition fees, accommodation, airfare, and travel insurance)
<b>Where to live:</b>	Hostel of the school
<b>Interesting things:</b>	The Merlion, Changi International Airport, Orchard Road, Esplanade Theatres on The Bay, Singapore Botanic Gardens, Chinatown Heritage Centre
<b>Weather:</b>	Warm
<b>Crime rate:</b>	Low

### Writing and critical thinking test

Name \_\_\_\_\_ ID. \_\_\_\_\_

#### A narrative paragraph

**Time:** 60 minutes

**Score:** 40 point

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What was the biggest problem you encountered while you were traveling?
2. What were the causes of the problem?
3. How many solutions did you have for the problem at that time? Please provide three solutions.
4. What was the final solution that you chose? Explain your selected choice with clear reasons and also explain why you did not select the other(s) with clear reasons.
5. Why was the solution you chose better than the other(s)? Compare it with the other(s) and give reasons or evidence to support your answer.
6. What did you learn from this experience?
7. Write a well-organized narrative paragraph **between 150 and 200 words** about a past experience related to travelling.

When traveling to another country, everybody hopes that their trip will go smoothly. However, more often than not, a lot of problems are waiting for us, and when we encounter a problem, we are challenged to deal with it. Write a narrative paragraph about the biggest problem you have encountered while traveling.

### Writing and critical thinking test

Name \_\_\_\_\_ ID. \_\_\_\_\_

#### A persuasive paragraph

**Time:** 60 minutes

**Score:** 40 points

**Instruction:** Read the information below critically, answer the questions to show your ideas, and give clear reasons together with examples to support your ideas. **You must answer all questions.**

1. What is Pink's problem?
2. What is the cause of Pink's problem?
3. If you were Pink's friend, where would you advise Pink to go between Phuket and Japan? Explain your selected destination with clear reasons and also explain why you do not select the other with clear reasons.
4. Why is the destination you have selected better than the other? Compare it with the other and give reasons or evidence to support your answer.
5. Based on your selection in number 3, write a well-organized persuasive paragraph **between 150 and 200 words** to show why you would like Pink to travel to this destination.

Pink has visited the Thai International Travel Fair to look for a tour package and won two prizes at the event. The first one is a full package trip to Phuket. Pink will get to live a luxury life like a celebrity with her favorite idol for three days. The second one is a full package trip to Japan, which is her dream destination. She will travel there as a backpacker, stay on a farmstay, and experience the Japanese lifestyle for three days. However, she has to choose just one because both trips not only cost the same but are also scheduled for the exact same period. Pink cannot decide, so she calls you to ask you for your opinion.

## Appendix F: The scoring rubric of writing ability

### Writing scoring rubric

Criteria	Evaluation			
	4	3	2	1
<b>Content</b>	<p>■ Paragraph presents a well-developed response to the question with relevant information.</p>	<p>■ Paragraph presents a clear response to the question, but some lacks focus.</p>	<p>■ Paragraph presents a response to the question, but the ideas are not well-supported.</p>	<p>■ Paragraph does not present a clear response to the question, and there are many irrelevant details.</p>
<b>Organization</b>	<p>■ The writer writes a paragraph that includes a very clear topic sentence, supporting details, and a concluding sentence. All sentences connect to the topic and move smoothly.</p> <p>■ All ideas and information are presented in a chronological order.</p> <p>■ The writer uses connectors effectively and extensively.</p>	<p>■ The writer writes a paragraph that includes a topic sentence, supporting details, and a concluding sentence. All sentences connect to the topic.</p> <p>■ Most ideas and information are presented in a chronological order.</p> <p>■ The writer uses connectors effectively, but the connection within and/or between sentences is sometimes inaccurate.</p>	<p>■ The writer writes a paragraph that includes a topic sentence, supporting details, and a concluding sentence. The supporting information needs more details and examples.</p> <p>■ Some of the ideas and information are presented in a chronological order.</p> <p>■ The writer uses connectors inadequately, and/or excessively.</p>	<p>■ The writer writes a paragraph that does not include a topic sentence and/ or a concluding sentence. There is a random collection of information that does not help to understand the topic being discussed.</p> <p>■ Ideas and information are not presented in a chronological order.</p> <p>■ The writer uses a very limited range of connectors, and those used may not indicate a logical relationship between ideas and information.</p>
				<p>■ Answer is not completely related to the question.</p> <p>■ The writer writes more than one paragraph.</p> <p>■ All ideas and information are not well organized, which fails to convey the messages to the reader.</p>

Criteria	Evaluation				
	4 Exemplary	3 Accomplished	2 Developed	1 Approaching	0 Not meeting
<b>Vocabulary</b>	<ul style="list-style-type: none"> <li>Vocabulary is used effectively and naturally to show the meaning throughout the paragraph.</li> <li>Vocabulary is always appropriate for the task.</li> </ul>	<ul style="list-style-type: none"> <li>Vocabulary is used correctly to show the meaning throughout the paragraph.</li> <li>Vocabulary is usually appropriate for the task.</li> </ul>	<ul style="list-style-type: none"> <li>Vocabulary is sometimes used correctly to show the meaning throughout the paragraph.</li> <li>Vocabulary is sometimes appropriate for the task.</li> </ul>	<ul style="list-style-type: none"> <li>Vocabulary is used unclearly to show the meaning throughout the paragraph.</li> <li>Vocabulary is hardly appropriate for the task.</li> </ul>	<ul style="list-style-type: none"> <li>Vocabulary is used incorrectly, which fails to show the meaning.</li> </ul>
<b>Grammatical accuracy</b>	<ul style="list-style-type: none"> <li>The writer makes no grammatical errors.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes 1-5 grammatical errors, but they hardly cause difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes 6-10 grammatical errors, and they cause some difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes more than 10 grammatical errors, and they cause a lot of difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes serious grammatical errors, and they distort the meaning.</li> </ul>
<b>Mechanics</b>	<ul style="list-style-type: none"> <li>The writer makes no errors in punctuation marks, spelling, and capitalization.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes 1-5 errors in punctuation marks, spelling, and/or capitalization, but they hardly cause difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes 6-10 errors in punctuation marks, spelling, and/or capitalization, and they cause some difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes more than 10 errors in punctuation marks, spelling, and/or capitalization, and they cause a lot of difficulty in the reader's understanding.</li> </ul>	<ul style="list-style-type: none"> <li>The writer makes serious errors in punctuation marks, spelling and capitalization, and they distort the meaning.</li> </ul>

Adapted from Jacobs et al. (1981) and *IELTS TASK 2 Writing band descriptors (public version)* n.d.)



## Appendix G: The scoring rubric of critical thinking skills

### Critical thinking scoring rubric

Criteria	Evaluation				
	4 Exemplary	3 Accomplished	2 Developed	1 Approaching	0 Not meeting
<b>Analyzing</b>	<ul style="list-style-type: none"> <li>The writer clearly identifies and summarizes main problem(s) from the prompt, and accurately explains the cause(s) of the problem(s).</li> </ul>	<ul style="list-style-type: none"> <li>The writer generally identifies and summarizes main problem(s) from the prompt, and explains the cause(s) of the problem(s).</li> </ul>	<ul style="list-style-type: none"> <li>The writer identifies main problem(s) from the prompt and explains the cause(s) of the problem(s), but ignores some information.</li> </ul>	<ul style="list-style-type: none"> <li>The writer identifies main problem(s) from the prompt, but does not explain the cause(s) of the problem(s).</li> </ul>	<ul style="list-style-type: none"> <li>The writer fails to identify, summarize, and explain the main problem(s) as well as the cause(s) of the problems.</li> </ul>
<b>Reasoning</b>	<ul style="list-style-type: none"> <li>The writer completely provides logical and accurate reasons.</li> <li>The writer shows appropriate, sufficient, and related claims and/or evidence.</li> </ul>	<ul style="list-style-type: none"> <li>The writer mostly provides logical and accurate reasons.</li> <li>The writer shows sufficient and related claims and/or evidence, but includes some redundant information.</li> </ul>	<ul style="list-style-type: none"> <li>The writer sometimes provides logical and accurate reasons.</li> <li>The writer shows both related and non-related claims and/or evidence.</li> </ul>	<ul style="list-style-type: none"> <li>The writer hardly provides logical and accurate reasons.</li> <li>The writer shows insufficient and illogical claims and/or evidence.</li> </ul>	<ul style="list-style-type: none"> <li>The writer fails to provide logical and accurate reasons.</li> </ul>

