

EFFECTS OF CONTENT-BASED INSTRUCTION USING SIX-T'S APPROACH ON ENGLISH
ORAL PRESENTATION SKILLS OF LOWER SECONDARY SCHOOL STUDENTS

Mr. Thanyawit Wuthisawangwong



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)

are the theses authors has submitted through the University Graduate School.

for the Degree of Master of Education Program in Teaching English as a Foreign

Language

Department of Curriculum and Instruction

Faculty of Education

Chulalongkorn University

Academic Year 2016

Copyright of Chulalongkorn University

ผลของการสอนที่เน้นเนื้อหาวิชาโดยใช้วิธีสอนแบบซิกซ์ทีมีต่อทักษะการนำเสนองานด้วยวาจาของ
นักเรียนชั้นมัธยมศึกษาตอนต้น



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาครุศาสตรมหาบัณฑิต
สาขาวิชาการสอนภาษาอังกฤษเป็นภาษาต่างประเทศ ภาควิชาหลักสูตรและการสอน

คณะครุศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2559

ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title EFFECTS OF CONTENT-BASED INSTRUCTION USING
SIX-T'S APPROACH ON ENGLISH ORAL
PRESENTATION SKILLS OF LOWER SECONDARY
SCHOOL STUDENTS

By Mr. Thanyawit Wuthisawangwong

Field of Study Teaching English as a Foreign Language

Thesis Advisor Associate Professor Sumalee Chinokul, Ph.D.

Accepted by the Faculty of Education, Chulalongkorn University in Partial
Fulfillment of the Requirements for the Master's Degree

.....Dean of the Faculty of Education
(Associate Professor Siridej Sujiva, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Pornpimol Sukavatee, Ph.D.)

.....Thesis Advisor
(Associate Professor Sumalee Chinokul, Ph.D.)

.....External Examiner
(Associate Professor Piyatida Changpueng, Ph.D.)

5683339427 : MAJOR TEACHING ENGLISH AS A FOREIGN LANGUAGE

KEYWORDS: CONTENT-BASED INSTRUCTION/ SIX-T'S APPROACH/ ENGLISH ORAL PRESENTATION SKILLS

THANYAWIT WUTHISAWANGWONG: EFFECTS OF CONTENT-BASED INSTRUCTION USING SIX-T'S APPROACH ON ENGLISH ORAL PRESENTATION SKILLS OF LOWER SECONDARY SCHOOL STUDENTS. ADVISOR: ASSOC. PROF. SUMALEE CHINOKUL, Ph.D., 123 pp.

The sample of the classroom unit-based simple sampling consisted of a class of 45 ninth grade students divided into 15 groups in Streesmutprakan School who enrolled English for Scientific Presentation Course in term 2, academic year 2016. The duration of the experiment was taken place for 8 weeks. The instruments were an English oral presentation evaluation scale which was used before and after conducting content-based instruction using Six-T's approach and semi-structured interview. The data were analyzed using descriptive statistics, the Wilcoxon Signed Rank test and content analysis.

The finding shows that 1) the English speaking post-test mean scores was higher than pre-test at the significant level of 0.05 2) students had positive opinions towards the content-based instruction using Six-T's approach on English oral presentation skills.

Department: Curriculum and
Instruction

Student's Signature

Advisor's Signature

Field of Study: Teaching English as a
Foreign Language

Academic Year: 2016

ACKNOWLEDGEMENTS

First of all, I am truly grateful and deepest appreciation to my advisor, Assoc. Prof. Dr. Sumalee Chinokul, who patiently and consistently supported me with valuable advice, guidance, and encouragement since the first day as TEFL student. Without her, this Master Thesis could not be completed until the last process.

My profound appreciation is extended to the entire both of my thesis and TEFL committee, Dr. Pornpimol Sukavatee, Assoc. Prof. Dr. Piyatida Changpueng, Dr. Jutarat Vibulphol, Asst. Prof. Dr. Prannapha Modehirun, and Major Dr. Rashane Meesri, who fulfil my graduate life with love and always support me in every way.

I would like to express my gratitude to Dr. Nonglak Pangroean, Ms. Somruethai Kongngam, and Mr. Griffin Patterson, who spent time reading my work and provided useful advice.

I would like to sincerely thank all of my special people in TEFL program, Ms. Chanmany Rattanaavongsa, Mr. Stephen Sanglir, Ms. Onwipa Durongtham, Ms. Wipada Suthiroj, Mr. Pattana Songchat who always stand by my sides, walk the same path, and achieve the shared goal together.

Last but not least, I would like to express my deepest acknowledgement to my colleagues at Streemutprakan School, Mr. Wuttichai Wantamart, Mrs. Mulliga Aickpong, Ms. Jarassri Poonsawat, Ms. Prapassorn Puphewlueng, Mrs. Siwarin Sae-Heng, Ms. Phornthip Saisombat, Ms. Pinchuda Chuemeechai, Ms. Piyawan Chanloy, Ms. Chonlada Wisuma, Mr. Thanapoom Phumchan Ms. Kannika Nawetratanakorn, Mr. Danai Khantong, teachers from foreign language department, all teachers, and my lovely students. I appreciated your support.

Finally, I could say I received wholehearted encouragement and tremendous supports from my parents, my big family and my sister, Ms. Nitcharee Anaphatarahiran, without you, I might not walk towards the end of Master study.

CONTENTS

	Page
THAI ABSTRACT	iv
ENGLISH ABSTRACT	v
ACKNOWLEDGEMENTS	vi
CONTENTS	vii
CHAPTER 1 INTRODUCTION	1
Background of the Study	1
Research Questions	4
Research Objectives	5
Definitions of terms	5
Scope of the study	8
Significance of the study	9
CHAPTER 2 LITERATURE REVIEW	11
Content-Based Instruction	11
Definition of Content-Based Instruction (CBI)	12
The principles of Content-Based Instruction	13
Characteristics of Content-Based Instruction	15
The prototype models of Content-Based Instruction	17
Sheltered Model	18
Adjunct Model	18
Theme-Based Model	19
Assessment of language and content	20
Related studies on implementing Content-Based Instruction	21

	Page
Six-T's Approach	25
English Oral presentation	38
Definition of oral presentation.....	38
Issues related to using oral presentation in the language classroom	39
Advantages of using oral presentation in the language classroom.....	40
Key elements of effective oral presentations	42
Characteristics of good presentations	45
Evaluating the speech	46
Oral Assessment	46
CHAPTER 3 RESEARCH METHODOLOGY.....	51
Research Design.....	51
Research Procedures	52
Population and Participants.....	54
Research Instruments.....	66
Constructing Lesson plans	67
Constructing English oral presentation pretest and posttest	77
Developing semi-structured interview questions.....	81
Data Collection.....	84
Before the instruction	84
During the instruction	85
After the instruction	85
Data Analysis.....	86
Conclusion.....	88

	Page
CHAPTER 4.....	89
Research Question 1: To what extent does content-based instruction using Six-T's Approach enhance lower secondary school students' English oral presentation skills?	90
Research Question 2: What are the opinions of lower secondary school level students towards Content-Based Instruction using Six-T's Approach?.....	93
Overall opinions about the content-based instruction using Six-T's approach	93
The suggestions from students towards the further instruction.....	107
Summary.....	109
CHAPTER 5.....	111
DISCUSSIONS AND RECOMMENDATIONS	111
Summary of the study	111
Summary of the findings	112
Discussions.....	113
The Effects of the Content-Based Instruction using Six-T's Approach on English Oral Presentation Skills.....	113
Students' Opinions towards the Content-Based Instruction Using Six-T's Approach	119
Limitation of the study	122
Suggestions for future research.....	123
REFERENCES	2
VITA.....	78

LISTS OF TABLES

Table 2. 1 Examples of themes.....	31
Table 2. 2 The four basic types of texts specified in theme units	31
Table 2. 3 Different sets of topics in a theme unit	33
Table 2. 4 Thread that provides linkages among different themes.....	34
Table 2. 5 Examples of Task	35
Table 2. 6 Transition Activities	36
Table 3. 1 Thread utilized to provide linkage among the 2 theme units of the course.....	57
Table 3. 2 The sequence order of English for Scientific Oral presentation Course	59
Table 3. 3 A Summary of task selection and how tasks were designed over the content knowledge and oral presentation lessons in each theme unit	62
Table 3. 4 The research instruments of the study.....	66
Table 3. 5 The illustration of how the instructional tasks designed under the concept of Six-T's Approach are incorporated with the task-based instructional framework	70
Table 3. 6 The illustration of how the instructional tasks designed under the concept of Six-T's Approach are incorporated under the task-based instructional framework.	73
Table 3. 7 Pearson Correlation Coefficient of Inter-rater Reliability (Overall)	81
Table 3. 8 Pearson Correlation Coefficient of Interrater Reliability (Content).....	81
Table 3. 9 Pearson Correlation Coefficient of Interrater Reliability (Delivery)	81
Table 3. 10 Constructs and the interview questions	83
Table 3. 11 The categories and key words for content analysis.....	87

Table 4. 1 The comparison between the descriptive and Wilcoxon Signed Rank Test' results of the English oral presentation pretest/ posttest	91
Table 4. 2 The comparison between the descriptive and Wilcoxon Signed Rank Test's results of pretest/ posttest (content aspect)	91
Table 4. 3 The comparison between the descriptive and Wilcoxon Signed Rank Test's results of pretest/ posttest (oral presentation aspect)	92
Table 4. 4 Frequency and percent of the key concept found in the interview	93



LISTS OF FIGURES

Figure 2. 1 The comparison between the traditional classes and CBI class	13
Figure 2. 2 The three prototype models of CBI	18
Figure 3. 1 Research design to explore students' English oral presentation skills .	52
Figure 3. 2 Phases in Developing the CBI using Six-T's approach in English for Scientific Oral Presentation Course.....	53
Figure 3. 3 Conceptual Framework illustrating how a Six-T's (Theme, Text, Topic, Thread, Task, and Transition) framework was implemented in the content-based instruction English for Scientific Oral Presentation Course (Stoller and Grabe, 1997).....	65

CHAPTER 1

INTRODUCTION

Background of the Study

In recent years, science and engineering practices as the newly launched Next Generation Science Standards have been receiving increased attention to prepare all students to higher education and career ready in accordance with 8 practices for K-12 science classroom (Lee, 2013). English language competence has also played a significant role for science education in school as a prerequisite for learners to benefit fully from the curriculum and to participate in situations with a science dimension outside school. Learning science does not only involve new concepts, explanation and arguments, but also new ways of making meaning and of interacting with others. Therefore, learning science involves a new way of perceiving, analyzing, and communicating (Vollmer, 2010).

The mastery of communication skills is necessary in science education. The science education in school has developed a form of discourse of its own which is different from everyday discourse, from that of a mathematics or the language arts classroom (Quinn, Lee, & Valdés, 2012; Vollmer, 2010). Oral presentation in science is an academic skill with an academic genre containing vocabulary choices, discourse structure, and styles of delivery (Swales, 2004). Moreover, oral presentations can be either used for ensuring assessment, presenting research, and socializing students into

the discourse of an academic genre (Duff, 2010; Kim, 2006; Morita, 2000; Zareva, 2009, 2011).

Oral presentations often pose challenges to ESL or EFL learners due to a number of factors such as native language barriers, unfamiliarity with genre-related features of the target language, lack of oral communication skills and insufficient knowledge of the content which learners are going to present. When it comes to giving oral presentations in a non-native language, learners usually do not perform as well as in their mother tongue. Radzuan and Kaur (2011), for instance, found that lack of English language proficiency and having inadequate content knowledge of the topic are two major sources of anxiety. Zareva (2009) also revealed that in academic settings L2 presenters were so worried about the content that they excluded their peers from negotiating the information. This resulted in L2 presentations being constructed in a more formal way than L1 ones. Communication skills are also crucial for presenters to deliver a successful talk. The skills consist of a mixture of "... verbal, interpersonal and physical strategies needed to interact confidently and effectively with a range of audiences" (Griffith Institute for Higher Education, 2004). They are required for successful presentations and also for communication in general (Nakate, 2012).

Based on Streesmutprakan School context, oral presentation is concerned as 1) an essential classroom activity aiming to evaluate the understanding of the content the students have learned in any subjects and value the individual responsibility towards the collaborative work and 2) as a final product of the research projects.

Throughout 3 – 6 years of studying in secondary level at Streemusmutprakan School, the students, particularly gifted science education program students, will be mastered to be competently well-equipped with knowledge and communication skills to be selected as the school delegates for attending both national and international competition such as World Creativity Festival (WCF) organized in Korea, Sri Aman Environmental Youth Summit organized in Malaysia, International Young Physicists' Tournament (IYPT) and so on. However, no matter how smart the students are in doing the project, the abilities to search for the information to support the project or even to deliver oral presentations in English are lower than the level of satisfaction. This happened as a result of the use of first language in doing the project which later causes several problems when they are presenting the project to the international audience. According to the interview of Mr. Pornchau Inchai, acting on behalf of vice director of the Institute for the Promotion of Teaching Science and Technology (2015), the content or idea to be presented in the project of Thai secondary level students are sufficient, but the ability to orally report what they have researched in English is insufficient. Teachers, as a result, required to create the learning activities which improve communication skills, namely providing students the actual scenarios or problems so that students encounter a real life situation practice (IPST, 2002).

To deliver an effective scientific presentation, students need not only to understand the language structure, but also to be trained to comprehend the content related to the field that students are going to present. Language learning and content

of subject matter could be brought together within the Content-Based Instruction (CBI). The integration of language and content involves the incorporation of content material into language classes. CBI is sometimes referred to as 'language across the curriculum', and has become increasingly popular as a means of developing linguistic ability. Content can provide a motivational and cognitive basis for language learning since it is interesting and of some value to the learner (Brewster, 1999). CBI combines integrated teaching of all language skills and subject matter, which makes it an appealing approach to English for Specific Purposes (ESP) courses, as at higher levels language can be perfected through subject contents.

Based on the discussion above, this present aims to investigate whether the Content-Based Instruction using Six-T's Approach can enhance the lower secondary school students' English oral presentation skills.

Research Questions

Based on the background above, the problems of this study are as the following:

1. To what extent does Content-Based Instruction using Six-T's Approach enhance lower secondary school students' English oral presentation skills?
2. What are the opinions of lower secondary school level students towards Content-Based Instruction using Six-T's Approach?

Research Objectives

1. To investigate the effects of Content-Based Instruction using Six-T's Approach on students' English oral presentation skills.
2. To explore students' opinions towards the Content-Based Instruction using Six-T's Approach.

Definitions of terms

As the key terms used in this study are diversely defined by many researchers in the fields, the following section clarifies how the particular terms will be used in this study.

Content-based instruction refers to a method of teaching language and content that language is considered and utilized as the medium of teaching subject. In this research study, the content-based instruction is considered as a theme-based instruction using Six-T's Approach which aims to simultaneously promote both understanding of science content knowledge and language components explored in the input. The content that this study focuses is the content in science project which the lower secondary students aim to present. The language in this study emphasizes the English language that the students use in their oral presentation to communicate with the audience.

Six-T's Approach refers to an approach to theme-based instruction that is applicable to a wide range of content-based instruction contexts which is used to create the coherent instruction with a dual emphasis on content and language learning

(Stoller & Grabe, 1997). The Six-T's Approach consists of six components: Themes, Texts, Topics, Threads, Tasks, and Transition. In this study, the Six T's Approach is used in 2 aspects: as a guideline to design course materials and as the component of instruction which tasks are developed to enhance students' content knowledge and oral presentation skills.

Content-Based Instruction using Six-T's Approach refers to teaching method which creates the coherent instruction to simultaneously promote understanding of science content knowledge which is the main source when delivering the oral presentation and English oral presentation skills. In this study, the Six-T's Approach is emphasized in 2 ways regarding the implementation steps of the Six-T's Approach (Stoller & Grabe, 1997). First of all, themes, topics, texts, transition, threads are concerned to design the English for Scientific Oral Presentation Course. Another emphasis is tasks which generated by teacher to reinforce students' content knowledge and oral presentation skills. The lessons were created based on the Content-Based Instruction using Six-T's Approach incorporating the Task-Based Instruction. The teaching procedures consist of 3 stages: pre-task phase, during-task phase, and post-task phase. The pre-task phase focuses on activating schema on the topic and providing some model input. The during task focuses on the performance of task such as the summary writing task in content knowledge lesson and the oral presentation practice task in oral presentation lesson. The post-task focuses on giving each group of students' feedback on the task performed.

Content Knowledge refers to the understanding of the detailed information in each section of the environmental investigative science projects, namely the introduction, the methods and results, and the conclusion, in lower secondary level as well as the scientific vocabulary and terms comprehension. In this study, the teacher-compiled L2 texts by Stoller and Grabe (1997), such as an online science dictionary, similar-to-topic L2 science projects, encyclopedia, online journal articles relevant to topic, etc., are used as the basic sources for reinforcing the ninth grade students' content knowledge comprehension. The assessment of students' understanding of content knowledge is evaluated simultaneously with oral presentation skill in one assessment tool—an English Oral Presentation Evaluation Scales developed by Valencia Community College (2006 - 2007). The assessment will be conducted by using the oral presentation pre- (Appendix A) and post-test (Appendix B).

English Oral Presentation Skills refer to the academic skills to orally convey the detailed information in 3 parts of the investigative science projects, namely the introduction, the methods and results, the conclusion, to the audience with the primary concerns on vocabulary choice, discourse structures, and delivery styles which are different from other oral production or written papers (Rowley-Jolivet & Carter-Thomas, 2005; Zareva, 2009). In this study, the instructional tasks (discourse organization task, vocabulary and structure learning task, communicative interaction task) incorporating teacher-compiled texts will help students develop the English oral

presentation skills as well as the content knowledge. The English oral presentation skills will be scored by using the English Oral Presentation Evaluation Scale by Valencia Community College (2006 - 2007) and the scoring rubrics set.

Opinion refers to the students' feelings towards the Content-Based Instruction using Six-T's Approach concerning the 2 aspects: positive and negative opinion. The positive aspects include realizing the worthiness of the learning activities, usefulness for further application, and creating learning engagement. The negative aspect is the issue of learning task difficulty. The students' opinions are elicited using the semi-structured interview constructed by the researcher.

Lower Secondary Level Students refer to seventh-to-ninth grade students participating in the Gifted Education Programs in science in the academic year of 2016 at Streesmutprakan School.

Scope of the study

The present study focused on the following aspects:

Population: The population of this study was lower secondary school level students studying at Streesmutprakan School, a large-sized government school in Samutprakan Province, in academic year 2016. The representative sample of this study included 45 Grade 9 Streesmutprakan School students, currently participating in Class 2 among the 3 classes of the Gifted Education Program, who enrolled EN23207 English for Scientific Oral Presentation Course as a required supplementary course in semester 1 academic year 2016. The samples assumed having adequate background knowledge

in scientific discipline before studying in this course as well as moderate-to-advanced English communication performance since they had enrolled 4 prerequisite English communication courses in the previous semesters as a requirement of the Gifted Education Program curriculum.

Type of data

The data collected in this present study applied both quantitative and qualitative data. The details are presented as follows:

Quantitative data

The variables for the quantitative data were:

Independent variable: a Content-Based Instruction using Six-T's Approach

Dependent variable: Lower secondary school students' English oral presentation skills

Qualitative data

The variable for the qualitative data was:

Lower secondary school students' opinions towards the Content-Based Instruction using Six-T's Approach

Significance of the study

The Content-Based Instruction using Six-T's Approach could give some lights to the pedagogical purpose in learning and teaching the English oral production skills with content knowledge development emphasis. The effectiveness of the present study benefits both students and language teachers who are assigned or interested in

teaching English across curriculum courses, especially English for Scientific Oral Presentation Course, in lower secondary school level. The findings of the study will be useful in the following ways:

1. The insight into the integration of the Six-T's Approach comprising themes, texts, tasks, transition, and threads can be used as basis in creating the coherent instruction reinforcing students' English oral presentation and content learning.

2. It proposes guidelines for the second language or EFL teachers without scientific background knowledge how to design the content-based instruction across curriculum and manage the available scientific sources as texts into the classroom.

3. The students will have the useful course which helps them develop the English oral presentation skills with the content emphasis and prepares the effective science project presentation for the future international competition.

CHAPTER 2

LITERATURE REVIEW

This present research investigated the effects of Content-Based Instruction using Six-T's Approach on the lower secondary school students' English oral presentation skills. In this chapter, a review of literature was conducted consisting of the Content-Based Instruction (CBI), the Six-T's Approach, and the concepts of English oral presentation skills. Besides, the previous researches showed the reasons which explain why Content-Based Instruction using Six-T's Approach could enhance the lower secondary school students' English oral presentation skills.

Content-Based Instruction

Content-Based Instruction (CBI) is a method of teaching which is based on the notion that the second language learning can be effective when the language is used as the medium for teaching subject. CBI has been widely used and considered the effective teaching method in both English as Second Language (ESL) and English as Foreign Language (EFL) contexts around the world since this approach allows schools to combine the goals of language curriculum and the regular curriculum, making language learning as the vehicle for strengthening the language skills as well as content knowledge (Echevarria, 2000). Mohan (1986) indicates that the goal of integration in CBI is both language and content learning. Content-based classrooms are not merely places where learners learn a language but places where they gain an education. In

addition, Genesee (1994) suggests that CBI is an integrated approach bringing learners' language learning as well as cognitive, academic, and social development together.

Definition of Content-Based Instruction (CBI)

Krahnke (1987) states that CBI is the teaching of content or information in the language being learned with little or no direct or explicit effort to teach the language itself separately from the content being taught.

Brinton, Snow and Wesche (1989) define CBI as a second language teaching approach in which the teaching is centered on the content or information that students will acquire instead of around a linguistic or other syllabus type. The students are exposed to a meaningful conceptualized form of the interdisciplinary material in which the primitive emphasis is on the content area information acquisition.

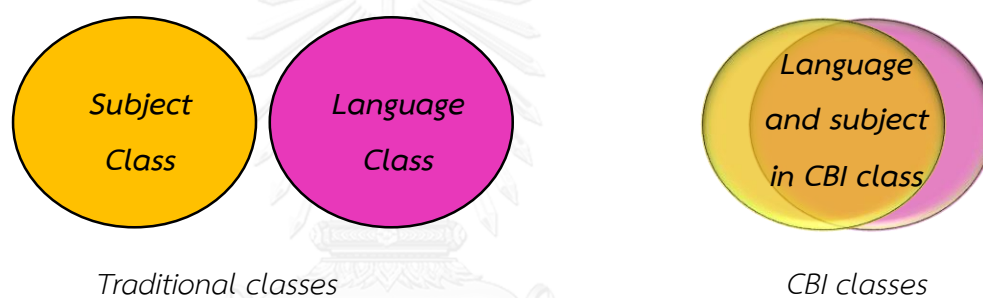
Davies (2003) proposes that Content-Based Instruction is considered as a teaching methodology which students learn about something from language rather than merely learning about language.

Snow (2014) gives a definition to CBI or the heart of language and content integration as follows:

. . . is an umbrella term for a multifaceted approach to SFL teaching that differs in terms of factors such as educational setting, program objectives, and target population but shares a common point of departure—the integration of language teaching aims with content instruction. (p. 439)

As defined by many researchers above, it can be concluded that Content-Based Instruction (CBI) is an approach to the integrated content and language teaching which the focus is on the acquisition of content of subject matters through the target language. In other words, the students acquire both information and a great deal of language simultaneously. The below figures proposed by Liangming (2012) can illustrate the difference between the traditional classroom and Content-Based classroom.

Figure 2. 1 The comparison between the traditional classes and CBI class



The principles of Content-Based Instruction

Content-Based Instruction is built around a number of some principles as stated below:

According to Richards and Rodgers (2014), they provide some common grounds on the central 3 principles to Content-Based Instruction as follows:

1. People more successfully learn a second language when the language is considered as a means of information acquisition instead of as an end in itself.
2. Learners' needs for learning a second language are echoed through the Content-Based Instruction. The second principle expresses that many content-based

programs make academic studies preparation for ESL learners, as a result, a need enabling to access the academic teaching and learning content and the process through which teaching and learning are realized, are a central priority.

3. Content defined in the CBI equips the learners with both cognitive and interactional processes which are concerned as the primary step in the second language learning. The understanding and expression towards experiencing a meaningful and engaging content can activate learners' cognitive skills including intellectual and interactional process which support the second language development.

In addition, Brinton (2007) also provides the detailed principles for CBI:

1. The content-based curriculum removes the arbitrary distinction between language and content.

2. CBI reflects the students' needs and interests by taking into consideration the eventual uses the learner will make of the second language or foreign language.

3. CBI offers the optimal conditions for second language acquisition by exposing learners to meaningful and cognitively demanding language in the form of authentic materials and tasks.

4. CBI provides pedagogical accommodation to learner proficiency levels and skills.

5. CBI views language as learned within a larger framework of communication.

6. CBI holds sustained content as essential for providing authentic, meaningful substance for students to language acquisition.

7. CBI views rich, comprehensible input as necessary but not sufficient for the development of high-level academic language proficiency.

8. CBI places a high value on feedback on accuracy to help students develop target-like output.

9. CBI supplements exposure to input through language-enhanced instruction (e.g. skills-based instruction and consciousness raising about uses of grammar, lexis, style, and register).

10. Lastly, CBI aims for a balanced emphasis on fluency and accuracy.

Characteristics of Content-Based Instruction

Content-based instruction (CBI) bases its rationale on the premise that students can effectively obtain both language and subject matter knowledge by receiving content input in the target language. Even though many scholars in the field of language pedagogy, especially the renowned authors, Rodgers, recognize CBI as one of the Communicative Language Teaching spin-off approach (2001), some scholars authors contemplate the paradigm within an even wider view. Stryker and Leaver (1997), for example, mentioned CBI is a truly and holistic approach to foreign language education which can be at once a philosophical orientation, a methodological system, a syllabus design for a single course, or a framework for an entire program of instruction. The benefits of the approach are directly or indirectly associated with an

extensive body of research from a variety of fields. CBI's strong empirical support can be found in the second language acquisition research, in training studies and in cognitive psychology, as well as in the outcomes documented by successful programs in a variety of contexts and levels of instruction (Adamson, 1993; Dupuy, 2000). A synthesized through accurate revision of the benefits perceived in view of the different areas is included in Grabe and Stoller (1997). The characteristics of Content-Based Instruction are suggested in Grabe and Stoller (1997) as follows:

1. In content-based classrooms, students are exposed to a considerable amount of language while learning content. This incidental language should be comprehensible, linked to their immediate prior learning and relevant to their needs. In content-based classrooms, teachers and students explore interesting content while students are engaged in appropriate language-dependent activities. The resultant language learning activities, therefore, are not artificial or meaningless exercises.

2. CBI supports contextualized learning; students are taught useful language that is embedded within relevant discourse contexts rather than as isolated language fragments. (Thus, CBI allows for explicit language instruction, integrated with content instruction, in a relevant and purposeful context.

3. The use of coherently developed content sources allows students to call on their own prior knowledge to learn additional language and content material.

4. In content-based classroom, students are exposed to complex information and are involved in demanding activities which can lead to intrinsic motivation.

5. CBI lends itself well to strategy instruction and practice, as theme units naturally require and recycle important strategies across varying content and learning tasks.

6. CBI allows greater flexibility and adaptability to be built into the curriculum and activity sequences.

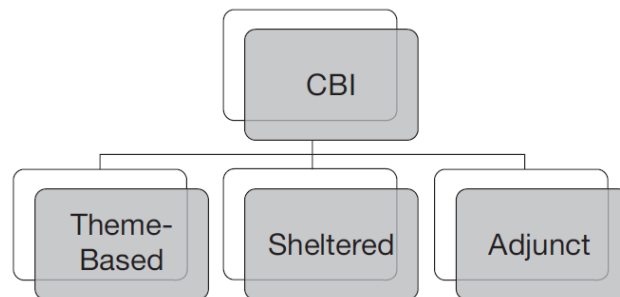
7. CBI lends itself to student-centered classroom activities.

To sum up, it is shown by the literatures that Content-Based Instruction is an approach in which the learning activities of the language class are specific to the subject matter being taught, and are fine-tuned to stimulate the learners to think and learn through the use of the target language. Such an approach lends itself quite naturally to the integrated teaching of the four language skills, including reading, writing, listening, and speaking. Moreover, CBI employs authentic reading materials which require students not only to understand information but to interpret and evaluate it as well. It provides a forum in which students can respond orally to reading and lecture materials.

The prototype models of Content-Based Instruction

In variations of second and foreign language educational settings, there are 3 prominent models of CBI which remain flexible and central to the approach, including sheltered instruction, adjunct instruction, and theme-based instruction (Brinton, Snow, & Wesche, 1989). Among the 3 prototype models, both content and language are manipulated with different amounts of emphasis to suit the instructional contexts.

Figure 2. 2 The three prototype models of CBI



Sheltered Model

Sheltered model to CBI is defined as the instructional models in which students are separated from the native speakers for the content instruction purpose which the instruction is delivered in L2. In the general sheltered courses, which this model was originally developed in Introduction to Psychology course at the Bilingual University of Ottawa, the content courses are delivered by a native content specialist of the target language to a set-apart group of ESL students (Brinton et al., 1989). According to Richards and Rodgers (2014), it is claimed that the instructor should appropriate a language level for students in order to make the course comprehensible. For the same purpose, the sheltered courses are required to have modifications such as carefully selected texts and linguistic adjustments which help comprehension.

Adjunct Model

The second model of CBI refers to the adjunct model or the language and content courses which are interconnected, sharing the same goals and assignments (Brinton et al., 1989). Students participate both the content course and language

course simultaneously. The language course complements the non-native students' needs in order to achieve the content course (Snow, 2001). Besides, the adjunct courses aim at helping the non-native students enhance self-confidence by assigning them the real life tasks to accomplish the purpose of language use (Stryker & Leaver, 1997).

Theme-Based Model

Lastly, the theme-based model to CBI is the instruction in which the course, materials, and learning activities are centered and organized around themes or topics relevant to students' needs, and it can be applied to the 4 skills of foreign language teaching (Brinton et al., 1989). The theme-based instruction differs from the traditional language courses where the topics are specifically chosen for a single activity (Snow, 2001). Moreover, Snow (2001) claimed that the theme-based model has been widely applied in the language courses at post-secondary levels with different settings but with a common goal in need of academic English skills.