Criteria	Evaluation			
	4 Exemplary	3 Accomplished	2 Developed	1 Approaching
<b>Evaluating</b>	<ul style="list-style-type: none"> <li>The writer precisely justifies the strengths of the selected choice over the other choices based on the given prompt or situation.</li> <li>The writer precisely provides in-depth explanations of both selected choice and the other choices.</li> </ul>	<ul style="list-style-type: none"> <li>The writer precisely justifies the strengths of the selected choice over the other choices based on the given prompt or situation.</li> <li>The writer provides clear explanations of the selected choice, but superficially evaluates the other choices.</li> </ul>	<ul style="list-style-type: none"> <li>The writer partially justifies the strengths of the selected choice over the other choices based on the given prompt or situation.</li> <li>The writer provides some unclear explanations of the selected choice and hardly evaluates the other choices.</li> </ul>	<ul style="list-style-type: none"> <li>The writer hardly justifies the strengths of the selected choice over the other choices based on the given prompt or situation.</li> <li>The writer provides many unclear explanations of the selected choice and misses to evaluate the other choices.</li> </ul>
<b>Decision-making</b>	<ul style="list-style-type: none"> <li>The writer selects an option that reflects in-depth understanding of the prompt.</li> <li>The writer gives well-supported reasons to support his/ her decision.</li> </ul>	<ul style="list-style-type: none"> <li>The writer selects an option that reflects adequate understanding of the prompt.</li> <li>The writer gives reasons to support his/ her decision, but lacks some explanations.</li> </ul>	<ul style="list-style-type: none"> <li>The writer selects an option that reflects adequate understanding of the prompt.</li> <li>The writer gives reasons to support his/ her decision, but lacks many explanations.</li> </ul>	<ul style="list-style-type: none"> <li>The writer selects a wrong option.</li> <li>The writer gives incorrect reasons to support his/ her decision.</li> </ul>
<b>Problem-solving</b>	<ul style="list-style-type: none"> <li>Problem and solution are completely stated. They are fully presented with well-focused connection.</li> </ul>	<ul style="list-style-type: none"> <li>Problem and solution are suitably stated. They are presented with focused connection, but either problem or solution needs a few explanations.</li> </ul>	<ul style="list-style-type: none"> <li>Problem and solution are stated, but they are presented with partial connection. Either problem or solution contains some limited details and needs more explanations.</li> </ul>	<ul style="list-style-type: none"> <li>Problem and/or solution are stated, but they are presented with limited connection.</li> <li>Problem and solution are not stated.</li> </ul>

Adapted from Halpern (1999), Halpern and Riggio (2002), and Facione (2015).

## Appendix H: Students' reflective journals in English

### Students' reflective journals

Week\_\_\_\_\_Date\_\_\_\_\_

Name\_\_\_\_\_Nickname\_\_\_\_\_ID\_\_\_\_\_

**Instructions:** Please answer the following questions with relevant examples.

1. From this week's project-based writing instruction, what have you learned?
2. How can this week's project-based writing instruction help you to improve your writing ability? Please explain and give some examples.
3. How can this week's project-based writing instruction help you to improve critical thinking skills (analyzing, problem-solving, decision-making, reasoning, and evaluating skills)? Please explain and give some examples.
4. What was the progress of working on your project this week?
5. What were the most interesting things you discovered while working on your project this week? About yourself? About your friends? About the lesson or about the project?
6. What problem did you encounter this week? Were you able to solve it? How did you solve it?

## Appendix I: Students' reflective journals in Thai

### บันทึกสะท้อนคิดของนักศึกษา

สัปดาห์ที่ \_\_\_\_\_ วันที่ \_\_\_\_\_

ชื่อ \_\_\_\_\_ ชื่อเล่น \_\_\_\_\_ รหัสนักศึกษา \_\_\_\_\_

คำสั่ง: กรุณาตอบคำถามต่อไปนี้พร้อมยกตัวอย่างประกอบ

1. จากวิธีการสอนการเขียนโดยใช้โครงงานในสัปดาห์นี้ นักศึกษาได้เรียนอะไรไปบ้าง
2. วิธีการสอนการเขียนโดยใช้โครงงานในสัปดาห์นี้สามารถช่วยให้นักศึกษาพัฒนาความสามารถทางการเขียนได้อย่างไร กรุณาอธิบายและยกตัวอย่างประกอบ
3. วิธีการสอนการเขียนโดยใช้โครงงานในสัปดาห์นี้สามารถช่วยให้นักศึกษาพัฒนาทักษะการคิดอย่างมีวิจารณญาณ (ทักษะการวิเคราะห์ ทักษะการแก้ไขปัญหา ทักษะการตัดสินใจ ทักษะการให้เหตุผล และทักษะการประเมินผล) ได้อย่างไร กรุณาอธิบายและยกตัวอย่างประกอบ
4. อะไรคือความก้าวหน้าในการทำโครงงานของนักศึกษาในสัปดาห์นี้
5. อะไรคือสิ่งที่น่าสนใจมากที่สุดสำหรับนักศึกษาในระหว่างการทำโครงงานในสัปดาห์นี้ (เกี่ยวกับตนเอง เกี่ยวกับเพื่อน เกี่ยวกับบทเรียน หรือเกี่ยวกับโครงงาน)
6. อะไรคือปัญหาที่นักศึกษาพบในสัปดาห์นี้ นักศึกษาสามารถแก้ไขปัญหานี้ได้หรือไม่ อย่างไร

## Appendix J: The attitude questionnaire in English

### The questionnaire of attitudes towards project-based writing instruction

This questionnaire consists of three main parts:

Part 1: General information

Part 2: Attitudes towards project-based writing instruction

Part 3: Additional comments

\*\*\*ALL ANSWERS ARE CONFIDENTIAL.\*\*\*

#### Part 1: General Information

Please read each question and put  $\checkmark$  in the blank of your choice in the space given.

1. Gender ☐ Male ☐ Female
2. Age \_\_\_\_\_ years old
3. Department \_\_\_\_\_ Faculty \_\_\_\_\_
4. Year of study ☐ First year ☐ Second year  
☐ Third year ☐ Fourth year
5. How long have you been learning English? \_\_\_\_\_ years
6. How often do you write in English per week?  
☐ Every day ☐ 3-5 days ☐ 1-2 days ☐ Never
7. What level is your writing ability before and after implementing project-based writing instruction?

Before implementing project-based writing instruction					Topics	After implementing project-based writing instruction				
Very good	Good	Average	Weak	Very weak		Very good	Good	Average	Weak	Very weak
5	4	3	2	1		5	4	3	2	1
					Content					
					Organization					
					Vocabulary					
					Grammatical accuracy					
					Mechanics (spelling, punctuation marks, and capitalization)					

8. What level is your critical thinking skills before and after implementing project-based writing instruction?

Before implementing project-based writing instruction					Skills	After implementing project-based writing instruction				
Very good	Good	Average	Weak	Very weak		Very good	Good	Average	Weak	Very weak
5	4	3	2	1		5	4	3	2	1
					Analyzing					
					Decision making					
					Reasoning					
					Evaluating					
					Problem-solving					

9. Do you know what project-based learning is? ☐ Yes ☐ No
10. Have you ever used project-based learning in other subjects?  
☐ Yes Subject: \_\_\_\_\_ ☐ No
11. Which learning style do you prefer?  
☐ Individual work  
 because \_\_\_\_\_  
☐ Group work  
 because \_\_\_\_\_
12. How many people do you prefer when working in groups? \_\_\_\_\_

**Part 2: Attitudes towards project-based writing instruction**

Please read each statement and put √ in the blank you agree the most.

Statement	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
<b>Writing ability after the use of project-based writing instruction</b>					
1. Overall, the use of PWI improves my writing ability.					
2. I can construct a paragraph through the writing process (prewriting, drafting, revising, editing, and publishing) better.					
<b>The project-based writing instruction stage 1: Planning the project</b>					
3. Overall, the stage of planning the project helps me to write better.					
4. The stage of inquiry (warm-up) stimulates me to write.					
5. The stage of modeling helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.					
6. The stage of shared writing (composing a paragraph as a whole class) helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.					
<b>The project-based writing instruction stage 2: Developing the project</b>					
7. Overall, the stage of developing the project helps me to write better.					
8. I can apply what I have learned from the planning stage to construct my paragraph correctly and effectively.					
9. Working and discussing in groups help me to write better.					
10. The stage of collaborative writing (composing a paragraph in groups) helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.					
11. The stage of independent writing (composing a paragraph individually) helps me to write four text types (procedural, descriptive, narrative, persuasive paragraphs) better.					

Statement	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
12. A student-teacher conference helps me to write better.					
13. The materials are useful to develop my writing ability.					
<b>The project-based writing instruction stage 3: Evaluating the project</b>					
14. Overall, the stage of evaluating the project helps me to write better.					
15. Presenting projects helps me to revise my writing.					
16. Writing reflective journals helps me to reflect on the <u>language</u> I have learned.					
17. Writing reflective journals helps me to reflect on the <u>content</u> I have learned.					
18. Writing reflective journals helps me to reflect on the <u>experience</u> I have learned.					
19. The scoring rubric is appropriate to measure my writing ability.					
20. <u>Self-assessment</u> helps me to write better.					
21. <u>Peer assessment</u> helps me to write better.					
22. <u>Teacher assessment</u> helps me to write better.					
23. Using self-assessment, peer assessment, and teacher assessment together help me to write better.					
<b>Critical thinking skills after the use of project-based writing instruction</b>					
24. Overall, the use of PWI improves my critical thinking skills.					
<b>The project-based writing instruction stage 1: Planning the project</b>					
25. Overall, the stage of planning the project helps me to think more critically.					
26. Questions used in the stage of inquiry (warm-up) help me to think more critically.					
27. The model texts used in stage of modeling help me to analyze <u>the language use</u> .					
28. The model texts used in stage of modeling help me to analyze <u>the way to construct a paragraph</u> .					
29. The stage of shared writing (composing a paragraph <u>as a whole class</u> ) helps me to think more critically.					



Statement	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
<b>The project-based writing instruction stage 2: Developing the project</b>					
30. Overall, the stage of developing the project helps me to think more critically.					
31. Working and discussing in groups help me to think more critically.					
32. The stage of collaborative writing (composing a paragraph <u>in groups</u> ) helps me to think more critically.					
33. The stage of independent writing (composing a paragraph <u>individually</u> ) helps me to think more critically.					
34. A student-teacher conference helps me to think more critically.					
35. The materials are useful to develop my critical thinking skills.					
<b>The project-based writing instruction stage 3: Evaluating the project</b>					
36. Overall, the stage of evaluating the project helps me to think more critically.					
37. Presenting projects helps me to think more critically.					
38. Writing reflective journals helps me to think more critically.					
39. The scoring rubric is appropriate to measure my critical thinking skills.					
40. <u>Self-assessment</u> helps me to think more critically.					
41. <u>Peer assessment</u> helps me to think more critically.					
42. <u>Teacher assessment</u> helps me to think more critically.					
43. Using self-assessment, peer assessment, and teacher assessment together help me to think more critically.					