Another type of theme-based curriculum is different from those courses organized by the sequencing themes. Brinton et al. (1989) points that a major topic (e.g., education) can be sustained for the entire course where the curriculum is organized around more specialized subdivided topics such as higher education, distant education, and so forth.

To be discussed as the major issue of this research study in the next section of the related literature, Six-T's Approach (e.g. *theme, topic, text, task, transition, and*

thread) to the Content-Based Instruction is a new approach to theme-based model which emphasizes on the dual commitment of content and language learning and provides the curricular design criteria for Content-Based implementation (Stoller & Grabe, 1997). The relationship between content and language can be seen as the interdependent relationship where content can be utilized as means to serve language and language can be adapted for content as well (Nordmeyer, 2010).

Although Snow (2014) affirms that the different features of these models borrowed, blurring many of the key distinctions, the model have provided a helpful basis for subsequent variations and have certain shared features, including “dual learning objectives, adaptation of language, enhanced motives for L2 learning, and focus on developing academic language proficiency” (Wesche, 2010).

Assessment of language and content

Assessment is concerned as a problematic part in the Content-Based Instruction, however, it is a must for teachers to find the appropriate assessment to evaluate students' learning achievement in the CBI classroom. Generally in most ESL classes, the students' performance assessment is evaluated separately (discrete task) without providing any context for students (decontextualized task) and mainly emphasizes on assessing the understanding of vocabulary learned in class and the linguistic structures. The students of CBI classes, nevertheless, cannot be evaluated using the traditional way of assessment since students were exposed to a wide range of input and content information during the CBI lessons. According to Kasper (2000),

authentic and interactive assessment are required for Content-Based class assessment due to the fact that all students involving in CBI had to complete discourse level tasks and the skills to evaluated in the assessment were in an academic setting. Students critically interact with academic authentic materials such as a meaningful and contextualized text to analyze their knowledge. Also, assessment of CBI should not be simple and separated; students must integrate information mastered through text exploration, form and articulate their own opinions about the information of subject matter, and not to analyze the linguistic structure of the target language (Kasper, 2000).

Crandall (1999) additionally specified that it would be impossible for teachers to separate conceptual understanding from linguistic proficiency in CBI when they aim at evaluating students' learning. Crandall suggested that with that thought, another optional assessment of students' learning should appropriately be done through "the paper and pencil tests, including journal entries, oral responses to questions or reports, demonstrations of understanding, and student projects". Moreover, checklists or inventories can be applied to measure students' language development which can report each student's mastery of the lesson, including concepts and structure. These methods have been developed as alternative strategies to assess students' learning in Content-Based classes.

Related studies on implementing Content-Based Instruction

The studies relating to the implemented Content-Based Instruction have been conducted in various aspects. To begin with, Brinton (2001) conducted the theme-

based literature course focusing on the city of angels. The literature course was conducted in the University of California, Los Angeles (UCLA) where the target population were the undergraduate non-native speakers of English. This chapter of Brinton's study (2001) shed some lights on the combination of three main conceptual underpinning driven to the course design. First of all, the theme-based approach was used for language mastery in which topic was selected to serve students' interests with multiple skills. Another was the interactive language-based approach which students enabled to use a wide range of different activities as sources to expose the language. Lastly, a media-infused approach was introduced to the course. It was found in many studies that the literature mastery through Content-Based Instruction was not so much successful, however, it worked differently in Brinton's study. The results showed that by getting students involved in a variety of activities concerning language acquisition, students' performance were classified as the innovative feature of the course where students could perform in the satisfied stage.

Arslan and Saka (2010) examined the effect of application of theme-based model of Content-Based Instruction (CBI) on a group of science students learning English at a preparatory program at the tertiary level in Turkey. In the study, all of the course materials were developed regarding the theme-based model of CBI to teach academic English language skills. The questionnaires, including structured interview questions were constructed to determine the language needs in the preparatory program. Ninety-seven students of science department majoring in Physics, Chemistry,

and Biology and nineteen students specifically studying the thematic units were asked to complete the questionnaire. From the interview, most of students required to learn English for academic reasons to pursue the future English courses. Students who studied science related thematic units argued that their motivation to learn English increased as they enabled to improve their academic language skills through content received and the activities they got involved in class. The findings indicated that if the theme-based model of CBI is applied in the preparatory program widely, it can meet language needs since such a practice involves learners in science English, equipping them with necessary academic language skills.

In Thailand's context, there have been many scholars interested in implementing the Content-Based Instruction to enhance students' content and language proficiency.

Thipwajana (2010) investigated the effects of content-based English lessons incorporating form-focused tasks on upper secondary school students' content knowledge and grammatical knowledge. The samples were forty-five eleventh grade students at Banphuepittayasan School. The local cultures in Banphue were utilized as the central content knowledge for material and lesson design. The findings showed that the eleventh grade samples' content knowledge and grammatical knowledge were enhanced after learning through content-based English lessons incorporating form-focused tasks.

Promsang (2010) designed English communicative activity using Content-Based Instruction for ninth grade students at Rahanwittaya School, Kamphaeng Phet Educational Area 2 in academic year 2010 and compared the target samples' achievement before and after using learning activity. After the learning activity had been created, it was delivered to thirty students to find the efficiency of the learning activity, then applying it with the sample group consisting of thirty-two students. One group pretest – posttest experimental design was employed into a mathematics class. The results of the study revealed that the achievement scores of mathematical learning using the created learning activity was higher than the pretest scores.

Iemamnuay (2013) examined whether the learning activities in content-based instruction can enhance the 1st year vocational students majoring in Hotel and Tourism Studies in English Program at Chetupon Commercial College's oral presentation skills and identify the learning activities which they prefer in order to help them improve presentation skills. The sampling group of the study were eleven students. The findings showed that the English oral presentation mean scores of all designed 7 activities, which were measured by an oral presentation rubric, were positively improved after implementing the learning activities in content-based instruction. Also, the outside classroom activity was ranked the most preferable activity of all 7 learning activities.

Six-T's Approach

The Six-T's Approach is a new approach to theme-based instruction that is applicable to a wide range of CBI contexts. It has applications both when the teacher controls content and when content is controlled by a central curriculum plan (Stoller & Grabe, 1997). Moreover, the theme-based nature of the approach can be incorporated into a sheltered curriculum and within certain adjunct programs.

As for Six-T's Approach, it is also assumed that first consideration must be given to student needs, student goals, institutional expectations, available resources, teacher abilities, and expected final performance outcomes. When these criteria are specified, informed decisions can be made about the six curricular components which define the Six-T's Approach: Themes, Texts, Topics, Threads, Tasks, and Transition (Stoller & Grabe, 1997).

1. Themes refer to the ideas around which the other components such as texts and tasks are organized due to aims of the course, the students' needs and interests, and institutional expectations.

2. Texts refer to the content resources which provide sustainment and progress of the plan on the way to achieving the goals of course.

3. Topics refer to the sub-elements of major content which help to examine the theme more specifically in coherence, providing a setting where the learners explore both content and language.

4. Threads refer to the ties between the themes providing coherence to the overall curriculum. Apart from bridging the themes, threads also provide opportunities to examine the content and language from different perspectives.

5. Tasks refer to the activities through which the instructional skills appropriate for the objectives of the course are utilized.

6. Transitions refer to the pre-planned activities in order to provide and sustain the coherency across topics in a theme and tasks in a topic.

Implementing the Six-T's Approach

The Six-T's Approach is implemented to create coherent and meaningful instructional units for content and language learning objectives. As the material designer, teachers have to understand the step-by-step procedures for implementing the Six-T's Approach. However, it is important to keep in mind that each instructional context will impose its own constraints on, and opportunities for, adaptation and variation.

General steps are sketched out how one would take to implement the Six-T's Approach. The steps are presented in a sequential manner, though in fact the process is quite fluid and requires planners to revisit and reconsider earlier steps as the planning process progresses.

The first step requires establishing the content to be used through theme determination, text selection, and topic designation. Defining the content of theme

units at the outset as determined by themes, texts, and topics follows from the argument that curricular decisions need to be content-driven rather than task or language driven as a first priority.

The second step involves selecting possible threads that emerge from final theme, text and topic designations. Related tasks can be developed later at appropriate times during theme exploration to encourage students to consider these threads, which will naturally connect themes and add coherence to the overall curriculum.

The third step involves making decisions about the sequencing of content (themes, topics, and texts) and the length of theme units. Sequencing decisions will largely be based on the availability of content (e.g., guest speakers, field trips, and special events), the relative ease or difficulty of tasks likely to follow from the content, and the cognitive demands made on students as they manipulate the content and carry out culminating activities. As a culminating task, for example, a theme that lends itself easily to a research paper should be sequenced after a theme that lends itself to a descriptive paper. A theme that lends itself to a debate on abstract issues should follow a theme that lends itself to a straightforward oral presentation of facts and figures. When making sequencing decisions, planners must also consider the evolving nature of each theme unit as the instructional orientation evolves from more teacher centered to more student centered during the term.

Step four is an additional consideration to the extent of teacher involvement, knowledge of thematic content, and willingness to learn additional information with the students. Walmsley (1994) referred to the need for teachers to "bump up their knowledge," arguing that teachers need to read additional information on designated topics. Such a commitment builds teacher motivation and enthusiasm, provides teachers with expanded expertise that students can call on, allows teachers to introduce multiple perspectives on the content under consideration, and provides teachers with additional options for classroom tasks. The extent to which such "bumping up" is necessary is a question we leave open, but some form of teacher investment is necessary.

Step five requires the specification of core objectives for each theme unit in terms of language, content, and strategy learning. This also involves the planning of selected tasks and task sequences to open and close the unit.

The sixth step involves the initial design of tasks to carry out the content and language goals of each theme unit. Selected tasks should emerge from content resources rather than be arbitrarily imposed on them; they should develop students' language learning, facilitate the learning of content, and model strategies for language and content learning. Tasks, viewed as integral parts of a coherent content framework, should serve larger content-learning and language-use purposes.

The seventh step involves the initial determination of transitions across topics and across tasks. These should be explicit but kept flexible so that teachers can take advantage of student-generated resources and other unexpected variations that typically arise in any complex teaching situation. Transitions will facilitate a natural and systematic flow of content and tasks from one day to the next.

The final stage involves the fine-tuning of theme units while they are being implemented. When theme units are taught, it is expected that plans will change and vary as teachers take advantage of students' interests and ongoing input. As each theme evolves, new topics will emerge that are of interest to students, requiring teachers (and motivating students) to locate and/or create additional support materials and tasks. Supplementary resources can give students additional opportunities to "bump up" their own knowledge and, in many cases, to engage in a certain amount of individualized learning. Supplementary resources can also provide teachers with opportunities to integrate new tasks and transitions into the unit, and to exploit additional threads as these resources connect the current theme to other themes in new conceptual ways.

Design Criteria for Six T's Approach

The underlying principle in the Six T's Approach is that all Content-Based Syllabus or Content-Based Instruction (CBI) is fundamentally theme-based (Brinton, Snow & Wesche, 1989) (cited in Stoller & Grabe, 1997: 1). In theme-based instruction, the students are provided opportunities to get exposed to instruction with real-life

issues that could catch their attention, curiosity, and motivation (Brown, 1994).

Stoller & Grabe (1997) Stoller and Grabe (1997) present the Six-T's Approach which the researcher found helpful for designing language and content instruction.

The approach has three basic goals as follows:

1. The specification of theme-based instruction is as central to all CBI.
2. The extension of CBI supports language-learning context as well as freedom to make major curriculum and content decisions among teachers and program supervisors.
3. The organization of coherent content resources for the instruction and the selection of appropriate language learning activities.

With the Six-T's Approach, the initial consideration has been given to an array of student needs, student goals, and institutional outcomes. Such criteria are finally specified as the six curricular components i.e. Themes, Texts, Topics, Threads, Tasks, and Transitions.

Themes

Themes are the central ideas that organize major curricular units. Whether a thematic unit integrates learning across contents or is written based on a single discipline, choosing a unifying theme or organizing concept for the unit is considered the first step to be performed. Stoller and Grabe (1997) say that themes can be divided to three categories i.e. topical themes, conceptual themes, and problematic themes.

A class should explore more than one theme from one given term so that the students can get some useful reading and explore more concepts that represent much more substantial learning. Table 2.1 shows examples of themes that organize a curricular unit from different instructional settings.

Table 2. 1 Examples of themes

Sample themes	Possible instructional setting
Insects	Elementary school classroom
The solar system	Middle school or high school classroom(s)
Demography	University intensive English program
Austrian historic monuments	High school foreign language class (German)

Texts

Texts are written and spoken resources. They drive the basic planning for theme units. Text selection will depend on a number of criteria: student interests, relevance, and instructional appropriateness provide a first set of guidelines for determining text selection; format appeal, length, coherence, connection to other materials, accessibility, availability, and cost represent secondary criteria (Stoller & Grabe, 1997). Table 2.2 shows the four basic types of texts specified in theme units.

Table 2. 2 The four basic types of texts specified in theme units

Types of texts	Examples of content resources
Instructor-compiled content resources	Readings of various genres, video, audiotapes, maps, tables, graphs, software
Instructor-generated content resources	Lectures, worksheets, graphic representations. bulletin board displays

Types of texts	Examples of content resources
Task-generated content resources	Student freewrites, discussions, problem-solving activities, graphic representations, library searches, debates, surveys/ questionnaires
External content resources	Guest speakers, field trips

Table 2.2 The four basic types of texts specified in theme units (Cont.)

Topics

In content-based instruction, topics should be selected to complement students' interests, content resources, teacher preferences, and larger curricular objectives. In general, topics should be organized to generate maximum coherence for the theme unit and to provide opportunities to explore both content and language.

A given theme unit will rely on specific topics selected for an exploration. For example, a teacher could choose to develop a theme unit on Native Americans by means of three different topics: rural versus urban living, traditional versus contemporary religious practices, and the values of young and older generations (Stoller & Grabe, 1997). Table 2.3 illustrates how theme units can be developed in different ways, depending on the topics designated (or negotiated) for exploration.

Table 2. 3 Different sets of topics in a theme unit

Theme	One set of sample topics	Another set of sample topics
Insects	a. Insects which are helpful b. Insects which are harmful c. Insects which eat other insects d. insects which eat vegetation	a. Ants b. Bees c. Caterpillars
Solar system	a. Human in space b. Technology in space c. Research in space d. Pluto	a. Earth b. Venus c. Mercury
Demography	Impact of population on a. air b. water c. natural resources	Population trends a. in developing countries b. in developed countries c. and their impact on the environment

Threads

Threads are linkages across themes which create greater curricular coherence. They are not directly connected to the main idea that controls each theme unit. They are rather abstract concepts in terms of responsibility, ethics, contrasts, power that provide an easy way to link theme, review and recycle important content and language across themes, and revisit selected learning strategies. Threads can tie up themes that appear disparate e.g. American education, demography, and toxic wastes resulting in a more unified curriculum. There can be a number of threads linking thematically different content, providing opportunities to integrate information and view both

language and content from new perspectives (Stoller & Grabe, 1997). Table 2.4 shows how one thread could be used to link five different theme units.

Table 2. 4 Thread that provides linkages among different themes

Thread that links various theme units	Themes
Responsibility	Civil Rights
Uphold civil rights for citizens	Pollution
Control pollution	Demography
Regulate family size	Solar System
Conduct ethical research	Native American
Protect endangered cultures	

Tasks

Tasks are the basic units of instruction through which the Six- T's Approach is realized on a daily routine. They are instructional activities and techniques utilized for content, language, and strategy instruction in language classrooms such as activities for teaching vocabulary, language structure, discourse organization, communicative interaction, study skills, academic language skills. Tasks are planned in response to the texts being used in the Six T's Approach. That is, content resources drive task, decisions and planning. Major tasks are sequenced within and across themes to realize curricular goals and are recycled with higher levels of complexity as students move from one theme unit to the next and as students progress through the academic year. This matter is done during a cooperation of learning with various tasks in the theme unit. These culminating activities require the synthesis of content information. They help

students develop the skills they will need in regular content-area courses, and provide a sense of successful completion for students as well (Brinton, Goodwin, and Ranks, 1994; Brinton, Snow, and Wesche, 1989; Chamot and O'Malley, 1994; and Mohan, 1996) (cited in Stoller & Grabe, 1997). Table 2.5 shows examples of tasks by Chaibi (2002) (cited in Bunyakarte, 2008: 30).

Table 2. 5 Examples of Task

Focus of Instruction	Sample tasks
Language skills	Pre-, during, post- reading activities; strategy training
Improvement (reading, writing, speaking, and listening)	Paced/ speed reading; process writing (brainstorming, drafting, revising, editing; speed writes; conversational gambit practice; spontaneous speeches; directed listening)
Vocabulary building	World family exercise, semantic clustering, lexical sets and classification activities, dictionary practice, synonyms and antonyms, word wall activities
Discourse organization	Graphic organizers, strip stories
Communicative interaction	Role plays, simulation games, debates, problem-solving activities, class polls and interview, group work, cooperative learning
Study skills	Lectures and note-taking, test-taking strategies, library work

Transitions

Transitions are planned actions which provide coherence across topics in a theme unit and across tasks within topics. Transitions create links across topics and provide constructive entrees for new tasks and topics within a theme unit. Two major types of transitions are particularly effective topical and task transitions (Stoller &

Grabe, 1997). Sample transitions that provide coherence across topics and tasks are illustrated in Table 2.6.

Table 2. 6 Transition Activities

Transition type	Sample transition activities in a theme unit on demography
Topical transitions	A deliberate shift in emphasis from global population trends, to trends in developing countries, to trends in developed countries, to trends in students' home countries. Students are explicitly made aware of these transitions.
Task transitions	Students are asked to a) interpret a graph depicting population trends; b) create a new graph with raw data obtained from a classroom survey; c) write an interpretation of the new graph d) reconstruct the graph into a research paper. bulletin board, display or oral presentation

Description and explanation of the Six-T's are provided where themes are the basis for any curriculum planning, texts lead to the topic selection, topics then elicit and stimulate students' interests, creating connections that maintain student involvement and allowing for the completion of a final project, tasks are instructional activities through which the Six-T's Approach is realized on daily activities. Transition and threads provide linkage in a content-based syllabus. Stoller and Grabe (1997) suggest an outline of the Six-T's Approach to language content instruction that can provide the broad interpretation of theme-based or content-based instruction. They point out that this approach has three main goals:

(1) The specification of theme-based instruction is as central to all CBI,

(2) The extension of CBI supports language-learning context as well as freedom to make major curriculum and content decisions among teachers and program supervisors, and

(3) The organization of coherent content resources for the instruction and the selection of appropriate language learning activities. Therefore, materials writers can apply the Six T's approach when writing instructional materials because it helps writers produce the exact needed materials in short time and contain different creativeness of both academic and physical designs more than ones widely sold in the market. To summarize, when making decision about which tools to select in order to best accomplish learning objectives, materials writers should carefully consider these elements i.e. the various delivery systems available, the content or message to be conveyed, and the form in which information will be presented. No one type of media or materials is the most suitable for all students in promoting acquisition and retention of information. Most importantly, materials writers should bear in mind that instructional materials is not only written to supplement and support the educator's teaching efforts but also to complement the successful achievement of learner outcomes.

English Oral presentation

Definition of oral presentation

An oral presentation is generally considered as an activity or well-structured form of oral communication dealing with both verbal delivery skills and non-verbal delivery skills. Mandel (2000) defined it as a speech type given in business, technical, professional or scientific environment. Eggleston (2003) stated any person has presentation whenever one is assigned to deliver a speech in front of one or more people with the following purposes: to explain, to educate, to convince, or to convey information.

Jay (1974) concisely describes oral presentations as a pattern of communication consisting of inevitable rules and burdens which leads for further discussion. Thus, if the presentation fails, further discussion will not take place but if it is successful, the audience will have more interest and want to study that subject matter as it can arouse curiosity and stimulate a desire of the audience in order to obtain more information. Also Jay proposes that an oral presentation is aimed at persuading an individual or a group of persons to (a) adopt or revise an attitude, (b) accept or modify an opinion, and (c) take or refrain from taking an action or decision.

Despite the fact that oral presentation is one of the effective communicative activities that has been widely adopted to promote oral proficiency, King (2002) states that students usually appear frustrated and anxious or leaving the classroom with the complete silence whenever they are assigned to deliver the presentation. If the oral

presentation is appropriately organized and guided, it will provide learning experience and teach lifelong skills that will be beneficial to learners in all school subjects and their further careers.

In English language teaching context, oral presentations have been considered as one of the most effective tools to enhance communication skills especially speaking skills. Lazaraton, (2001) proposes there are a number of communicative activities aiming at oral proficiency improvement that teachers frequently implement: role-plays, dramas, interviews, group discussion, games and oral presentation which is the most popular assignment in EFL/ ESL classrooms providing opportunities for students to communicate and even exchange the substantial information with others.

Issues related to using oral presentation in the language classroom

Since oral presentations are considered a challenging task with unfamiliar test formats, there may be some problematic issues for the learners if not properly well-prepared in the classroom (Meloni & Thompson, 1980). As mentioned above, teachers having applied oral presentation as the assessing task reported that the oral presentation was somehow considered a time consuming assessment with little methodological value (Ross, 2007). Canagarajah (2006), on the other hand, suggested that oral presentation can be utilized as the classroom evaluation if it is properly scaffolded. If not, there will be several drawbacks happening during the task such as inappropriate topic selection as well as students' inattentive or disrespectful attribute while watching other test takers' oral presentations. The poorly prepared presentation

is also identified as another issue for the teacher. In the worst-case, the situation is taken place to both students who end up disliking oral presentations and a subject teacher who see how worthless presentation task is.

Additionally, oral presentations require much efforts and time consumption for the classroom implementation. Teachers are required to carefully handle the learners' cognitive demands since most of EFL students "lack the core fluency" (Jordan, 1997) to orally deliver an effective presentation. It means that the presentation process should be broken down into manageable steps, and it should clarify the students what is expected at each stage of the presentation process. This shows that students should be supported and scaffolded while participating in each presentation step. If not supported effectively, it may affect students' losing confidence (King, 2002).

The last issue still discussed on the drawback of much time consumption. Since one student or one group can present at a time, the rest of test takers encounter boredom and passive traits (Chiu, 2004).

Advantages of using oral presentation in the language classroom

There are many scholars show the advantages of assessing students' language skills through oral presentation in classroom. Firstly, Girard, Pinar, and Trapp (2011) gave light to the oral presentation task that students seemed more interacting and engaging to the class, as a result, students' interests towards English language mastery were increased. Other have shown that the gap between language study and language

application was scaffolded and fulfilled resulting from oral presentation task engagement (King, 2002).

Another major benefit of oral presentation as assessment tool is that it is student-centered which students are allowed to directly control themselves, content and the flow of the classroom (Apple & Kikuchi, 2007). Besides, students are encouraged to use the 4 macro skills in English, namely reading, writing, listening, and speaking in order to research some available sources of information to write their presentation script. Listening and speaking skills may be improved when students are asked to be the audience for other peers' presentations (King, 2002).

Moreover oral presentations provide a more authentic way of practicing English than simple speaking drills. It is important that speaking tasks without any linkage or relationship to a real-life language application "are poor preparation for autonomy" (Thornbury, 2005). Also, the oral presentation tasks require students to use their L2 in a natural way because English is utilized as tool to understand the topics they are delivering and convey the message to others. This could be beneficial for the learners to prepare both real life language application and develop research and critical thinking skills.

Last but not least, the benefit of oral presentations is to enhance students' motivation towards English language learning (Hovane, 2009). It is emphasized that the process of group work while preparing the oral presentation can scaffold essential skills

for peers and develop the independent construction of work. Lastly, presentations are beneficial to students' future employment (Živković, 2014).

In brief, oral presentation can be considered as a class activity or the end-process assessment. It can be implied into a variety of context, especially the English for academic purposes (EAP) and English for specific purposes (ESP) context in which both ESP and EAP students are likely to have higher opportunity to give an English oral presentation in classroom or for their future career purpose (Bruce, 2011). Also, students in other context as English as a foreign language (EFL) gain benefits from oral presentation mastery in job application purpose.

Key elements of effective oral presentations

As proposed in *Guidelines for Developing Oral Communication Curricula in Kindergarten through Twelfth Grade* (2000), the public oral speech and competencies the ninth grade students should develop are concluded as follows:

“By ninth grade, students should develop competencies in public speaking. Research shows that students who are given instruction in public speaking skills, including opportunities to prepare for and practice language in various forms of oral discourse, demonstrate improvement in their speaking presentation, as well as in vocabulary, organization, and writing skills. Ninth grade students who are taught the basic orders of idea development can better illustrate organizational skills in prepared speeches. Competencies to be developed include the ability to identify the distinguishing characteristics of public

speaking; effectively complete the steps of speech preparation (select and limit a topic, select a purpose, gather information, analyze the occasion and audience, organize the speech, etc.); distinguish among speech types; competently deliver the speech; and, evaluate speeches.”

To help the ninth grade students improve their language competencies on public speaking, teachers, therefore, should provide them with adequate opportunities to practice the public speaking activities, especially oral presentations, in action with the meaningful tasks supported. In this study, the competencies mentioned earlier in Guidelines for Developing Oral Communication Curricula in Kindergarten through Twelfth Grade (2000) are adopted as the main competencies the students should be developed in order to enhance their public speaking skills. The following are practical guides often proposed in the literature to develop the ninth grade students' abilities to effectively complete the steps of speech preparation, competently deliver the speech and evaluate the speech for English oral presentation skills.

A Science Framework for K-12 Science Education developed by National Research Council provides the 8 practices to science and engineering which communication is also identified as a skills required for all grade level students from K-12. In ninth – twelfth grade level, the communicative competence indicator is described as follows:

“Ninth – twelfth grade students will be able to communicate scientific and/or technical information or ideas (e.g. about phenomena and/ or the process of

development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically)”

(Council, 2012)

To help science students with language communication practice consistent to the aforementioned framework in science education, a scientific oral presentation is applied into the study to develop ninth grade students' English oral presentation skills based on the science project of their preferences.

Giba and Ribes (2011) recommended that the presentation depends on topics that the presenters selected which to prepare and deliver scientific presentation, the presenters should concern the following useful languages: 1) opening your talk, 2) mapping your talk, 3) introducing the main question, 4) talking about methods, 5) presenting data in tables, 6) talking about figures, 7) emphasizing a point, 8) reiterating, 9) introducing slides and making transition, 10) concluding your talk, and 11) dealing with questions.

Armer (2011) suggested the structure for planning the research presentation at the conference. The structures of talk are divided into 3 sections with sub-categories as follows: 1) Introduction (1.1 greeting the audience, 1.2 thank the audience for coming, 1.3 introduce yourself, 1.4 introduce the topic of the presentation, and 1.5 outline the structure of the presentation) 2) Body (2.1 introducing a new part of the talk, 2.2 concluding one part of the talk, 2.3 referring back to an earlier part of the talk, 2.4 referring forward to later part of the talk, and 2.5 referring to a visual aid), and 3)

Ending (3.1 summarizing the main points of the talk, 3.2 reaching a conclusion based on his research, 3.3 letting the audience know his presentation has finished, 3.4 thanking the audience for listening to him, and 3.5 offering the audience the chance to ask questions about the presentation)

In Thailand context, there can see many published works about how to give an English presentation, but mostly, they all are focusing the general English presentation. According to Changpueng (2014), there are 3 sections of engineers' oral presentation in English: 1) Introduction to oral presentation (1.1 greeting, 1.2 introducing yourself, 1.3 structuring the presentation, and 1.4 telling purpose of the presentation) 2) Body of the presentation (2.1 introducing the first main point, 2.2 adding, contrasting, and summarizing idea, 2.3 moving to new section/ transitions, 2.4 checking with the audience 2.5 referring to what you have said, 2.6 attention-focusing and 2.7 visual aids) 3) Concluding or ending of your presentation (3.1 restating what you tried to talk about in the presentation, 3.2 giving a short conclusion, 3.3 thanking the audience, and 3.4 inviting questions)

Characteristics of good presentations

According to Armer (2012), there are many issues that the presenters are expected to take into accounts before delivering the presentations. They should well understand the following characteristics of good scientific presentations:

1. Presenters have to be very clear and direct on the content and methods.
2. Presenters may use media such as PowerPoint, slides, figures, VDO, CD or demonstrations during the presentation so that the audience may better understand students' work.
3. Presenters should finish their presentation within the time limit.
4. Presenters should use appropriate verbal language not written language.
5. Presenters should be prepared to answer questions related to their research.

Evaluating the speech

According to Ibbertson (2009), the speaking tasks, especially all kinds of oral production activities, show the level of difficulty in terms of assessment. However, the oral presentation tasks can be evaluated in many different ways depending on the learning goal of the lesson. It can be useful when the teacher as evaluator incorporates other assessment methods to oral presentation performance, including peer and self-assessment or video-recorded speaking task assessment. To plan an oral production assessment, the goals and objectives of the course, lesson, or even the teacher are taken into consideration.

Oral Assessment

Joughin (2010, p.1) give a definition for oral assessment as “any assessment of learning which is conducted by the spoken word”. The spoken language in different forms are used as means of test takers and evaluator communication.

According to Joughin (2008, p.107), “people identify themselves with their words whereas the writing separates the knower from the known”.

The students own the words in oral assessment and present them in their own style. The second element in oral assessment is the passion and force with which students express their ideas in front of an audience, which may be an assessor or a group of other students. In doing so, they can observe the reaction of their audience to their arguments and modify their style of presentation depending on the perceived reaction of the audience to their argument, making the arguments more or less forceful. Oral assessment is highly personalized and arguments cannot be presented without knowing the topic and planning it in a proper way. The assessor may not just listen to the arguments but must also observe the reaction of the student and make their conclusions about the commitment to their argument. According to Pearce & Lee (2009) the skills that are usually evaluated in oral presentations are: knowledge of the subject, confidence, conciseness of the response, quality of responses, thinking on the spot, communication skills, application of theory to practice, ability to handle questions, body language, professional manner and clarity of responses.

Use of Rubrics in oral assessment

Rubrics are “frameworks that direct assessors’ attention to what must be assessed. Rubrics clarify for students what is expected of them. They provide description of possible ranges of performance from high to low” (Orrell et al. 2010, p.117). According to Brockhardt (1999) and Goodrich Andrade (2001) rubrics describe

and define the criteria and the gradations of quality for each criterion within the assessment task. Rubrics are usually written in language that students can understand and interpret easily. Scores are given to the students based on this predetermined scheme of the rubric. The purpose of a predetermined scheme for evaluation is to reduce the subjectivity in evaluating an assessment task. Nitko (2001) argues that grades awarded depend on the type of rubrics used in assessment. Grades could be awarded on total scores as in the case of an holistic rubric or separated pieces of assessment could be evaluated and scores totaled as in case of analytical rubric.