Statement	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
<b>Advantages and disadvantages of working on a project</b>					
44. Working on a project helps me to increase my responsibility.					
45. Working on a project helps me to increase my collaborative learning (working with others).					
46. Working on a project gives me a chance to use authentic materials.					
47. While working on a project, I have difficulties in exchanging ideas with my friends.					
48. Working on a project makes me stressed.					
49. Working on a project is time-consuming.					
50. I think I can apply project-based learning in other English courses.					

### **Part 3: Additional comments**

Please answer the following questions.

1. What did you like and dislike about project-based writing instruction? Please explain and give some examples.

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2. What are your suggestions on this course?

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**Thank you very much for your time and participation**

## Appendix K: The attitude questionnaire in Thai

### แบบสอบถาม

เรื่อง ทรรศนคติของนักศึกษาต่อการสอนการเขียนโดยใช้โครงงานในการพัฒนาความสามารถ  
ทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณ

คำชี้แจง: แบบสอบถามนี้จัดทำขึ้นเพื่อสำรวจความคิดเห็นและรวบรวมข้อมูลเกี่ยวกับการสอนการเขียนโดยใช้โครงงานในการพัฒนาความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาไทยระดับปริญญาตรีที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ คำตอบของท่านจะเป็นประโยชน์อย่างยิ่งในการนำมาวิเคราะห์เพื่อเป็นแนวทางในการพัฒนาการเรียนการสอนภาษาอังกฤษให้สอดคล้องกับความต้องการและสภาพความเป็นจริง ขอขอบคุณเป็นอย่างสูงในความร่วมมือ มา ณ โอกาสนี้

อาภาพรษ์ เรืองกุล

นิสิตปริญญาเอก สาขาภาษาอังกฤษเป็นภาษานานาชาติ

บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย



แบบสอบถามฉบับนี้ประกอบด้วย คำถาม 3 ส่วน

ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

ส่วนที่ 2 ทักษะคิดต่อการสอนการเขียนโดยใช้โครงงาน

ส่วนที่ 3 ข้อคิดเห็นเพิ่มเติม

\*\*\*คำตอบของคุณจะถูกเก็บเป็นความลับ\*\*\*

### ส่วนที่ 1: ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง: โปรดอ่านคำถามและทำเครื่องหมาย ☒ ลงในช่อง ☐ หน้าคำตอบที่ตรงกับท่าน

- เพศ ☐ ชาย ☐ หญิง
- อายุ \_\_\_\_\_ ปี
- สาขา \_\_\_\_\_ คณะ \_\_\_\_\_
- ชั้นปีที่กำลังศึกษา ☐ ปี 1 ☐ ปี 2 ☐ ปี 3 ☐ ปี 4
- นิสิตเรียนภาษาอังกฤษมานานเท่าไร \_\_\_\_\_ ปี
- นิสิตเขียนภาษาอังกฤษต่อสัปดาห์บ่อยแค่ไหน  
☐ ทุกวัน ☐ 3-5 วัน ☐ 1-2 วัน ☐ ไม่เคย
- นิสิตมีความสามารถทางการเขียนในหัวข้อต่อไปนี้ในระดับใด ก่อนและหลังการสอนการเขียน โดยใช้โครงงาน

ก่อนการสอนการเขียนโดยใช้โครงงาน					หัวข้อ	หลังการสอนการเขียนโดยใช้โครงงาน				
ดีมาก	ดี	ปานกลาง	อ่อน	อ่อนมาก		ดีมาก	ดี	ปานกลาง	อ่อน	อ่อนมาก
5	4	3	2	1		5	4	3	2	1
					เนื้อหา					
					การเรียบเรียงเนื้อหา					
					คำศัพท์					
					การใช้ไวยากรณ์ในการเขียน					
					คลังภาษาภาษา (การสะกดคำ การใช้เครื่องหมายวรรคตอน และการใช้อักษรตัวใหญ่)					

8. นิสิตมีทักษะการคิดอย่างมีวิจารณญาณต่อไปนี้ในระดับใด ก่อนและหลังการสอนการเขียนโดยใช้โครงงาน

ก่อนการสอนการเขียนโดยใช้โครงงาน					ทักษะ	หลังการสอนการเขียนโดยใช้โครงงาน				
ดีมาก	ดี	ปานกลาง	อ่อน	อ่อนมาก		ดีมาก	ดี	ปานกลาง	อ่อน	อ่อนมาก
5	4	3	2	1		5	4	3	2	1
					การวิเคราะห์					
					การตัดสินใจ					
					การให้เหตุผล					
					การประเมินผล					
					การแก้ไขปัญหา					

9. นิสิตรู้จักการจัดการเรียนรู้แบบใช้โครงงานในการเรียนการสอนหรือไม่

☐ รู้จัก      ☐ ไม่รู้จัก

10. นิสิตเคยเรียนด้วยวิธีการจัดการเรียนรู้แบบใช้โครงงานในรายวิชาอื่น ๆ หรือไม่

☐ เคย รายวิชา: \_\_\_\_\_ ☐ ไม่เคย

11. นิสิตชอบลักษณะการเรียนรู้แบบใด

☐ แบบเดี่ยว เพราะ \_\_\_\_\_

☐ แบบกลุ่ม เพราะ \_\_\_\_\_

12. นิสิตชอบเรียนรู้ด้วยการทำงานกลุ่มที่มีจำนวนสมาชิกกี่คน \_\_\_\_\_

**ส่วนที่ 2: ทศนคติต่อการสอนการเขียนโดยใช้โครงงาน**

คำชี้แจง: โปรดอ่านข้อความและทำเครื่องหมาย ✓ ลงในช่อง ☐ ที่คุณเห็นด้วยมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง 5	เห็นด้วย 4	เฉยๆ 3	ไม่เห็นด้วย 2	ไม่เห็นด้วยอย่างยิ่ง 1
<b>ด้านความสามารถทางการเขียนหลังจากการสอนการเขียนโดยใช้โครงงาน</b>					
1. โดยรวม การใช้การสอนการเขียนโดยใช้โครงงาน ช่วยพัฒนาความสามารถทางการเขียนของฉัน					
2. ฉันสามารถเขียนย่อหน้าโดยผ่านขั้นตอนการเขียน (ขั้นก่อนการเขียน ขั้นร่างข้อเขียน ขั้นปรับปรุงแก้ไข ขั้นตรวจแก้ภาษา และขั้นตีพิมพ์) ได้ดีขึ้น					
<b>ขั้นที่ 1 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการวางแผนโครงงาน</b>					
3. โดยรวม ขั้นตอนการวางแผนโครงงานช่วยให้ฉัน เขียนได้ดีขึ้น					
4. ขั้นการอบอุ่น (Warm-up) กระตุ้นให้ฉันเขียน					
5. ขั้นการให้รูปแบบ (Modeling) ช่วยให้เห็นงาน เขียน 4 ประเภท (การเขียนอนุเลขแบบขั้นตอน บรรยาย เล่าเรื่อง และชักชวน) ได้ดีขึ้น					
6. ขั้นการเขียนร่วมกัน (Shared writing) (ซึ่งเป็นการ เขียนย่อหน้าไปพร้อม ๆ กันทั้งห้อง) ช่วยให้เห็นงาน งานเขียน 4 ประเภท (การเขียนอนุเลขแบบขั้นตอน บรรยาย เล่าเรื่อง และชักชวน) ได้ดีขึ้น					

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยๆ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
	5	4	3	2	1
<b>ขั้นที่ 2 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการพัฒนาโครงงาน</b>					
7. โดยรวม ขั้นตอนการพัฒนาโครงงานช่วยให้ฉันเขียนได้ดีขึ้น					
8. ฉันสามารถนำสิ่งที่ฉันได้เรียนรู้จากขั้นตอนการวางแผนโครงงานมาประยุกต์ใช้ในการเขียนย่อหน้าได้อย่างถูกต้องและมีประสิทธิภาพ					
9. การทำงานและอภิปรายกันเป็นกลุ่มช่วยให้ฉันเขียนได้ดีขึ้น					
10. ขั้นตอนการเขียนแบบร่วมมือ (Collaborative writing) (ซึ่งเป็นการเขียนย่อหน้าเป็นกลุ่ม) ช่วยให้ฉันเขียนงานเขียน 4 ประเภท (การเขียนอนุเลขแบบขั้นตอน บรรยาย เล่าเรื่อง และชักชวน) ได้ดีขึ้น					
11. ขั้นตอนการเขียนแบบอิสระ (Independent writing) (ซึ่งเป็นการเขียนย่อหน้าแบบเดี่ยว) ช่วยให้ฉันเขียนงานเขียน 4 ประเภท (การเขียนอนุเลขแบบขั้นตอน บรรยาย เล่าเรื่อง และชักชวน) ได้ดีขึ้น					
12. การพูดคุยให้คำปรึกษาหารือระหว่างฉันกับผู้สอน (a student-teacher conference) ช่วยให้ฉันเขียนได้ดีขึ้น					
13. สื่อการสอนเป็นประโยชน์ต่อการพัฒนาความสามารถทางการเขียนของฉัน					