Jackson et al. (2002) have outlined some advantages to students of using rubrics. The first advantage is that students can know before beginning an assessment task as to what the expected level of performance will be. When students know the criteria on which assessment task will be judged they can monitor their progress on the assessment task. The criteria given in rubrics help the students in self evaluation of the quality of performance by them and before turning in the assessment task, students can give a final check to the assessment. Rubrics help in examining the extent to which criteria set for the assessment has been reached. The feedback provided to students on each of the criteria set in the rubric helps the students in improving their future performance (Moskal, 2000).

However, the use of rubrics in assessment of students is not without problem. Goodrich (1997), Montgomery (2000) and Jackson et al (2002) have identified some problems associated with use of rubrics in assessment. The first problem is that

students may not fully understand the assessment criteria given in a rubric if the language used in the rubric is not very clear. This problem can be solved if the terms used in the rubric are defined properly and if descriptive language is used in the development of the rubric. The students can be asked to interpret the assessment criteria and if they find the interpretation hard then the language used in the rubric can be modified. The second problem identified is that the students may not understand the gradation of quality. This problem can be reduced if gradation of quality is stated in measurable terms and each gradation is distinctly defined. The third problem could be that students may not understand the way to obtain total scores or the meaning of total scores. This problem can be reduced if directions are clearly given to students to arrive at a total score using the rubric.

Different types of rubrics that are available for use in assessment are discussed in the literature. The use of a particular type of rubric will depend on the purpose of the evaluation. According to Brockhardt (1999), analytical rubrics are used where separate evaluation of each of the factors is required. In such a case, each criterion is given a scale of measurement. Holistic scoring rubrics provide broader evaluation of the product or process. Analytical and holistic rubrics could overlap each other and the overlap needs to be controlled in the development of a rubric. Scoring rubrics can also be designed in a way to include general and task specific factors in that rubric. A general rubric is used to evaluate particular set of skills such as students' oral communication skills. The feedback obtained by students can help in improving oral

presentation skills in future. If the purpose of rubric is to assess the students' knowledge of specific events such as Global Financial Crisis, then a task specific rubric is designed to evaluate student performance.

Moskal (2000) raised some concerns about the validity and reliability of use of rubrics in assessment tasks. She supports the understanding of link between purpose of assessment and how students are expected to display the objectives of assessment. The scoring criteria used in the rubric should be based on each objective of assessment. A well developed rubric should include evidence on measurement of objectives through scoring criteria set in the rubric. Any criteria which is not related to the objective of assessment is not expected to be include in the rubric. Two types of reliability issues in rubrics discussed by Moskal (2000) are inter-rater reliability and intra-rater reliability. Inter-rater reliability arises when a student score may vary from one rater to another rater. Intra-rater reliability arises when inconsistencies in the scoring process results from influences specific to one single rater. A well designed rubric is expected to improve intra-rater and intra-rater reliability and avoid any inconsistencies in assessment.

In conclusion, all of the mentioned studies are different in their purposes of the study, population, research designs as well as research instruments. However, these studies aimed to develop and investigate CBI courses in different themes and setting. The researcher adapted the ideas of course design of Stoller and Grabe, 1997 to develop the course in this present study.

CHAPTER 3

RESEARCH METHODOLOGY

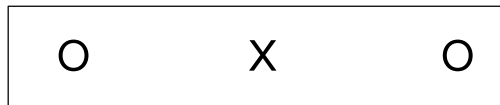
The objectives of this study were to investigate the effects of Content-Based Instruction (CBI) using Six-T's Approach on students' English oral presentation skills and to explore students' opinions towards CBI using Six-T's Approach. This chapter provides the description of research design, population and participations, instruments, research procedures, data collection procedures, and data analysis.

Research Design

A single group pre-test/ post-test experimental design was employed in this study to investigate the effects of content-based instruction using Six-T's approach on lower secondary students' English oral presentation skills. The quantitative data was collected using the English Oral Presentation Pretest and Posttest which were administered before and after the treatment implication phase to examine the effects of content-based instruction using Six-T's approach.

Moreover, after the 6-week instruction, the qualitative data was collected to explore students' opinions towards the instruction through the semi-structured interview process by the researcher, as a course developer and teacher. The following figure illustrates the research design of the study.

Figure 3. 1 Research design to explore students' English oral presentation skills

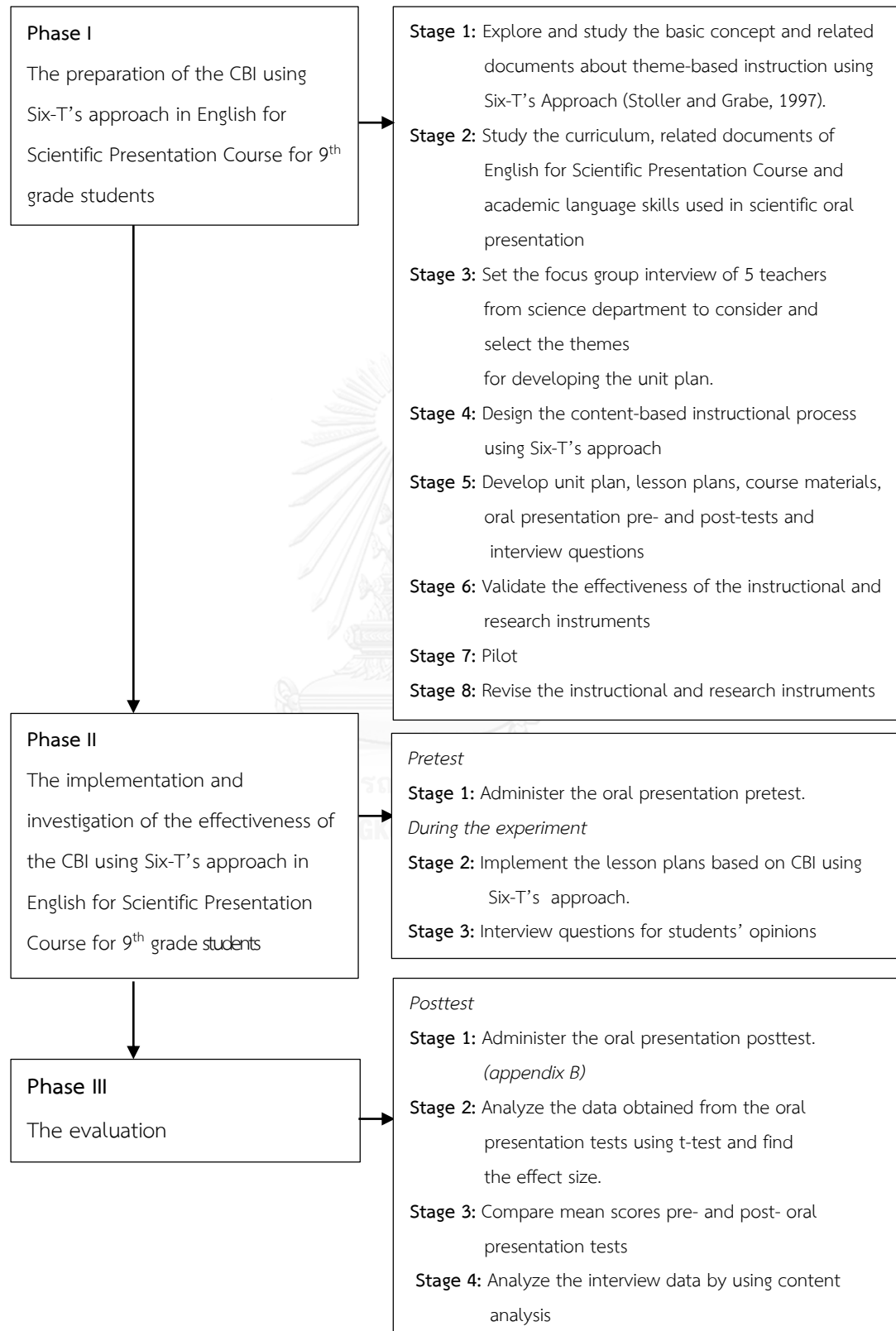


- X means the treatment of the study which is
Content-Based Instruction using Six-T's Approach
- O means an English oral presentation pre- and post-test

Research Procedures

The research procedures were developed in three phases to correspond the implementation of a Six-T's approach to content-based instruction. The first phase involved the preparation of the content-based instruction using Six-T's approach in English for Scientific Presentation Course for 9th grade students. The second phase involved the implementation and investigation of the effectiveness of the instruction and the final phase involved the evaluation. Figure 3.2 illustrates the overview of the research procedures of the study.

Figure 3. 2 Phases in Developing the CBI using Six-T's approach in English for Scientific Oral Presentation Course



Population and Participants

The population for this experimental study was Thai lower secondary level students. The study conducted at Streesmutprakan School, a public school in Samutprakan Province under the Secondary Educational Service Area Office 6. The participants of a classroom unit-based simple sampling consisted of a class of 45 ninth grade class 2 students who enrolled the English for Scientific Presentation Course in term 2, academic year 2016.

In lower secondary level at Streesmutprakan School, there are ten classes each level from Grade 7 – 9 administered under the two major programs comprising the gifted education program (class 1 – 4) and the general program (class 5 - 10). The gifted education program are categorized into three areas serving the educational needs of the gifted students, including 1) the Program for the Promotion of Mathematics, Science and Technology, 2) the Smart Science Program Following the Curriculum of the Institute for the Promotion of Teaching Science and Technology (IPST) and the Promotion of Academic Olympiads and Development of Science Education Foundation under the Patronage of Her Royal Highness Princess Galyani Vadhana Krom Luang Naradhiwas Rajanagarindra (POSN) and 3) English Program (EP).

The reason ninth grade gifted education program students were chosen as samples of the study was that the students were expected from the school, as the most senior students in lower secondary level, to participate in any of international competition, normally in science-math-and-technology project competition.

Another was that these groups of students, as the regulation in terms of program curriculum, were required to enroll EN23207 English for Scientific Oral Presentation Course in order to completely graduate the lower secondary education. Before taking this course, the students completed four English foundation courses, *English 1-4*, and four prerequisite English elective courses providing by program, including *English for Reading and Writing*, *English for Listening and Speaking*, *English for Science and Mathematics*, and *English for Communication*. This assured the participants had an adequate level of English communication skills before learning the course of this study.

Before the instruction, the researcher had organized the simulation-oriented settings similar to the science fair competition by dividing the 45 ninth grade students of class 2 into groups of 3 students each and having them work together in the same group throughout the 8-week instruction. Therefore, the students were evaluated the English oral presentation skills by group which the total number of participants in this study was equivalent to 15 groups.

Conceptual Framework

To illustrate the whole concept of Content-Based Instruction using Six-T's approach in the instruction design, the 8 steps for implementing a Six-T's approach (Stoller & Grabe, 1997) were applied to design the coherent instruction with a dual commitment to language and content learning to reinforce the 9th grade students' content knowledge about science project and the oral presentation skills. The Six-T's

approach included six integrated-in-order components comprising *Theme, Text, Topic, Thread, Task, and Transition*. The following section clarified the development process of instructional instruments of this study.

Step 1

The first requirement in establishing the theme unit content for English for Scientific Presentation Course was 1) to determine the theme, 2) select the text and 3) design the topic sequentially (Stoller & Grabe, 1997). In school settings, a group of curriculum planners, including a head of science department and four science teachers responsible for grade 9 science classes in both gifted and general programs, was formally invited to the focus group interview responsible for deciding theme, text and topic stretching throughout the course. Before the interview, the curricular-planning committees, familiar with and expertise in the subject of science and the Basic Education Core Curriculum B.E. 2551 which these resulted in theme, text and topic determination, compiled the science commercial textbooks for grade 9 level, listed out the themes the publishers used as a guideline for organizing the contents and discussed.

Based on the interview, the committees finally decided that “Environment” was one *theme* area of science suitably for the 9th graders to learn as indicated in several strands of science curriculum in the Basic Education Core Curriculum B.E.2551 of Thailand such as strand 1 Living Things and Process of Lives, strand 2 Life and Environment and strand 6 Change Process of the Earth. In this study, to help students

gradually build up their understanding about the content, concept and vocabulary of environment, two theme units are introduced: Ecosystem and Environment and Natural Resource.

Text selection was the second consideration. A science project report relevant to the selected theme units is considered as the appropriate material complementing the extension of content in an academic discourse of written and oral presentation format. Additionally to achieve the goal of the course, a variety of available published science projects are appropriately used to develop 9 graders' oral presentation skills.

Lastly, a coherent set of **topics** were selected according to the theme units.

(See Step 3)

Step 2

The second requirement was selecting **thread**. By studying the published science projects throughout the course, students not only had opportunities to develop the content knowledge and language skills, but also took some natural values into account about lives and the natural system. This created the thread which is a linkage developing students' sense of responsibility to help community preserve the natural equilibrium across the theme units.

Table 3. 1 Thread utilized to provide linkage among the 2 theme units of the course

Themes	Thread linking the two themes of environment
Ecosystem	Responsibility to help community preserve the natural equilibrium
Environment and Natural Resource	

Step 3

The third requirement was sequencing the content and the length of theme units. The sequential order of English for Scientific Oral Presentation Course contents were planned corresponding to the difficulty and complexity of theme units. The theme that provided the basic and prerequisite knowledge of environment for the further classes was arranged before the complex ones. Therefore, the theme of “Ecosystem” was sequenced before the theme of “Environment and Natural Resource” in order to help students gradually develop the understanding of the biological basic content, terms and vocabulary related and also linguistic features to be applied into the more complex theme. Also when selecting the science project topics to be learned every week, within one theme, two topics were introduced in sequence according to the level of difficulty and complexity. Furthermore, the length of course weeks and time was considered as another issue limiting the numbers of theme and topics. As this course was rather intensive within 6 weeks, two weeks were organized for pre- and post-test and four weeks with 3 lesson each week were allocated for the mastering class and as the major objective of the course was to enhance the content knowledge and the scientific oral presentation skills, 2 topics were categorized corresponding to the 2 theme units. One topic spent 3 consecutive periods following 3 parts of a scientific oral presentation: introduction, methods and results and conclusion (Giba & Ribes, 2011). Students learned the specific part of the science project in order to deliver specific part of the presentation.

Table 3. 2 The sequence order of English for Scientific Oral presentation Course

Theme	Topics	Objectives
Eco-system	Project 1 Which is the most appropriate environment for propagating guppies?	Period 1 Presenting the introduction of the science project
		Period 2 Presenting the methods & results of the science project
		Period 3 Presenting the conclusion of the science project
	Project 2 What color best affects the growth of sunflowers?	Period 1 Presenting the introduction of the science project
		Period 2 Presenting the methods & results of the science project
		Period 3 Presenting the conclusion of the science project
Environment and Natural Resource	Project 3 What marine plant can best treat wastewater?	Period 1 Presenting the introduction of the science project
		Period 2 Presenting the methods & results of the science project
		Period 3 Presenting the conclusion of the science project
	Project 4 What marine plant can best reduce the soil salinity?	Period 1 Presenting the introduction of the science project
		Period 2 Presenting the methods & results of the science project
		Period 3 Presenting the conclusion of the science project

Step 4

To expand the perspectives on the thematic content, the researcher read more additional information from several sources to strengthen teacher's better and deeper understanding about the biological contents for the task designation in the next step. Additionally, teacher read more books about giving the oral presentation in science and watch the model VDO clips of the middle school winning teams' science project presentation available in Youtube to analyze and shed some lights on the language functions utilized in the winning science project presentations. Both of these knowledge revision would be useful in task designation step.

Step 5

The fifth step of the content-based scientific oral presentation course implementing the 6T's approach requires the specification of core objectives for each theme unit. The objectives in terms of content, language and strategy learning are scoped and sequenced in order to help the researcher organize the course outline and generate the tasks supporting each theme unit in details to prove whether the designed course practically reinforces both content knowledge and language in terms of scientific oral presentation of the ninth graders. (See Appendix N)

Step 6

The sixth step emphasizes on the task designation of each theme unit. Each topic under the main themes of Ecosystem and Environment and Natural Resource spends two weeks with 3 period hours reinforcing students' content knowledge understanding of the science project in particularly 3 sections, including the introduction, the body and the conclusion, and developing the language skills in presenting the 3 sections of the science project in English.

In the content lesson, teacher generated the tasks based on the principles of study skill task, vocabulary and structure learning tasks and information transfer task to build up the students' enduring comprehension of the 3 sections of the published science project in L1. Five groups with 3 students each primarily achieve task 1 (study skill task) which aimed at promoting the reading for comprehension skills using the skimming technique to understand each part of the science project report through a

list of questions. After having been activated the schema on the science project relevant to environment in task 1, students, as they were required to present the project in English, learn how to appropriately choose the scientific vocabulary, terms, grammatical phrases and sentences related to the science project to write a good summary in English. Task 2, the vocabulary and structure learning task was created in the form of the scientific vocabulary usage booklet which facilitates students to inquire the use of scientific vocabulary from the reliable sources in science area to find the meaning of the word, picture visualizing the meaning, synonyms and how the word was used in the context and write them in the booklet as the storage book of scientific vocabulary and language use.

Also in oral presentation skill development lesson, the designation of tasks was based on discourse organization together with vocabulary and structure learning and communicative interaction tasks. Basically, students analyze both verbal and non-verbal characteristics of the oral presentation delivery through the effective models generated and compiled by teacher such as the presentation script and the VDO clips and students were able to apply the language features and non-verbal characteristics observed from the VDO clips into their oral interaction practice task.

Table 3. 3 A Summary of task selection and how tasks were designed over the content knowledge and oral presentation lessons in each theme unit

	Task types	Task description
<p>Lesson 1</p> <p>Content knowledge</p> <p><u>A brief lesson description:</u></p> <p>This lesson aims at building up the students' enduring comprehension of the published science project in L1 through tasks helping students build up scientific vocabulary skills and language use and reflect their understanding about the content of science project by writing a summarizing infographic.</p>	<p>1. Study skills task</p> <p>2. Vocabulary and language structure task</p> <p>3. Information transfer task</p>	<p>This task was designed to promote reading for comprehension skill using skimming technique through a set of questions. Students skim the published science project in order to essentially understand each part of the science project report as a primary basis before delivering the oral presentation.</p> <p>This task aims to facilitate students appropriately use vocabulary, terms, grammatical phrases and sentences to write a good science project summary in English by researching and learning from the available sources (e.g. scientific journal database, published articles, online science dictionary with usage and examples, corpus, etc.) then note down in the teacher-generated booklet which is used as the storage book of scientific vocabulary and usage.</p> <p>This task was designed in accordance with the principle of using graphic organizer to check students' reading comprehension. Infographic is introduced as a meaningful tool guiding students to summarize the science project read based on their understanding. This can be considered as a task transition from the content knowledge lesson (lesson 1) to oral presentation lesson (lesson 2) helping students plan and draft their presentation script.</p>

	Task types	Task description
<p>Lesson 2</p> <p>Oral presentation</p> <p><u>A brief lesson description:</u></p> <p>This lesson aims at developing the students' oral presentation skills through the analysis of verbal and non-verbal characteristics of the oral scientific presentation models such as written script and VDO clips. By the end of the lesson, students will be able to apply their analysis into their communicative interaction task.</p>	<ol style="list-style-type: none"> 1. Discourse organization task 2. Vocabulary and structure learning task 3. Communicative interaction task 	<p>This task type ranges over the lesson 2 to help students analyze both verbal (task 1 analyzing a presentation model and task 2 analyzing language features) and non-verbal characteristics (task 3 non-verbal communication analysis) of the oral scientific presentation. The written scripts and VDO clips of the winning team participating the international science fair competition are introduced as an effective model to learn how to deliver the oral scientific presentation in English.</p> <p>This task type was designed together with discourse organization task in task 2 to help and emphasize the use of vocabulary and structures in each part of the scientific presentation particularly.</p> <p>This task was designed with the purpose of getting students in each group to orally, physically and collaboratively practice giving the presentation through role play task. After the practice, each group is required to record their presentation VDO clip to be assessed online by the 3 evaluators.</p>

Step 7

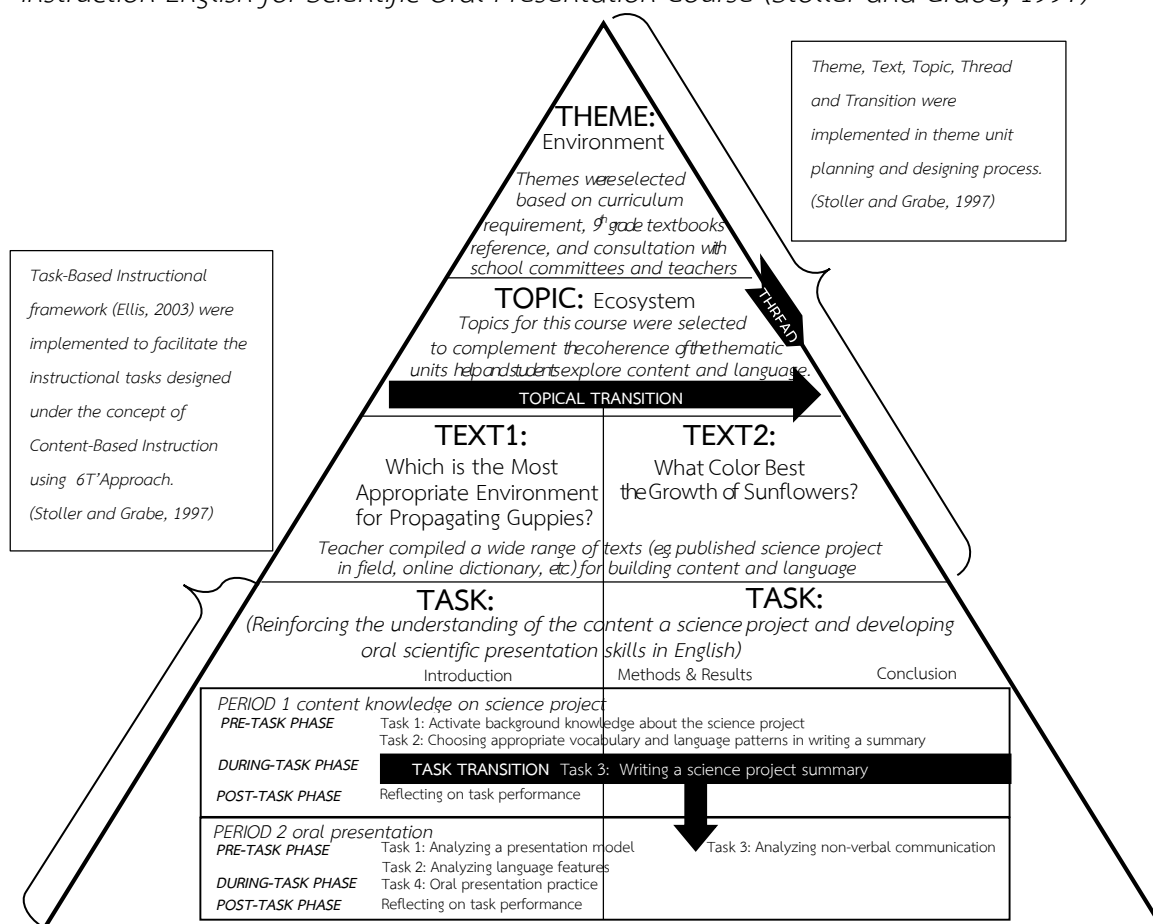
The seventh requirement is to explicitly determine the transitions across topics in a theme unit and across tasks. Within topics, transition was created to accommodate such gradual concept and comprehension of environment from the basic idea of Ecosystem (Topic 1) to more complicated idea about Environment and Natural Resource (Topic 2). The transition facilitates students not only to obtain a bit-by-bit understanding about environment content, but also to develop and build up the

language skills related to the field of environment. In addition to the transition across these two topics, teacher created task transition as a connection that accommodated students to achieve a meaningful final outcome of the lesson. The science project summarizing task which was considered as the outcome of lesson 1 was applied in order to help students draft their presentation script to complete the communicative interaction task by the end of the lesson.

Step 8

After the abovementioned 7 steps are sequentially applied, the final step requires the fine-tuning of the sample theme units while they were implemented in Content-Based oral scientific presentation class. It is an essential stage that the researcher explored the possible new topics emerging during the class time, adjusted the lessons in accordance with the emerged topics and students' interests and created additional support materials and tasks into the theme units as well.

Figure 3. 3 Conceptual Framework illustrating how a Six-T's (Theme, Text, Topic, Thread, Task, and Transition) framework was implemented in the content-based instruction English for Scientific Oral Presentation Course (Stoller and Grabe, 1997)



A Long-Range for English for Scientific Oral Presentation Course

Based on the Six-T's approach implementation steps, the long range plan was developed to coherently stretch over the English for Scientific Oral Presentation Course after the focus group interview of course developing committees, including a head of science department, 4 science teachers responsible for grade 9 science classes in both gifted and general program and the researcher as course teacher, had been decided and finalized the theme, a set of sequel topics, available sources of texts and the

instructional tasks which these T's elements appropriately sustained students' needs, institutional expectations and standards. The long range plan, covering the 6-week instruction and 2-week pre- and post-test, detailed theme, topics, texts supporting sources and materials, tasks, time allocation and expected skills.

Research Instruments

The research instruments of the present study were constructed based on the Content-Based Instruction, the Six-T's Approach, and the Task-Based Instruction to collect data of the two variables: English oral presentation skills and opinions towards Content-Based Instruction using Six-T'6 Approach. There were 2 types of research instruments which consisted of the instruments developed by the researcher and the English Oral Presentation Evaluation Scale adopted from Valencia Community College (2006 - 2007). The researcher developed 3 research instruments to examine the research questions of the study comprising the lesson plans, the English oral presentation pretest-posttest, and the semi-structured interview questions. The details of instrument construction were described in the next section.

Table 3. 4 The research instruments of the study

Research Instruments	Variables	Time of Distribution
English Oral Presentation Pretest and Posttest	English oral presentation skills	Before and after the implementation stage (week 1 and 8)

Research Instruments	Variables	Time of Distribution
<i>(cont.)</i>		
English Oral Presentation Evaluation Scale		
Semi-structured interview	Opinions towards content-based instruction using Six-T's approach	After implementing the instruction (week 8)

Constructing Lesson plans

The lesson plan was an instructional detailed guideline which facilitated the application of one particular T, task or considered as instructional activities, of the Six-T's of the Content-Based Instruction while other T's, namely *themes, texts, topics, transitions and threads* were implemented in the course and material planning stage. In this study, each theme unit included 2 lesson plans, content knowledge and oral presentation lessons, with detailed information of the teaching steps and the instructional tasks. The lesson plans of the 4 topics were Unit 1 Which is the Most Appropriate Environment for Propagating Guppies?, Unit 2 What Color Best Affects the Growth of Sunflowers?, Topic 3 What Marine Plant Can Best Treat Wastewater?, and Unit 4 What Marine Plant Can Best Reduce the Soil Salinity?. The lesson plan's format consisted of the major theme, topic unit title, objectives, lists of teacher-suggested texts, thread, time allocated, and finally tasks which appeared in the teaching procedure section.

Within one topic, it consisted of 3 sub-lessons, each lesson comprised two periods which the first period aimed at reinforcing students' understanding about the content knowledge of the science project and another aimed at developing the English oral scientific presentation skills in terms of verbal and non-verbal delivery. The objectives of lesson plans kept scientific content and language learning in balance and the parallel format of lesson stretched throughout the 8-week course.

Both content knowledge and oral presentation lesson plans were constructed based on the Content-Based Instruction, the Six-T's Approach, and the Task-Based Instruction and implemented in a supplementary course entitled English for Scientific Oral Presentation Course, offered in semester 2, academic year 2016 within 8 weeks. The Task-Based Approach's instructional procedures by Ellis (2003) were implemented for the lesson plan's construction incorporated with the Six-T's Approach to facilitate the teacher-generated instructional tasks since there has been no clear detailed instructional methodologies for constructing the lesson plans of Content-Based Instruction. The instructional procedures included 3 teaching stages—pre-task, during-task, and post-task.

As the instructional foci of some task types required each group of participants to research for information from the available sources out of the classroom in order to synthesize the content material to achieve the goal of task (Stoller & Grabe, 1997) or to practice communicative interaction among the group, the out-of-class sections were designed for both content knowledge and oral presentation lesson to assist their

task completion and achieve the goal of particular tasks. Also as part of students' reflection on their outcomes of the 2 lessons, the reflective assessment was created out-of class through the online social media, namely Facebook, to receive some feedbacks and comments from teacher and classmates. At this stage, students were required to adjust and revise their works according to teacher's comments.

The teaching steps for both content knowledge and oral presentation lessons were elaborated with a brief lesson description as follows:

Content knowledge lesson:

This lesson aimed at building up the students' enduring comprehension of the science project in L1. 15 groups with 3 students each collaboratively read the entire science project and wrote a summarizing infographic, a type of graphic organizer, about the science report. The summarizing infographic was considered as a task reflecting student's understanding after reading the science report and as a transition while delivering the oral presentation. Concurrently, students built up the scientific vocabulary skills with definition, synonyms and usage, and the language use in the introduction section through the study skills task, vocabulary and language structure learning tasks and discourse organization tasks. The outcome of this lesson were applied as a linkage to the lesson 2 when students were assigned to write a presentation script about the science project (See Appendix F).

Concerning the accessibility of teacher-compiled texts which could be available online or library, task 2 in content knowledge lesson was organized as out-of-class

section to help students use a variety of texts as scientific sources to learn how to use scientific terms or vocabulary in context and how some scientific language patterns appeared in a sample science project are used. Besides, the out-of-class section in this lesson was also created for students to submit their summarizing infographics and receive feedback and comment to complete the final draft. Teacher checked the correctness in terms of the use of scientific vocabulary, grammars, and language patterns of students' submitted summarizing infographic.