ข้อความ	เห็นด้วยอย่างยิ่ง 5	เห็นด้วย 4	เฉยๆ 3	ไม่เห็นด้วย 2	ไม่เห็นด้วยอย่างยิ่ง 1
<b>ขั้นที่ 3 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการประเมินผลโครงงาน</b>					
14. โดยรวม ขั้นตอนการประเมินผลโครงงานช่วยให้ ฉันเขียนได้ดีขึ้น					
15. การนำเสนอโครงงานช่วยให้ฉันปรับปรุงแก้ไข การเขียนของฉัน					
16. การเขียนบันทึกสะท้อนคิด (reflective journals) ช่วยให้ฉันคิดทบทวนถึง <u>ภาษา</u> ที่เรียนไป					
17. การเขียนบันทึกสะท้อนคิด (reflective journals) ช่วยให้ฉันคิดทบทวนถึง <u>เนื้อหา</u> ที่เรียนไป					
18. การเขียนบันทึกสะท้อนคิด (reflective journals) ช่วยให้ฉันคิดทบทวนถึง <u>ประสบการณ์</u> ที่เรียนไป					
19. เกณฑ์การให้คะแนนมีความเหมาะสมในการวัด ความสามารถทางการเขียนของฉัน					
20. การประเมินตนเองช่วยให้ฉันเขียนได้ดีขึ้น					
21. การประเมินโดยเพื่อนช่วยให้ฉันเขียนได้ดีขึ้น					
22. การประเมินโดยผู้สอนช่วยให้ฉันเขียนได้ดีขึ้น					
23. การใช้การประเมินตนเอง การประเมิน โดยเพื่อน และการประเมินโดยผู้สอนรวมกันช่วยให้ฉันเขียนได้ ดีขึ้น					
<b>ด้านทักษะการคิดอย่างมีวิจารณญาณหลังจากการสอนการเขียนโดยใช้โครงงาน</b>					
24. โดยรวม การใช้การสอนการเขียนโดยใช้ โครงงานช่วยพัฒนาทักษะการคิดอย่างมีวิจารณญาณ ของฉัน					



ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	เฉยๆ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
	5	4	3	2	1
ขั้นที่ 1 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการวางแผนโครงงาน					
25. โดยรวม ขั้นตอนการวางแผนโครงงานช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
26. คำถามที่ใช้ในขั้นการสอบถาม (Warm-up) ช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
27. บทความตัวอย่างที่ใช้ในขั้นการให้รูปแบบ (Modeling) ช่วยให้ฉันวิเคราะห์การใช้ภาษา					
28. บทความตัวอย่างที่ใช้ในขั้นการให้รูปแบบ (Modeling) ช่วยให้ฉันวิเคราะห์วิธีการเขียนย่อหน้า					
29. ขั้นการเขียนร่วมกัน (Shared writing) (ซึ่งเป็นการเขียนย่อหน้าไปพร้อม ๆ กันทั้งห้อง) ช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
ขั้นที่ 2 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการพัฒนาโครงงาน					
30. โดยรวม ขั้นตอนการพัฒนาโครงงานช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
31. การทำงานและอภิปรายกันเป็นกลุ่มช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
32. ขั้นการเขียนแบบร่วมมือ (Collaborative writing) (ซึ่งเป็นการเขียนย่อหน้าเป็นกลุ่ม) ช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
33. ขั้นการเขียนแบบอิสระ (Independent writing) (ซึ่งเป็นการเขียนย่อหน้าแบบเดี่ยว) ช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					
34. การพูดคุยให้คำปรึกษาระหว่างผู้เรียนกับผู้สอน (a student-teacher conference) ช่วยให้ฉันคิดอย่างมีวิจารณญาณมากขึ้น					

ข้อความ	5 เห็นด้วยอย่างยิ่ง	4 เห็นด้วย	3 พอๆ	2 ไม่เห็นด้วย	1 ไม่เห็นด้วยอย่างยิ่ง
35. สื่อการสอนเป็นประโยชน์ต่อการพัฒนาทักษะการคิดอย่างมีวิจารณญาณของนักเรียน					
ขั้นที่ 3 ของการสอนการเขียนโดยใช้โครงงาน: ขั้นตอนการประเมินผลโครงงาน					
36. โดยรวม ขั้นตอนการประเมินผลโครงงานช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
37. การนำเสนอโครงงานช่วยพัฒนาทักษะการคิดอย่างมีวิจารณญาณของนักเรียนมากขึ้น					
38. การเขียนบันทึกสะท้อนคิด (reflective journals) ช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
39. เกณฑ์การให้คะแนนมีความเหมาะสมในการวัดทักษะการคิดอย่างมีวิจารณญาณของนักเรียน					
40. การประเมินตนเองช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
41. การประเมินโดยเพื่อนช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
42. การประเมินโดยผู้สอนช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
43. การใช้การประเมินตนเอง การประเมินโดยเพื่อน และการประเมินโดยผู้สอนรวมกันช่วยให้เด็กคิดอย่างมีวิจารณญาณมากขึ้น					
ข้อดีและข้อเสียของการทำโครงงาน					
44. การทำโครงงานช่วยให้เด็กมีความรับผิดชอบในตัวเองมากขึ้น					
45. การทำโครงงานช่วยเสริมสร้างการทำงานร่วมกับผู้อื่นของเด็กให้ดีขึ้น					

ข้อความ	เห็นด้วยอย่างยิ่ง 5	เห็นด้วย 4	เฉยๆ 3	ไม่เห็นด้วย 2	ไม่เห็นด้วยอย่างยิ่ง 1
46. การทำโครงการเปิดโอกาสให้ฉันได้ใช้เนื้อหาที่เป็นของจริง (authentic materials)					
47. ระหว่างการทำโครงการ ฉันมีความลำบากใจในการแลกเปลี่ยนความคิดเห็นกับเพื่อน ๆ					
48. การทำโครงการทำให้ฉันรู้สึกเครียด					
49. การทำโครงการต้องใช้เวลานาน					
50. ฉันคิดว่าฉันสามารถนำการจัดการเรียนรู้โดยใช้โครงการไปประยุกต์ใช้ในรายวิชาภาษาอังกฤษอื่นๆได้					

### ส่วนที่ 3: ข้อคิดเห็นเพิ่มเติม

คำชี้แจง: โปรดตอบคำถามดังต่อไปนี้

1. อะไรคือสิ่งที่คุณชอบและไม่ชอบในการเรียนการเขียนโดยใช้โครงการ กรุณาให้เหตุผลและยกตัวอย่างประกอบ

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2. ข้อเสนอแนะเพิ่มเติม

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ขอขอบคุณที่กรุณาใช้เวลาและให้ความร่วมมืออย่างดีในการตอบแบบสอบถาม

## Appendix L: The semi-structured interview protocol in English

### The semi-structured interview protocol to explore students' attitudes towards project-based writing instruction

Name\_\_\_\_\_Date\_\_\_\_\_Time\_\_\_\_\_

#### Questions:

1. Can you explain what project-based writing instruction is? Please explain what it is.
2. What do you think about project-based writing instruction? Why?
3. For any English courses involving writing, which instruction do you prefer between traditional method focusing on drilling and project-based writing instruction? Why?
4. How is your writing ability in terms of content, organization, vocabulary, grammatical accuracy, and mechanics such as spelling, punctuation marks, and capitalization before and after the use of project-based writing instruction?
5. Which activity in project-based writing instruction helped you to improve your writing ability? Why?
6. How are your critical thinking skills in terms of analyzing, problem-solving, decision-making, reasoning, and evaluating skills before and after the use of project-based writing instruction?
7. Which activity in project-based writing instruction helped you to improve your critical thinking skills? Why?
8. Besides writing ability and critical thinking skills, what else did you learn from the process of working on a project?
9. What were obstacles or difficulties you had while working on the project?  
How did you overcome those difficulties?
10. How can you apply project-based learning in your daily life?
11. What is your suggestion to make this course more interesting and useful?

## Appendix M: The semi-structured interview protocol in Thai

แนวคำถามถึงโครงสร้างสำหรับการสำรวจทัศนคติของนักศึกษาที่มีต่อการสอนการเขียนโดยใช้  
โครงงานเป็นฐาน

ชื่อ \_\_\_\_\_ วันที่ \_\_\_\_\_

เวลา \_\_\_\_\_

### คำถาม

1. นักศึกษาสามารถอธิบายได้ไหมว่าการสอนการเขียนโดยใช้โครงงานคืออะไร จงอธิบาย
2. นักศึกษาคิดอย่างไรต่อวิธีการสอนการเขียนโดยใช้โครงงาน เพราะอะไร
3. สำหรับวิชาภาษาอังกฤษที่เกี่ยวกับการเขียน นักศึกษาชอบวิธีการสอนแบบใดระหว่างการสอนแบบดั้งเดิมที่เน้นการฝึกฝนและการสอนการเขียนโดยใช้โครงงาน เพราะอะไร
4. ความสามารถทางการเขียนของนักศึกษาด้านเนื้อหา การเรียบเรียงเนื้อหาของนักศึกษา คำศัพท์ การใช้ไวยากรณ์ในการเขียน และกลไกทางภาษา เช่น การสะกดคำ การใช้เครื่องหมายวรรคตอน และการใช้อักษรตัวใหญ่ ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร
5. กิจกรรมใดของการสอนการเขียนโดยใช้โครงงานที่ช่วยให้นักศึกษาพัฒนาความสามารถทางการเขียน เพราะอะไร
6. ทักษะการคิดอย่างมีวิจารณญาณของนักศึกษาในด้านทักษะการวิเคราะห์ ทักษะการแก้ปัญหา ทักษะการตัดสินใจ ทักษะการใช้เหตุผล และทักษะการประเมินผล ก่อนและหลังใช้วิธีการสอนการเขียนโดยใช้โครงงานเป็นอย่างไร
7. กิจกรรมใดของการสอนการเขียนโดยใช้โครงงานที่ช่วยให้นักศึกษาพัฒนาทักษะการคิดอย่างมีวิจารณญาณ เพราะอะไร
8. นอกจากความสามารถทางการเขียนและทักษะการคิดอย่างมีวิจารณญาณแล้ว อะไรคือสิ่งที่นักศึกษาได้เรียนรู้เพิ่มเติมจากกระบวนการทำโครงงาน
9. อะไรคืออุปสรรคหรือความยากลำบากในการทำโครงงานของนักศึกษา นักศึกษาผ่านอุปสรรคเหล่านั้นมาได้อย่างไร

10. นักศึกษาสามารถนำการจัดการเรียนรู้โดยใช้โครงงานไปประยุกต์ใช้ในชีวิตประจำวันได้อย่างไร
11. นักศึกษามีข้อเสนอแนะอะไรที่จะทำให้รายวิชานี้น่าสนใจและเป็นประโยชน์



### Appendix N: Validation of the lesson plans

No.	Items	Expert			IOC
		E1	E2	E3	
Lesson Layout and Design					
1.	The layout and design of the lesson plan are appropriate and clear.	1	1	1	1
2.	The sequence of the lesson plan is appropriate.	1	1	1	1
3.	The language used in the lesson plan is accurate and clear.	1	1	1	1
Learning outcomes					
4.	Learning outcomes are appropriate.	1	1	0	0.66
Class session					
5.	Time allotment of each activity is appropriate.	0	1	1	0.66
6.	The materials used in the lesson plan are appropriate.	0	1	1	0.66
7.	The pedagogical procedures in the lesson plan are appropriate.	1	1	1	1
8.	Activity 1: Warm-up is appropriate.	1	1	1	1
9.	Activity 2: Modeling is appropriate.	1	1	1	1
10.	Activity 3: Writing process is appropriate.	0	1	1	0.66
11.	Activity 4: Planning the project is appropriate.	1	1	1	1
12.	Activity 5: Developing the project is appropriate.	1	1	1	1
13.	Activity 6: Reviewing is appropriate.	1	1	1	1
14.	Activity 7: Independent writing is appropriate.	1	1	1	1
15.	Activity 8: Evaluating the project is appropriate.	1	1	1	1

16.	The pedagogical procedures in the lesson plan are appropriate to develop writing ability.	1	1	1	1
17.	The pedagogical procedures in the lesson plan are appropriate to develop critical thinking skills (analyzing, decision-making, reasoning, evaluating, and problem-solving).	1	1	1	1
<b>Evaluation and assessment</b>					
18.	Evaluation and assessment are appropriate.	1	1	1	1
Total					0.924





**Appendix O: Validation of the pre-test and post-test of writing ability and critical thinking skills**

No.	Items	Expert			IOC
		E1	E2	E3	
1. Procedural paragraph					
1.1	The instruction of the test is clear and understandable.	-1	1	1	0.33
1.2	The prompt is clear and understandable.	-1	0	0	-0.33
1.3	The prompt requires students to write a procedural paragraph.	0	1	1	0.66
1.4	The prompt assesses students' procedural writing.	0	1	1	0.66
1.5	The prompt assesses students' critical thinking skills.				
	• analyzing	1	1	1	1
	• decision-making	1	1	1	1
	• reasoning	1	1	1	1
	• evaluating	0	0	1	0.33
	• problem-solving	1	1	1	1
1.6	The word limit (150-200 words) is appropriate	0	1	1	0.66
1.7	The time allocation (60 minutes) is appropriate.	0	1	1	0.66
1.8	The language used in the test is appropriate and clear.	-1	1	0	0
2. Descriptive paragraph					
2.1	The instruction of the test is clear and understandable.	1	1	0	0.66
2.2	The prompt is clear and understandable.	1	1	0	0.66

2.3	The prompt requires students to write a descriptive paragraph.	1	1	1	1
2.4	The prompt assesses students' descriptive writing.	1	1	1	1
2.5	The prompt assesses students' critical thinking skills.				
	• analyzing	1	1	1	1
	• decision-making	1	1	1	1
	• reasoning	1	0	1	0.66
	• evaluating	0	1	1	0.66
	• problem-solving	1	1	1	1
2.6	The word limit (150-200 words) is appropriate	0	1	1	0.66
2.7	The time allocation (60 minutes) is appropriate.	0	1	1	0.66
2.8	The language used in the test is appropriate and clear.	0	1	1	0.66
<b>3. Narrative paragraph</b>					
3.1	The instruction of the test is clear and understandable.	1	1	1	1
3.2	The prompt is clear and understandable.	0	1	0	0.33
3.3	The prompt requires students to write a narrative paragraph.	1	1	1	1
3.4	The prompt assesses students' narrative writing.	1	1	1	1
3.5	The prompt assesses students' critical thinking skills.				
	• analyzing	0	1	1	0.66
	• decision-making	1	1	1	1
	• reasoning	1	1	1	1
	• evaluating	0	1	1	0.66

	<ul style="list-style-type: none"> <li>problem-solving</li> </ul>	-1	1	1	0.33
3.6	The word limit (150-200 words) is appropriate	0	1	1	0.66
3.7	The time allocation (60 minutes) is appropriate.	0	1	1	0.66
3.8	The language used in the test is appropriate and clear.	-1	1	0	0
<b>4. Persuasive paragraph</b>					
4.1	The instruction of the test is clear and understandable.	1	1	1	1
4.2	The prompt is clear and understandable.	1	1	1	1
4.3	The prompt requires students to write a persuasive paragraph.	0	-1	1	0
4.4	The prompt assesses students' persuasive writing.	0	-1	1	0
4.5	The prompt assesses students' critical thinking.				
	<ul style="list-style-type: none"> <li>analyzing</li> </ul>	1	1	1	1
	<ul style="list-style-type: none"> <li>decision-making</li> </ul>	1	1	1	1
	<ul style="list-style-type: none"> <li>reasoning</li> </ul>	1	1	1	1
	<ul style="list-style-type: none"> <li>evaluating</li> </ul>	0	0	1	0.33
	<ul style="list-style-type: none"> <li>problem-solving</li> </ul>	-1	1	1	0.33
4.6	The word limit (150-200 words) is appropriate	0	1	1	0.66
4.7	The time allocation (60 minutes) is appropriate.	0	1	1	0.66
4.8	The language used in the test is appropriate and clear.	0	1	1	0.66
<b>5. Scoring rubrics</b>					
5.1	The writing rubric is appropriate for the tests.	0	1	1	0.66

5.2	The critical thinking rubric is appropriate for the tests.	0	1	1	0.66
Total					0.670



### Appendix P: Validation of students' reflective journals

No.	Questions	Expert			IOC
		E1	E2	E3	
1.	From project-based writing instruction, what have you learned?	1	1	1	1
2.	How can project-based writing instruction help you to improve your writing ability? Please explain and give some examples.	1	1	1	1
3.	How can project-based writing instruction help you to improve critical thinking skills (analyzing, problem-solving, decision-making, reasoning, and evaluating skills)? Please explain and give some examples.	1	1	1	1
4.	What was the progress of working on your project?	1	1	0	0.66
5.	What were the most interesting things you discovered while working on your project? About yourself? About your friends? About the lesson or about the project?	1	1	1	1
6.	What problem did you encounter? Were you able to solve it? How did you solve it?	1	1	1	1
Total					0.943

## Appendix Q: Validation of the attitude questionnaire

### Part 1: General Information

No.	Questions	Expert			IOC
		E1	E2	E3	
1.	Gender	1	1	1	1
2.	Age	1	1	1	1
3	Department and Faculty	1	1	1	1
4	Year of study	1	1	1	1
5	How long have you been learning English?	1	1	1	1
6	How often do you write in English per week?	1	1	1	1
7	What level is your writing ability before and after implementing project-based writing instruction?	1	1	1	1
8	What level is your critical thinking skills before and after implementing project-based writing instruction?	1	1	1	1
9	Do you know what project-based learning is?	1	1	1	1
10	Have you ever used project-based learning in other subjects?	1	1	1	1
11	Which learning style do you prefer?	1	1	1	1
12	How many people do you prefer when working in groups?	1	1	1	1
Total					1.00

**Part 2: Attitudes towards project-based writing instruction**

No.	Questions	Expert			IOC
		E1	E2	E3	
Writing ability					
1.	Overall, the use of PWI improves my writing ability.	1	1	1	1
2.	I can construct a paragraph through the writing process (prewriting, drafting, revising, editing, and publishing) better.	1	1	1	1
The project-based writing instruction stage 1: Planning the project					
3.	Overall, the stage of planning the project helps me to write better.	1	1	1	1
4.	The stage of inquiry stimulates me to write.	1	1	1	1
5.	The stage of modeling helps me to write many text types better.	1	1	1	1
6.	The stage of shared writing (composing a paragraph <u>as a whole class</u> ) helps me to write many text types better.	1	1	1	1
The project-based writing instruction stage 2: Developing the project					
7.	Overall, the stage of developing the project helps me to write better.	1	1	1	1
8.	I can apply what I have learned from the planning stage to construct my paragraph correctly and effectively.	1	1	1	1