Table 3. 5 The illustration of how the instructional tasks designed under the concept of Six-T's Approach are incorporated with the task-based instructional framework

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
<p>Pre-task phase (Out-of class time)</p> <ul style="list-style-type: none"> • Non-task preparation activities option <p><i>Teacher aims at activating learners' content schemata and targeting unfamiliar vocabulary for the successful performance of task.</i></p>	<p><u>Task 1: Activate background knowledge about the science project</u></p> <ul style="list-style-type: none"> - Students brainstorm sub-topics or necessary details about the topic of given science project and share the answers to the class. - Students use teacher's guided questions provided in worksheet 1, task 1 (study skill task) to build up the understanding about the assigned science project (text) and quickly find the answers using skimming technique in order to complete the task.

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
	<p><u>Task 2: Choosing appropriate vocabulary and language patterns in writing a summary</u></p> <p>- To help students write an infographic summary of the given science project report which the unknown or unfamiliar vocabulary are well-written all over and may affect the confusion of word use, students highlight:</p> <p>a.) scientific terms, b) verbs and c.) unknown words with 3 different colors and write the highlighted on top of every page in task 2 (vocabulary and language structure learning task).</p> <p>The activities under this task assign students to 1) look for the stress in the dictionary and mark it on each word, 2) write the definition of the words, find pictures and stick them to represent those words, 3) write down synonyms and 4) find and write the sample sentences using those words from the available sources.</p>

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
<p>During-task phase (In class time)</p> <ul style="list-style-type: none"> • Performance of task without time pressure <p><i>Teacher assigns unlimited time for students to completely perform the task and to promote the language accuracy.</i></p>	<p><u>Task 3: Write a science project summary</u></p> <ul style="list-style-type: none"> - Students follow the summarizing rules and suggestions provided by teacher and use the words from the previous task to write a summary. Task 3 (information transfer task) is assigned to students in order to write the science project summary in the form of infographic.
<p>Post-task phase (out of class time: online)</p> <ul style="list-style-type: none"> • Reflecting on the task performance 	<ul style="list-style-type: none"> - As the outcome of this lesson is the summary of science project report, students post their groups' infographic which is transform into the picture file version to the course's Facebook group and wait for classmates and teacher's comments in terms of content, language use, vocabulary, writing structure, etc.). Also, teacher will evaluate their writing using a summary writing checklist - Based on the teacher's reflection and comments, students are required to edit and finalize their infographic which will be applied as task transition to the next lesson, oral presentation lesson.

Oral presentation lesson:

This lesson aimed at developing the students' oral presentation skills of the science project. Students analyzed both verbal and non-verbal characteristics of the oral presentation delivery through the effective models generated and compiled by teacher such as the presentation script and the VDO clips and students were able to apply the language features and non-verbal characteristics observed from the VDO clips into their oral interaction practice task. The summarizing task from lesson 1 (content knowledge) was concerned as task transition to help each group of students transfer the summarized ideas of the science project in planning and drafting the oral presentation script in lesson 2. The evaluation of the oral presentation task were completed online by 2 evaluators, including the class teacher and the foreign biology teacher, to reflect the overall abilities in science project delivery (Appendix H).

Table 3. 6 The illustration of how the instructional tasks designed under the concept of Six-T's Approach are incorporated under the task-based instructional framework.

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
Pre-task phase (In class time) <ul style="list-style-type: none"> • Providing a model <i>Teacher provides students the oral and written model texts (a transcribed script of scientific presentation and the VDO clips of</i>	<u>Task 1: Analyzing a presentation model</u> <ul style="list-style-type: none"> - Students analyze and identify components of the scientific presentation by noticing the signaling words or phrases from the written model script. (discourse organization task)

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
<p><i>model presenters delivered in Science Fair) to guide how to ideally perform the tasks.</i></p> <p><i>The selected model can also represent activities created to raise students' consciousness about specific features of task performances.</i></p>	<p><u>Task 2: Analyzing language features</u></p> <ul style="list-style-type: none"> - Students cooperatively notice the model sentence strips brought from the written scientific presentation script, categorize them into the correct section and analyze language features of each part of the scientific presentation, including vocabulary use and structures. (discourse organization and vocabulary and structure learning task) <p><u>Task 3: Non-verbal communication analysis</u></p> <ul style="list-style-type: none"> - Students observe the model VDO clips of the winning teams in Science Fair to notice how they effectively use a) body stances and movement, b) hands and arms gestures, c) eye contact and facial expression and d) vocal traits. They are expected to apply these effective traits in their presentation. (discourse organization task)
<p>During-task phase (Out-of-class time)</p> <ul style="list-style-type: none"> • Performance of task with access to input data <p><i>Teacher assigns students to cooperatively apply the science</i></p>	<p><u>Task 4: Oral presentation practice</u></p> <ul style="list-style-type: none"> - Students prepare the presentation script according to the content and language summarized in the infographic (input) and practice giving

Task-based instructional framework (Ellis, 2003)	Instructional tasks designed under the concept of CBI using 6T's Approach (Grabe and Stoller, 1997)
<p><i>project infographic summarized in the previous lesson as the data input to prepare their presentation script and use it while giving the oral scientific presentation. The data input is permitted to use during the task performance stage to support students' content acquisition and use of target vocabulary.</i></p>	<p>the oral presentation in group using the infographic as an outline guiding the sequence of content and language use while presenting. At the end of the practice, students are required to record a VDO clip of their performance, then post in the course's Facebook group. (Communicative interaction task)</p>
<p>Post-task phase (Out-of-class time : online)</p> <ul style="list-style-type: none"> • Reflecting on the task performance • Repeat performance 	<p>- After students have shared their 5-minute presentation clip, the presenters themselves, teacher and classmates evaluate and reflect on the presentation through online assessment in Facebook group. Students have to revise their presentation script according to the comments and give the oral presentation once again to the audience.</p>

Verification of the effectiveness of lesson plan

After the two sample lesson plans conducting Content-Based Instruction using Six-T's Approach incorporated with the Task-Based Instructional framework had been designed, they were validated by the 3 experts who were 1) the language specialist, 2) the content specialist and 3) the content and language specialist. The evaluation of

the lesson plans was done using the Item of Objective Congruence Index (IOC) of 3 rating scales (See Appendix G and I). From the evaluation, the experts commented on the difficulty, inappropriateness of lesson plans and time allocation, then the researcher revised the lesson plans following the suggestions of the experts. Finally, the lesson plans were piloted with 6 groups of 3 ninth-grade students each from different classes participating the Gifted Education Program. These 6 groups of students were the applicants to be attending the international science project competition in environment in 2017 at Sekolah Menengah Kebangsaan Sri Aman, Malaysia. The 3 scales were:

1	referred	the item was appropriate
0	referred	the expert was not sure whether the item was appropriate
-1	referred	the item was not appropriate

The Item of Objective Congruence Index (IOC) formula applying in this study was

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

IOC	referred	the index of congruence
R	referred	the total scores from the experts' opinions
N	referred	the number of the experts

Even though the overall result of the pilot study was quite satisfied, the researcher's observation pointed that some aspects of the lesson plans had to be revised before applying with the research samples which were time allocation and the

task's difficulty and complexity. For time allocation, the time provided for the oral presentation lesson was appropriately allocated, while the time allocated for each stage of the content lesson did not fit within 1 period; as a result, it seemed more suitable if the tasks and activities in pre-task stage, e.g. Task 1 activating background knowledge about the science project and task 2 Task 2 choosing appropriate vocabulary and language patterns in writing a summary, were organized out-of-class time so that each group of students were able to collaboratively work and freely research for the scientific terms, verbs and unknown words appearing in the science project from the fruitful sources of text. These helped students to have positive interaction and collaboration among groups and fulfill the basic knowledge on the science project before participating activities in lesson 1. Lastly, the researcher revised the tasks of each lesson to suit the students' level and used more simplified words in the task sheets.

Constructing English oral presentation pretest and posttest

The English oral presentation pretest and posttest were identically constructed in parallel following the science fair-oriented format which each group of students was required to deliver a science project presentation on the topic of interest in biological discipline (See Appendix A and B). The objective of the tests was to evaluate each group of the ninth grade students' English oral presentation skills based on the science project of their preference in the biological field. The tests were divided into 2 main sections as follows:

Section 1 The requirement of English oral presentation test preparation

The aim of this part was to detail each group of the test takers the necessary information in order to prepare their English oral presentation which consisted of numbers of the presenters, time, material needed, and topics to be evaluated. Each group of students had to strictly follow the suggestion specified in the first section.

Section 2 The required English presentation parts and topics to be evaluated

The aim of this section was to specify the parts of English oral presentation which each group of students needed to prepare, including the introduction, methods and results, and conclusion. These parts were generated following the sections of the science project and the topics that each group would be evaluated, including the aspects of content and English presentation skills. The scores given to these 2 topics were 50 points.

The time allocation for each test was 5 minutes. The detailed information for the oral presentation preparation concerned the following aspects: 1) numbers of presenters, 2) time, 3) materials and 4) topics to be evaluated. There were two aspects of the test which students were measured: content knowledge about the science project to be presenting and the English oral presentation delivery in terms of verbal and non-verbal delivery. The pretest and posttest were evaluated by the two evaluators, which one is a science foreign teacher from English Program Division and another is the researcher who is an English teacher familiar with the content. The 2 evaluators graded the pretest and posttest score using an English Oral Presentation

Evaluation Scale adopted from Valencia Community College (2006 - 2007) to holistically measure lower secondary school students' content knowledge and oral presentation skills before and after implementing the Content-Based Instruction using Six-T's Approach (See Appendix D). The total score for pretest and posttest earned 200 marks which the evaluators had a hundred mark each. In pretest, a recorded clip of each group's science project presentation was submitted via the science fair coordinator's email, while the posttest required each group to present their project to the audience at the school main auditorium. The criteria for evaluating oral presentation were categorized into 2 aspects: 1) content which included introduction establishing credibility, thesis statement identifying topic and main points, connection to audience in terms of demonstrating understanding, subject knowledge and organization and 2) delivery which included eye contact, movement, voice and fluency. The scores for each aspect range from 1 (beginning) to 5 (accomplished) (See Appendix D and E for the details of English Oral Presentation Scale and the description of achievement levels in each aspect rating score).

Verification of English Oral Presentation Pretest-posttest and English Oral

Presentation Evaluation Scale

Both pretest and posttest were validated by the 3 experts who were the language specialist, content and language specialist and content specialist, to check the content validity of the assessment and the English Oral Presentation Evaluation Scale based on the Item of Objective Congruence (IOC). Most results of the content

validity were greater than .50, while there was only one item which the IOC value was below .5. The researcher revised the test according to the experts' comment. Appendix C shows the sample of pre- and post-test used in this study.

Reliability Check for using English Oral Presentation Evaluation Scale

Before the reliability of the English Oral Presentation Evaluation Scale was checked, the 3 experts had primarily been trained by the researcher on how the English Oral Presentation Scale would be used to assess the ninth grade students' English oral presentation skills. The researcher and the evaluator studied the details of criteria, the rating scales and their description and participated a discussion. Then the researcher and evaluator watched the sample video clip of students' presentation using the English Oral Presentation Evaluation Scale provided.

After watching the clips of students' presentation, the researcher and evaluator attended in a discussion once again and lasted when all evaluators shared the similar concept in evaluating students' English oral presentation skills.

To check the reliability of the English Oral Presentation Scale, the interrater reliability was administered to examine the consistency between the 2 raters using the English Oral Presentation Scale with the 6 pilot groups of 3 ninth-grade students each from different classes participating the Gifted Education Program. The 2 raters independently graded each group of students' oral presentation performance using the English Oral Presentation Evaluation Scale adopted from Valencia Community College (2006 - 2007). The consistency of scores using the English Oral Presentation

Evaluation Scale was checked using Pearson Correlation Coefficient through SPSS program. The results of the coefficient of inter-rater reliability were illustrated in Table 3.8.

Table 3. 7 Pearson Correlation Coefficient of Inter-rater Reliability (Overall)

Raters	<i>r</i>
$R_1 + R_2$.93

Table 3.9 and 3.10 below presented the coefficient of interrater reliability regarding the aspects of content and delivery.

Table 3. 8 Pearson Correlation Coefficient of Interrater Reliability (Content)

Raters	<i>r</i>
$R_1 + R_2$.98

Table 3. 9 Pearson Correlation Coefficient of Interrater Reliability (Delivery)

Raters	<i>r</i>
$R_1 + R_2$.81

As presented in Table 3.8 – 3.10, the correlation value of Pearson Correlation Coefficient of Interrater Reliability in terms of overall check (0.93), content (0.98) and delivery aspect (0.81) imply that the scores graded by the 2 raters are consistent.

Developing semi-structured interview questions

The semi-structured interview was conducted at the final week of the instruction by the researcher, as the course teacher, with all groups of participants. The objective of the interview questions was to explore the opinions of the students

towards the Content-Based Instruction using Six-T's Approach. The interview was done in English and Thai for the participants to comfortably express their exact opinions to the questions. The conversation between the researcher and each group was audio-recorded and transcribed. The interview questions consisted of 6 questions which were constructed based on the aspects of positive and negative opinions towards the implementation of content-based instruction using Six-T's approach and other comments for the future course (See Appendix J)

Verification of the semi-structured interview

The interview questions were validated by the three experts who were the language specialist, content and language specialist and content specialist and the content validity was examined based on the Item of Objective Congruence (IOC) to check the appropriateness of the interview questions (See Appendix K). All aspects in the interview questions revealed by the items in the IOC were greater than .50 and reached the high validity level at 1.0. However, there was one question which was eliminated due to the fact that the detail in the question repeatedly asked the similar content to the other interview questions. Therefore, the 6 semi-structured interview questions were presented as follows:

Table 3. 10 Constructs and the interview questions

Item	Interview questions	Aspects
1	What do you think about implementing Content-Based Instruction using 6T's Approach into English for Scientific Oral Presentation Course? นักเรียนคิดอย่างไรเกี่ยวกับการเรียนวิชาภาษาอังกฤษเพื่อการนำเสนอ โครงการวิทยาศาสตร์ผ่านการจัดการเรียนรู้ที่เน้นเนื้อหาวิชาโดยใช้วิธี สอนแบบซิกซ์ที	Overall opinion towards the instruction
2	How can the tasks develop the content knowledge comprehension and oral presentation skills? กิจกรรมช่วยให้นักเรียนพัฒนาความเข้าใจที่มีต่อเนื้อหา และทักษะการ นำเสนองานด้วยวาจาอย่างไร	Overall opinion towards the instruction
3	What do you think about the tasks in the content knowledge lesson? The tasks are: Task 1 Activating background knowledge about the science project Task 2 Choosing appropriate vocabulary and language patterns in writing a summary Task 3 Writing a science project summary นักเรียนคิดอย่างไรเกี่ยวกับภาระงานที่ครูมอบให้ในบทเรียนด้านเนื้อหา	Overall opinion towards tasks in the instruction
4	How can English language learned from the content knowledge lesson's tasks help your develop your oral presentation skills? ภาษาอังกฤษที่เรียนรู้ผ่านภาระงานในบทเรียนด้านเนื้อหาช่วยพัฒนา ทักษะการนำเสนองานด้วยวาจาอย่างไร	Overall opinion towards language learned in the tasks

Item	Interview questions	Aspects
5	What do you think about the tasks in the oral presentation lesson? Task 1 Analyzing a presentation model Task 2 Analyzing language features Task 3 Analyzing non-verbal communication Task 4 Oral presentation practice นักเรียนคิดอย่างไรเกี่ยวกับภาระงานที่ครูมอบให้ในบทเรียนด้านการนำเสนอผลงานด้วยวาจา	Overall opinion towards tasks in the instruction
6	Are there any comments to improve the instruction in this course? คำแนะนำเพิ่มเติมเพื่อปรับปรุงด้านการสอนในรายวิชานี้	Comments for further instruction

Data Collection

The data collection for this study were carried out in three phases: before, during and after Content-Based Instruction using Six-T's Approach in English for Scientific Oral Presentation Course.