9.	Working and discussing in groups help me to write better.	1	1	1	1
10.	The stage of collaborative writing (composing a paragraph <u>in groups</u> ) helps me to write many text types better.	1	1	1	1
11.	The stage of independent writing (composing a paragraph <u>individually</u> ) helps me to write many text types better.	1	1	1	1
12.	A student-teacher conference helps me to write better.	1	1	1	1
13.	The materials are useful to develop my writing ability.	1	1	1	1
<b>The project-based writing instruction stage 3: Evaluating the project</b>					
14.	Overall, the stage of evaluating the project helps me to write better.	1	1	1	1
15.	Presenting projects helps me to revise my writing.	1	1	1	1
16.	Writing reflective journals helps me to reflect the <u>language</u> I have learned.	1	1	1	1
17.	Writing reflective journals helps me to reflect the <u>content</u> I have learned.	1	1	1	1
18.	Writing reflective journals helps me to reflect the <u>experience</u> I have learned.	1	1	1	1
19.	The scoring rubric is appropriate to measure my writing ability.	1	1	1	1



20.	<u>Self-assessment</u> helps me to write better.	1	1	1	1
21.	<u>Peer assessment</u> helps me to write better.	1	1	1	1
22.	<u>Teacher assessment</u> helps me to write better.	1	1	1	1
23.	Using self-assessment, peer assessment, and teacher assessment together help me to write better.	1	1	1	1
<b>Critical thinking skills</b>					
24.	Overall, the use of PWI improves my critical thinking skills.	1	1	1	1
<b>The project-based writing instruction stage 1: Planning the project</b>					
25.	Overall, the stage of planning the project helps me to think more critically.	1	1	1	1
26.	Questions used in the stage of inquiry help me to think more critically.	1	1	1	1
27.	The model texts used in stage of modeling help me to analyze <u>the language use</u> .	1	1	1	1
28.	The model texts used in stage of modeling help me to analyze <u>the way to construct a paragraph</u> .	1	1	1	1
29.	The stage of shared writing (composing a paragraph <u>as a whole class</u> ) helps me to think more critically.	1	1	1	1

<b>The project-based writing instruction stage 2: Developing the project</b>					
30.	Overall, the stage of developing the project helps me to think more critically.	1	1	1	1
31.	Working and discussing in groups help me to think more critically.	1	1	1	1
32.	The stage of collaborative writing (composing a paragraph <u>in groups</u> ) helps me to think more critically.	1	1	1	1
33.	The stage of independent writing (composing a paragraph <u>individually</u> ) helps me to think more critically.	1	1	1	1
34.	A student-teacher conference helps me to think more critically.	1	1	1	1
35.	The materials are useful to develop my critical thinking skills.	1	1	1	1
<b>The project-based writing instruction stage 3: Evaluating the project</b>					
36.	Overall, the stage of evaluating the project helps me to think more critically.	1	1	1	1
37.	Presenting projects helps me to think more critically.	1	1	1	1
38.	Writing reflective journals helps me to think more critically.	1	1	1	1
39.	The scoring rubric is appropriate to measure my critical thinking skills.	1	1	1	1
40.	<u>Self-assessment</u> helps me to think more critically.	1	1	1	1

41.	Peer assessment helps me to think more critically.	1	1	1	1
42.	Teacher assessment helps me to think more critically.	1	1	1	1
43.	Using self-assessment, peer assessment, and teacher assessment together help me to think more critically.	1	1	1	1
<b>Advantages and disadvantages of working on a project</b>					
44.	Working on a project helps me to increase my responsibility.	1	1	1	1
45.	Working on a project helps me to increase my collaborative learning (working with others).	1	1	1	1
46.	Working on a project gives me a chance to use authentic materials.	1	1	1	1
47.	During working on a project, I have difficulties in exchanging ideas with my friends.	1	1	1	1
48.	Working on a project makes me stressed.	1	1	1	1
49.	Working on a project is time-consuming.	1	1	1	1
50.	I think I can apply project-based learning in other English courses.	1	1	1	1
Total					1.00

**Part 3: Additional comments**

No.	Questions	Expert			IOC
		E1	E2	E3	
1.	What did you like and dislike about project-based writing instruction? Please explain and give some examples.	1	1	1	1
2.	What are your suggestions on this course?	1	1	1	1
Total					1.00
Total IOC scores of parts 1, 2, and 3					1.00

### Appendix R: Validation of the semi-structured interview protocol

No.	Questions	Expert			IOC
		E1	E2	E3	
1.	Can you explain what project-based writing instruction is? How?	1	1	1	1
2.	What do you think about project-based writing instruction? Why?	1	1	1	1
3.	Which instruction do you prefer between traditional method focusing on drilling and project-based writing instruction? Why?	1	1	1	1
4.	How is your writing ability in terms of content, organization, vocabulary, grammatical accuracy, and mechanics such as spelling, punctuation marks, and capitalization before and after using project-based writing instruction?	1	1	1	1
5.	Which activity helped you to improve your writing ability? Why?	1	1	1	1
6.	How are your critical thinking skills in terms of analyzing, problem-solving, decision-making, reasoning, and evaluating skills before and after using project-based writing instruction?	1	1	1	1

7.	Which activity helped you to improve your critical thinking skills? Why?	1	1	1	1
8.	Besides writing ability and critical thinking skills, what else did you learn from the process of working on a project?	1	1	1	1
9.	What were obstacles or difficulties you had while working on the project? How did you overcome those difficulties?	1	1	1	1
10.	How can you apply project-based learning in your daily life?	1	1	1	1
11.	What is your suggestion to make this course more interesting and useful for your junior friends?	1	1	1	1
Total					1.00

## **Appendix S: Names of the experts**

### **Experts validating lesson plans**

1. Assistant Professor Dr. Ruedeerath Chusanachoti  
Faculty of Education, Chulalongkorn University
2. Assistant Professor Dr. Piboon Sukvijit Barr  
School of Liberal Arts, Sripatum University
3. Dr. Watthana Suksiripakonchai  
Faculty of Humanities, Srinakharinwirot University

### **Experts validating writing and critical thinking tests and rubrics**

1. Assistant Professor Dr. Korapin Paranapit  
Faculty of Humanities, Kasetsart University
2. Assistant Professor Dr. Rin Cheep-Aranai  
Faculty of Education, Silpakorn University
3. Dr. Patricia Visser  
Language Centre, International College for Sustainability Studies,  
Srinakharinwirot University

### **Experts validating students' reflective journal, the attitude questionnaire, and the semi-structured interview protocol**


1. Assistant Professor Dr. Sutthirak Sapsirin  
Language Institute, Chulalongkorn University
2. Dr. Sakulrat Worathumrong  
Faculty of Humanities, Srinakharinwirot University
3. Dr. Chayata Viriya  
Faculty of Humanities, Kasetsart University

## Appendix T: Scenarios and examples of the products of all mini-projects

### Unit 1: Writing a procedural paragraph (Creating a brochure)

**Unit 1**  
**MINI-PROJECT TIME**

"Apinya is the owner of the hostels in four regions of Thailand: North, Central, Isaan (Northeastern Thailand), and Southern Thailand. The most outstanding point of her hostels in each region is to include the Thai cooking class for foreign customers to join. Now, she would like to promote more Thai foods and how to cook them to the foreign customers. She is thinking of three dishes with their cooking steps and the brochure designs for each region. What kind of Thai dishes should she include in the cooking class? Which of the three dishes should be suggested to her as the most popular one of each region? What about the brochure designs? Please help Apinya to choose the dishes for each region and design brochures."



**INGREDIENTS**

It is easy to cook Sup Nor-Mai if you follow these instructions. Firstly, use a fork to shred boiled bamboo shoots into long pieces. After that, add water and yanning juice into a pot over high heat for two to three minutes, do not forget to set your timer and let it boil. Next, add the bamboo shoot into a pot and simmer them until the soup begins to dry out. You can season with fish sauce, pickled fish juice and ground dried chilies as you like. Then remove it from the heat, add lime juice and ground roasted rice. To finish, garnish with mint leaves, scotch-bonnet corianders and sliced spring onions. You can serve it with hot sticky rice. With these instructions, you can make Sup Nor-Mai perfectly on your own.



**AN shes**

**SOM TUM**

IT IS NOT DIFFICULT TO MAKE PAPAYA SALAD IF YOU FOLLOW THESE STEPS. FIRST OF ALL, PEEL OFF THE GREEN PAPAYA SKIN AND CUT THE PAPAYA KEENLY IN HALF AND REMOVE ALL SEEDS. NEXT, ADD PEELED GARLIC AND CHILLIES INTO THE PORTER AND POUND THEM A LITTLE BIT, THEN ADD PARSLEY, FISH SAUCE, AND LIME JUICE INTO THE PORTER. PUT AND POUND THEM UNTIL THE PARSLEY GETS DISCOLORED INTO SOUP. THE NEXT STEP IS TO PUT ROASTED PEANUTS, DRIED SHIMP, AND TOMATOES INTO THE PORTER. POUND THEM AGAIN, BUT NOT TOO HARD. THE LAST STEP IS TO ADD GREEN PAPAYA INTO THE PORTER AND MIX THEM ALL TOGETHER. NOW YOU CAN EAT IT. WITH ALL OF THESE STEPS, YOU CAN MAKE A DELICIOUS PAPAYA SALAD BY YOURSELF.

**Larb Moo**

You can easily make Spicy minced pork salad (Larb Moo) with these simple steps. First, add minced pork in a sauce-pan and fry the pork. Wait until it is fully cooked all the way and then take the pork off the heat. Next, leave the pork in the same pot. Add the roasted rice powder and chili flakes in the pot. Do not forget to add sugar, fish sauce and lime. Then, add sliced green papaya, green onions and a few cilantro leaves. To give Larb Moo a good mixture, make sure all the spices are all loaded into the pork. At the end, move a taste-test. See if it needs more fish sauce, lime juice, or chili flakes. Better serve Larb Moo with mint leaves. Thai sweet basil, and cilantro. From this day, enjoy your delicious Larb Moo by yourself or with your partner.

**IG di**

**SOM TUM**

There is no love sincerer than the love of food.

**LARB MOO**

"Pull up a chair. Take a taste. Come join us. Life is so endlessly delicious."

Bulacharak Munjai no.3 ID 820  
Wannapiat Sanvassan no.6 ID 823  
Srinaya Boonwittaya no.8 ID 828

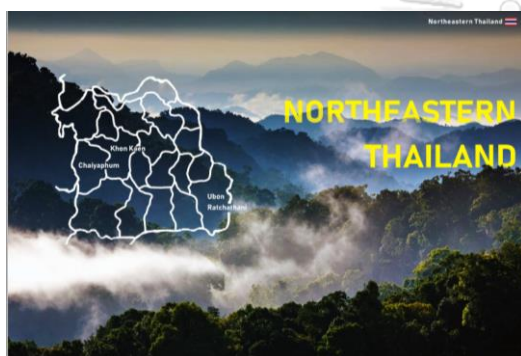
Ask not what you can do for your country. Ask what's for LUNCH!



## Unit 2: Writing a descriptive paragraph (Creating a booklet)

### Unit 2 MINI-PROJECT TIME

Kavee works for Tourism Authority of Thailand. Recently, he has been responsible for promoting the three top-rated tourist attractions for one day trip in each province for foreigners at Bitec. This time he plans to distribute a booklet, not a brochure as usual to customers. Therefore, Kavee sets up the meeting to discuss with you about this project.







## Unit 4: Writing a persuasive paragraph (Creating a review)

## Unit 4

### MINI-PROJECT TIME

Your boss has just got the project from TripAdvisor to review travelling in Thailand. This organization is planning to publish a special magazine reviewing everything in Thailand to promote tourism in Thailand for foreigners. So, a lot of reviews with nice pictures from different topics are needed for consideration. All staff can travel to anywhere in Thailand. Then they need to write a review between 150 and 200 words for one topic during their journey. They have two weeks to finish this job. When they come back, they have to present their reviews to their boss. In this situation, if you were one of the staff, what would you review and how would you design your review with pictures?



### Things to do in Chiang Mai



*In my opinion, if you want a vacation, Chiang Mai is a great choice. Firstly, the festivals in Chiang Mai are incredible. It would be a good experience to visit such as Yi Peng festival that happens in Chiang Mai. The highlight of the event focuses on releasing the Khom lay or floating lanterns into the night sky. People believe that bad luck will fly away with the lanterns. You can see spectacular view of lights there. Secondly, the nightlife in Chiang Mai is so wild. There is a walking street in Chiang Mai where you can hang out. There are bars, nightclubs, and beautiful women. There is a club that very famous called "The Playhouse Bar". You can have a lot of fun there. Thirdly, you have to admit that Thai food is iconic in Thailand. The dishes that you must try are Nam Prik Ong, Khao Soi, and Laab. They are so delicious and give the real feeling of the northern Thai food. For people who have never tried, you should have a taste for once. For these reasons, Chiang Mai is the perfect city that you should visit.*

### Woo Café & Art Gallery



There are three reasons why Woo Chiang Mai Café is famous for tourists. The first reason is this café is delightful. The café is a two-story house with a cozy atmosphere. The front of the shop has a refreshing green color of ornamental plants. The café also has a variety of flowers decorated inside. Most of them are fragrant orchids. This is extremely pleasurable for guests to visit. The second reason is the quality of the food. The café has delicious food, drinks, and desserts that give a large size. The shop's recommended dish is Northern Thai Curry Noodles with Chicken, which makes only ten dishes a day. The last reason is this café is not just a restaurant but also a lifestyle shop. They sell stylish household items, for example, pillows and other home decorations that enhance the atmosphere in the home to be more spectacular. The second floor of the shop is an art gallery that exhibits and sells works of artists with interesting ideas. From these three reasons, it can be said that Woo Chiang Mai Café is a restaurant and lifestyle shop that attracts both Thai and foreign tourists.

#### Contact

Woo Café - Art Gallery - Lifestyle Shop  
 Telephone: 052003717  
 open-close: 10.00-22.00  
 average price: 60-150  
 Bath  
 recommended dish:  
 Northern Thai Curry Noodles with Chicken

**WOO**  
 Café - Art Gallery - Lifestyle Shop

## Appendix U: Self-check forms

<b>Unit 1: Writing a procedural paragraph</b>
<b>Writer's self-check</b>

Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Revising checklist			
Topics	Yes	No	Remark
<b>Format</b>			
- A paragraph looks like the model text.			
<b>Content and organization</b>			
- A paragraph begins with a topic sentence.			
- A paragraph includes complete steps.			
- A paragraph includes time-order signals.			
- A paragraph has enough details for the reader to understand the steps in the process.			
- A paragraph ends up with a concluding sentence.			
- A paragraph has unity.			
Editing checklist			
<b>Grammar</b>			
- The writer checked for run-on sentences.			
- The writer checked for fragments.			
- The writer checked verb tense, word order, articles, etc.			
<b>Mechanics (punctuation marks, spelling, and capitalization)</b>			
- The writer put a period after every sentence.			
- The writer used commas correctly.			
- The writer checked spelling.			
- The writer used capital letters correctly.			

Additional comments

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## Unit 2: Writing a descriptive paragraph

### Writer's self-check

Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Revising checklist			
Topics	Yes	No	Remark
<b>Format</b>			
- A paragraph looks like the model text.			
<b>Content and organization</b>			
- A paragraph begins with a topic sentence.			
- A paragraph includes space order to describe places.			
- A paragraph includes specific details to help the reader see what you are describing.			
- A paragraph ends up with a concluding sentence.			
- A paragraph has unity.			
<b>Editing checklist</b>			
<b>Grammar</b>			
- The writer checked for run-on sentences.			
- The writer checked for fragments.			
- The writer used adjectives in the correct order to describe places.			
- The writer used prepositional phrases correctly.			
- The writer checked verb tense, word order, articles, etc.			
<b>Mechanics (punctuation marks, spelling, and capitalization)</b>			
- The writer put a period after every sentence.			
- The writer used commas correctly.			
- The writer checked spelling.			
- The writer used capital letters correctly.			

Additional comments

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### Unit 3: Writing a narrative paragraph

#### Writer's self-check

Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Revising checklist			
Topics	Yes	No	Remark
<b>Format</b>			
- A paragraph looks like the model text.			
<b>Content and organization</b>			
- A paragraph begins with a topic sentence (who, what, when, where).			
- A paragraph has a clear beginning, a middle, and an end.			
- A paragraph puts events in a logical order.			
- A paragraph includes emotional details.			
- A paragraph ends up with a concluding sentence.			
- A paragraph has unity.			
<b>Editing checklist</b>			
<b>Grammar</b>			
- The writer checked for run-on sentences.			
- The writer checked for fragments.			
- The writer used the past tense to narrate the story			
- The writer used prepositional phrases (time and place).			
- The writer checked verb tense, word order, articles, etc.			
<b>Mechanics (punctuation marks, spelling, and capitalization)</b>			
- The writer put a period after every sentence.			
- The writer used commas correctly.			
- The writer checked spelling.			
- The writer used capital letters correctly.			

Additional comments

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### Unit 4: Writing a persuasive paragraph

#### Writer's self-check

Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Revising checklist			
Topics	Yes	No	Remark
<b>Format</b>			
- A paragraph looks like the model text.			
<b>Content and organization</b>			
- A paragraph begins with a clear opinion topic sentence.			
- A paragraph uses transition signals to introduce each reason.			
- A paragraph includes three main reasons.			
- A paragraph provides examples, statistics, or facts to support each main reason.			
- A paragraph ends up with a concluding sentence.			
- A paragraph has unity.			
<b>Editing checklist</b>			
<b>Grammar</b>			
- The writer checked for run-on sentences.			
- The writer checked for fragments.			
- The writer used modal verbs (should, can, etc.).			
- The writer used subordinating conjunctions (because, so).			
- The writer checked verb tense, word order, articles, etc.			
<b>Mechanics (punctuation marks, spelling, and capitalization)</b>			
- The writer put a period after every sentence.			
- The writer used commas correctly.			
- The writer checked spelling.			
- The writer used capital letters correctly.			

Additional comments

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## Appendix V: Peer review checklists

Unit 1: Writing a procedural paragraph Peer review checklist			
Reader: _____	Writer: _____	Date: _____	
Topic of writing: _____			
Read your partner's paper and give feedback to your partner based on the questions in the table. After finishing checking, give this sheet back to your partner and discuss your comments with him/ her.			
Topics	Yes	No	Comments
1. Is the topic sentence effective? If no, what should the writer improve?			
2. Does the writer include steps of doing something clearly?			
3. Does the writer include time-order signals (first, next, and so on)?			
4. Is the concluding sentence effective? If no, what should the writer improve?			
5. Does the writer use the word choice appropriately for this topic?			
6. Are there any grammatical errors? Underline and correct them.			
7. Are there any errors in mechanics such as punctuation marks, spelling, and capitalization? Underline and correct them.			
8. Do you understand what the writer is trying to convey?			
Additional comments			

Unit 2: Writing a descriptive paragraph

Peer review checklist

Reader: \_\_\_\_\_ Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Topic of writing: \_\_\_\_\_

Read your partner’s paper and give feedback to your partner based on the questions in the table. After finishing checking, give this sheet back to your partner and discuss your comments with him/ her.

Topics	Yes	No	Comments
1. Is the topic sentence effective? If no, what should the writer improve?			
2. Does the writer give background information?			
3. Does the writer describe important details?			
4. Does the writer include sensory details (vision, hearing, smell, taste, and touch)?			
5. Is the concluding sentence effective? If no, what should the writer improve?			
6. Does the writer use the word choice appropriately for this topic?			
7. Are there any grammatical errors? Underline and correct them.			
8. Are there any errors in mechanics such as punctuation marks, spelling, and capitalization? Underline and correct them.			
9. Do you understand what the writer is trying to convey?			

Additional comments



Unit 3: Writing a narrative paragraph

Peer review checklist

Reader: \_\_\_\_\_ Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Topic of writing: \_\_\_\_\_

Read your partner’s paper and give feedback to your partner based on the questions in the table. After finishing checking, give this sheet back to your partner and discuss your comments with him/ her.

Topics	Yes	No	Comments
1. Is the topic sentence effective (who, what, when, and where)? If no, what should the writer improve?			
2. Does the writer have a clear beginning, a middle, and an end?			
3. Does the writer explain the sequence of the events in a logical way?			
4. Does the writer make the reader see and feel the story?			
5. Is the concluding sentence effective? If no, what should the writer improve?			
6. Does the writer use the word choice appropriately for this topic?			
7. Are there any grammatical errors? Underline and correct them.			
8. Are there any errors in mechanics such as punctuation marks, spelling, and capitalization? Underline and correct them.			
9. Do you understand what the writer is trying to convey?			

Additional comments

Unit 4: Writing a persuasive paragraph

Peer review checklist

Reader: \_\_\_\_\_ Writer: \_\_\_\_\_ Date: \_\_\_\_\_

Topic of writing: \_\_\_\_\_

Read your partner's paper and give feedback to your partner based on the questions in the table. After finishing checking, give this sheet back to your partner and discuss your comments with him/ her.

Topics	Yes	No	Comments
1. Is the topic sentence effective? If no, what should the writer improve?			
2. Does the writer include transition signals (First, Second, Third)?			
3. Does the writer have three main reasons?			
4. Does the writer give examples, explanations, statistics, or facts to support each main point?			
5. Is the concluding sentence effective? If no, what should the writer improve?			
6. Does the writer use the word choice appropriately for this topic?			
7. Are there any grammatical errors? Underline and correct them.			
8. Are there any errors in mechanics such as punctuation marks, spelling, and capitalization? Underline and correct them.			
9. Do you understand what the writer is trying to convey?			

Additional comments

## Appendix W: The scoring rubric of project

### Project scoring rubric

Criteria	Evaluation			
	4 Exemplary	3 Accomplished	2 Developed	1 Approaching
<b>Task achievement</b>	<ul style="list-style-type: none"> <li>The project is completed appropriately and correctly.</li> <li>The project shows knowledge that is completely correct and consistent with the purpose of the project.</li> </ul>	<ul style="list-style-type: none"> <li>The project is completed correctly.</li> <li>The project shows knowledge that is mostly correct and consistent with the purpose of the project.</li> </ul>	<ul style="list-style-type: none"> <li>The project is completed, but some information is missing.</li> <li>The project shows knowledge that is fairly correct and consistent with the purpose of the project.</li> </ul>	<ul style="list-style-type: none"> <li>The project is completed inappropriately and incorrectly.</li> <li>The project fails to show knowledge that is correct and consistent with the purpose of the project.</li> </ul>
<b>Language use</b>	<ul style="list-style-type: none"> <li>There are no errors in using vocabulary, grammatical accuracy, and mechanics.</li> </ul>	<ul style="list-style-type: none"> <li>There are very few errors in using vocabulary, grammatical accuracy, and mechanics.</li> </ul>	<ul style="list-style-type: none"> <li>There are some errors in using vocabulary, grammatical accuracy, and mechanics.</li> </ul>	<ul style="list-style-type: none"> <li>There are a lot of errors in using vocabulary, grammatical accuracy, and mechanics.</li> </ul>
<b>Quality of product</b> (Design, layout, graphics including colors and size)	<ul style="list-style-type: none"> <li>The product shows the highest quality.</li> <li>Design and layout are exceptionally attractive and particularly neat.</li> <li>All graphics are attractive and enhance the quality of the product.</li> </ul>	<ul style="list-style-type: none"> <li>The product shows high quality.</li> <li>Design and layout are attractive and neat.</li> <li>Very few graphics are unattractive, but most of them support the quality of the product.</li> </ul>	<ul style="list-style-type: none"> <li>The product shows moderate quality.</li> <li>Design and layout are attractive, but show some messy parts.</li> <li>Some graphics are unattractive, but most of them support the quality of the product.</li> </ul>	<ul style="list-style-type: none"> <li>The product shows very low quality.</li> <li>Design and layout are not attractive. They are very messy and show lack of organization.</li> <li>All graphics are unattractive and unclear and do not support the quality of the product.</li> </ul>

Criteria	Evaluation				
	4 Exemplary	3 Accomplished	2 Developed	1 Approaching	0 Not meeting
<b>Presentation</b>	<ul style="list-style-type: none"> <li>■ Presenters prepare their presentation very well.</li> <li>■ They deliver the presentation smoothly and naturally.</li> <li>■ They always hold the audience's attention.</li> </ul>	<ul style="list-style-type: none"> <li>■ Presenters prepare their presentation well.</li> <li>■ They deliver the presentation relatively smoothly.</li> <li>■ They usually hold the audience's attention.</li> </ul>	<ul style="list-style-type: none"> <li>■ Presenters prepare their presentation somewhat.</li> <li>■ They deliver the presentation with some hesitation or pausing.</li> <li>■ They sometimes hold the audience's attention.</li> </ul>	<ul style="list-style-type: none"> <li>■ Presenters prepare their presentation unwell.</li> <li>■ They deliver the presentation with a lot of hesitation or pausing.</li> <li>■ They hardly hold the audience's attention.</li> </ul>	<ul style="list-style-type: none"> <li>■ Presenters do not prepare their presentation.</li> <li>■ They lose the audience's attention.</li> </ul>
<b>Teamwork (3 students)</b>	<ul style="list-style-type: none"> <li>■ Students work with team effectively.</li> <li>■ Everyone helps one another very well.</li> <li>■ There are no problems to work together.</li> </ul>		<ul style="list-style-type: none"> <li>■ Students work with team, but some students do not help their friends.</li> <li>■ There are some problems in groups.</li> </ul>		<ul style="list-style-type: none"> <li>■ There is no teamwork in groups.</li> <li>■ There are a lot of problems in groups.</li> </ul>

Adapted from Puakprom (2016)

## **Appendix X: Consent form for participation in a research study**

### **CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY**

#### **Title of Study**

The Effects of Project-Based Writing Instruction on Writing Ability and Critical Thinking Skills of Thai EFL Undergraduate Students

#### **Investigator**

Apapan Ruengkul

Ph.D. Candidate

English as an International Language, Chulalongkorn University

Email: [a\\_ruengkul@hotmail.com](mailto:a_ruengkul@hotmail.com)

#### **Purpose of study**

You are invited to participate in a research study. The purpose of this research is to develop an instructional method named Project-based Writing Instruction to enhance writing ability and critical thinking skills of Thai EFL undergraduate students. This study will contribute to the researcher's completion of her doctoral dissertation.

#### **Research procedures**

There are two main phases in this study: developing Project-based Writing Instruction and implementing Project-based Writing Instruction. In phase 1, theory, related concepts, and relevant research are studied to develop Project-based Writing Instruction. Then all instruments of the study such as the pre-test and post-test of writing ability and critical thinking skills, students' reflective journals, the stimulated recall, the attitude questionnaire, and the semi-structured interview are designed and validated. In phase 2, the main study is conducted. To start with, the pre-writing and critical thinking test of the procedural paragraph and the descriptive paragraph is distributed to students in week 1. Then students study four units, namely Unit 1: Writing a procedural paragraph, Unit 2: Writing a descriptive paragraph, Unit 3: Writing a narrative paragraph, and Unit 4: Writing a persuasive paragraph from week 2 to week 14. During

implementing Project-based Writing Instruction, the stimulated recall is employed after finishing each unit in week 4, 7, 11, and 14. Moreover, students are required to write their reflective journals every week. In week 7, the post-writing and critical thinking test of the procedural paragraph and the descriptive paragraph is distributed to students. In week 9, the pre-writing and critical thinking test of the narrative paragraph and the persuasive paragraph is distributed to students. Finally, in week 15, students are required to take the post-writing and critical thinking test of the narrative paragraph and the persuasive paragraph, to complete the attitude questionnaire, and to participate in the semi-structure interview protocol to explore their attitudes towards Project-based Writing Instruction. After collecting data, the results are analyzed qualitatively and quantitatively.

### **Confidentiality**

Any information, responses obtained from the study and your identity will maintain confidential.

### **Voluntary participation**

Your participation in this research study is entirely voluntary. You are free to choose not to participate and withdraw your consent to participate at any time. Provided that you decide not to participate or to withdraw from this study, you will not be penalized in any way.

### **Consent**

I have read this consent form and I understand what is being requested of me as a participant in this study. I give my consent to take part in this study and have been given a copy of this form for my own information.

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

## VITA

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AWARD RECEIVED	-