Before the instruction

Before participating in the instruction, the participants were briefly introduced the content and tasks activities they would be involved during the instruction. In the first week, the English oral presentation pre-test were administered to each group of students to assess the current level of English oral presentation skills before the treatment. Each group was asked to prepare the science project presentation in English relevant to their group's interest under the biological discipline, record a 5-minute clip presenting their science project and submit to the teacher. The students' oral delivery

performance was holistically assessed using the English Oral Presentation Evaluation Scale by the two evaluators who were the class teacher and foreign biology teacher from English Program in two major aspects: content and delivery skills.

During the instruction

Then, the researcher started the 6-week lessons with 4 topics relevant to the science project in environment issues to all students. Because the instruction of 4 topics was divided into 3 sub-lessons in accordance with 3 sections of science project presentation (Giba & Ribes, 2011), introduction, methods and results and conclusion, and each section consisted of two lessons each which were the content and oral presentation lessons, the students were required to create a clip of their group's presentation at the end of each section and finally submit to the teacher in order to observe the oral presentation progress. The two evaluators used the English Oral Presentation Evaluation Scale to assess students' clip and gave students a feedback after scoring.

After the instruction

After weeks of Content-Based Instruction using Six-T's Approach, students were assigned to present their science project which was similar to the pre-test in the 2016 science fair organized by the school as the post-test. The evaluators and criteria for assessment were parallel to the pre-test. The qualitative study was administered to explore the students' opinions towards the Content-Based Instruction using Six-T's Approach. All 15 groups of participants attended the semi-structured interview and

were interviewed by the researcher in Thai and English. The interview was audio recorded. After the interview process had been done, the researcher transcribed the recorded data and counted the frequencies of key words from students' interview.

Data Analysis

As the results of the study obtained from the small group sample, 15 groups with 3 students each, the Wilcoxon Signed Rank Test (Non-Parametric Test) and the descriptive statistics, including the minimum and maximum values, mean scores and standard deviation were employed and calculated by the Statistical Package for the IBM SPSS Statistics in order to analyze and compare the differences between the pretest and posttest scores.

For the qualitative study, the content analysis method was delivered to analyze the qualitative data obtained from the semi-structured interview aiming at exploring lower secondary school students' opinions towards the Content-Based Instruction using Six-T's Approach. The researcher read transcribed interview data and categorized the relevant key words, phrases and sentences into 3 major categories: realizing the worthiness of the learning activities, usefulness for further application, and creating learning engagement in 2 main aspects including positive and negative aspect. Key words, phrases or sentences occurred in relevance to the categories which were developed based on the findings from Pangroen (2015).

Table 3. 11 The categories and key words for content analysis

Categories	Keywords/ Key Phrases
Positive	
1. Realizing the worthiness of the learning activities	<ul style="list-style-type: none"> - พุดนำเสนอเป็นภาษาอังกฤษได้ (possibly deliver English oral presentation) - รู้สึกมั่นใจ ไม่ตื่นเต้น พุดคล่องขึ้น (feel more confident, not excited, speak more fluently) - ทักษะการนำเสนอมีการพัฒนาขึ้น (presentation skills were improved) - พุด/ นำเสนอจากความเข้าใจ (speak/ present from understanding) - สามารถพูดส่วนต่างๆได้อย่างเป็นระบบ (could present each part of the science project systematically)
2. Usefulness for further application	<ul style="list-style-type: none"> - กิจกรรมการเรียนรู้ช่วยให้นำเสนอดีขึ้น พุดรู้เรื่อง (learning activities improved the presentation skills with sense) - นึกถึงคำศัพท์ โครงสร้างประโยคได้ เมื่อต้องนำเสนอในครั้งต่อไป (the vocabulary and language patterns were in mind when required to give a presentation) - สิ่งที่ได้เรียน ช่วยการนำเสนอในครั้งต่อ (what I had learned in the previos class helped my further presentation) - นำความรู้จากคอร์สนี้ ไปใช้ในอนาคต/ วิชาอื่น/ การนำเสนอครั้งต่อไปได้ (what I have learned in this course helped the future application/ other subjects/ further presentation) - ทำงานร่วมกันเป็นกลุ่มช่วยให้เกิดความรู้ ทักษะสามารถนำไปใช้ได้ครั้งต่อไป (group work helped students develop content knowledge and other skills which could be applied for further presentation)

Categories	Keywords/ Key Phrases
Positive	
3. Creating learning engagement	<ul style="list-style-type: none"> - มีส่วนร่วมในกิจกรรม (<i>participate/ engage/ involve in learning activities</i>) - กระตือรือร้นในกิจกรรมต่างๆ/ ทุกกิจกรรม (<i>energetic to all learning activities</i>) - ใส่ใจในกิจกรรมต่างๆ/ ทุกกิจกรรม (<i>attention to all learning activities</i>)
Negative	
4. difficulty	<ul style="list-style-type: none"> - กิจกรรมยากมาก ซับซ้อน (<i>learning activities were so difficult and complicated</i>)

Conclusion

This present study was conducted using the single group pretest/ posttest experimental design. The samples were 15 groups of ninth grade students at Streesmutprakan School. The instruments utilized for examining the effects of Content-Based Instruction using Six-T's Approach before and after implementation were the English Oral Presentation Pretest-Posttest and the English Oral Presentation Evaluation Scale. The semi-structured interview questions were employed after the 6-week instruction to explore each group of students' opinion towards the instruction.

CHAPTER 4

RESEARCH FINDINGS

This chapter discusses the findings of a single group pretest – posttest experimental study which aimed to investigate the effects of Content-Based Instruction using Six-T's Approach on lower secondary school students' English oral presentation skills. In this study, the participants were 45 ninth-graders who participated the Gifted Education Program from Streesmutprakan School, Thailand. During the instruction, the participants were divided into fifteen groups of three students each to perform group presentation. The instruments used in this study were the English Oral Presentation Evaluation Scale adapted from Valencia Community College (2006 - 2007) which aimed to measure lower secondary students' content knowledge and oral presentation skills and the interview questions to explore the students' opinions towards implementing content-based instruction using Six-T's approach. The findings were presented in two parts based on the following research questions:

Part 1 To what extent does content-based instruction using Six-T's approach enhance lower secondary school students' English oral presentation skills?

Part 2 What are the opinions of lower secondary school level students towards content-based instruction using Six-T's approach?

Research Question 1: To what extent does content-based instruction using Six-T's Approach enhance lower secondary school students' English oral presentation skills?

To examine the effects of content-based instruction using Six-T's approach on English oral presentation skills of lower secondary school students, the English Oral Presentation Evaluation Scale was conducted before and after the treatment. The test measured 2 aspects which were content knowledge about the science project and the English oral delivery. The scores were allocated 100 marks, including 50 marks for content aspect and another 50 marks for delivery aspect. Therefore, the total scores rated by the two raters were 200 marks. The descriptive statistics and Wilcoxon Signed Rank Test were applied to distinguish the differences between pre- and post-test scores.

After the Wilcoxon Signed Rank Test had been applied to analyze the pre- and post-test scores, the positive signed ranks were found in all groups at the significant level of .001, Z value 3.409 (See Table 4.1). The results indicated a significant difference of the participant's pretest score (Mean = 83.07 and S.D. = 16.06) and posttest score (Mean = 142.33, S.D. = 15.66). (See Table 4.1)

Moreover, group 7, 10, 12, 13, and 14 gained dramatic improvement from both content and delivery aspects.

Table 4. 1 The comparison between the descriptive and Wilcoxon Signed Rank Test' results of the English oral presentation pretest/ posttest

	N	Minimum	Maximum	Mean	S.D.	Z
	Asymp. Sig (2-tailed)					
Pretest	15	52	101	83.07	16.06	
Posttest	15	121	168	142.3	15.66	
Posttest-Pretest				3		-3.409 ^a

*p<.01

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

To check whether each group of students had a significant difference in the content aspect, the descriptive statistics and Wilcoxon Signed Rank Test were used to analyze each group's pre- and post-test scores. The results found every group of students' content knowledge on the presented science project was statistically enhanced. The pre-test's mean score was 38.67 (S.D. = 7.92) and post-test's mean score was 68.27 (S.D. = 7.80). The positive signed rank was also found in all groups at the statistically significant level of .001, Z value at 3.411 (See Table 4.2).

Table 4. 2 The comparison between the descriptive and Wilcoxon Signed Rank Test's results of pretest/ posttest (content aspect)

	N	Minimum	Maximum	Mean	S.D.	Z
	Asymp. Sig (2-tailed)					
Pretest	15	24	48	38.67	7.92	
Posttest	15	57	81	68.27	7.80	
Posttest-Pretest						-3.411 ^a

*p<.01

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

The English delivery aspect was examined before and after the treatment. It was found that every group of students' post-test score was increased. There was significantly different in mean scores between pre-test (Mean = 44.40, S.D. = 8.28) and post-test (Mean = 74.07, S.D. = 7.98). The positive signed rank was also found in all groups at the statistically significant level of .001, Z value at 3.408 (See Table 4.3).

Table 4. 3 The comparison between the descriptive and Wilcoxon Signed Rank Test's results of pretest/ posttest (oral presentation aspect)

	N	Minimum	Maximum	Mean	S.D.	Z
Pretest	15	28	54	44.40	8.28	
Posttest	15	63	87	74.07	7.98	
Posttest-Pretest						-3.408 ^a

*p<.01

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

In conclusion, according to the result of the English Oral Presentation Evaluation Scale, the lower secondary school students' English oral presentation skill of both content and oral presentation aspects was enhanced significantly after implementing content-based instruction using Six-T's approach. In addition, there were 5 groups of students whose results dramatically gained improvement.

Research Question 2: What are the opinions of lower secondary school level students towards Content-Based Instruction using Six-T's Approach?

Overall opinions about the content-based instruction using Six-T's approach

To explore lower secondary school students' opinions towards content-based instruction using Six-T's approach in the English oral presentation in science course, the researcher conducted the semi-structure interview to every group of participants. The content analysis method was used to analyze the qualitative data obtained from each group of interviewees. Table 4.4 showed the students' opinions towards the content-based instruction using Six-T's approach.

Table 4. 4 Frequency and percent of the key concept found in the interview

Categories	Frequency of the Key Concept Found in Students' Answers (N = 167)	Percent
Positive	150	89.82
1. Realizing the worthiness of the learning activities	99	59.28
2. Usefulness for further application	49	29.34
3. Creating learning engagement	2	1.20
Negative	17	10.18
4. Difficulty	17	10.18

The researcher counted frequencies of key words, phrases or sentences occurred in relevance to the categories which were developed based on the findings from (Pangroean, 2015). After the interview results had been collected, the qualitative data obtained from the recorded audio were transcribed and categorized based on the results of each interview questions.

From interview, the results of students' opinions towards content-based instruction using Six-T's approach were extensively categorized into two main aspects: positive and negative aspect of the content-based instruction using Six-T's approach. "Realizing the worthiness of the learning activities" was mentioned the most ($f = 99$ or 59.28%) among the 3 positive aspects followed by "usefulness for further application" ($f = 49$ or 29.34%), and "creating learning engagement" was mentioned the third most ($f = 2$ or 1.20%). On the contrary, there were some students stated that it was worth developing English oral presentation skills through the content-based instruction using Six-T's approach; even though, the learning tasks provided in the class were too difficult ($f = 17$ or 10.18%).

To illustrate students' opinions towards Content-Based Instruction using Six-T's Approach, the following section exemplified the excerpts of the students' semi-structured interview which was analyzed using the content analysis focusing on the positive and negative aspects.

Realizing the worthiness of the learning activities

The analysis showed that the most frequently used word or phrase in the students' interview result was highlighted on realizing the worthiness of the learning activities. The majority of students ($f = 99$) positively expressed that the Content-Based Instruction using Six-T's Approach plays an important role in reinforcing students' English oral presentation skills as well as the content knowledge. They observed themselves while presenting throughout the instruction and found that the learning

activities helped students improve the presentation skills both verbal and non-verbal delivery. The examples of the students' answer below illustrated the improvement of students' presentation skills.

Excerpt 1

Group 6 S1: “ผมไม่เคยเรียนนำเสนอมาก่อน ปกติเวลาอาจารย์คนไหนสั่งให้ออกมาพูดนำเสนอ หน้าห้องก็แค่หาเก็บจากเน็ต ไม่ก็แปลจากอาคุ (Google) (หัวเราะ) แล้วก็เอา กระดาษออกไปยืนพูดๆ แต่พอได้เรียนวิชานำเสนอที่โคตรจะจริงจังจากจารย์ ผมไม่คิดเลยว่ากลุ่มผมจะพูดนำเสนอเป็นภาษาอังกฤษได้ แถมยังเป็นเนื้อหาเกี่ยวกับวิทย์ด้วย ถ้าฟังพูดเรื่องทั่วไปยังไม่รอดเลยอย่างที่บอกอ่านกระดาษอย่างเดียว”

“I haven't learned how to give an oral presentation before. Normally when any teachers assigned me to give the presentation in class, I just copied the solid content from the internet or translated from Thai script to English using the Google Translate, then just presented it.

But, when I learned the presentation course from you, a very serious teacher, I couldn't believe that my group could deliver the presentation in English, especially the science content. In the past, even I was assigned to present the simple topics; I couldn't do them. As mentioned above, I only read from the paper.”

S2: “ใช่ๆจารย์ ผมก็ไม่คิดว่าผมจะพูดได้ รู้สึกว่าตัวเองและเพื่อนพูดสมูธและคล่องขึ้นนะ”

“I agreed with him. I couldn’t believe that I could present the project.

I feel that my friends and I can present smoothly and fluently.”

S3: “แต่ก่อนเวลาที่รู้ว่าจะต้องนำเสนอหน้าห้อง ทั้งขาทั้งตัวหนูนี่สั่นตลอด ตอนนี้สบาย
ยืนหน้าห้องไม่ตื้นเต้นแล้ว มันใจมากขึ้นเยอะ”

*“In the past when I realized I was about to present, I’d got my whole
body and legs shaking, while I feel comfortable to stand at the front
of the class without nervousness now. I feel much more confident.”*

In addition to their own group’s improvement, in excerpt 2 S3 from group 14 and excerpt 3 S1 from group 2 also expressed the worthiness from observing other groups’ improvement in terms of English oral presentation skills from both front-class presentation and video clips. These following excerpts revealed the consistency of keywords mentioned in this category.

Excerpt 2

Group 14 S3: “ตั้งแต่ที่เรียนคอร์สนี้มารู้สึกว่เพื่อนๆเราก้พูดเก่งเหมือนกัน ผมว่าการพูดนำเสนอ
ของทุกคนมาไกลจากวันแรกมาก”

*“Since I studied this course, I concerned that my classmates could
present well. I think the presentation skills of us all are far different
from day 1.”*

Excerpt 3

Group 2 S1: “หนูชอบเรียนวิชาอาจารย์มากๆค่ะ อาจารย์มาสอนแต่เหมือนไม่ได้สอน ใ้หนูทำกิจกรรมตลอด คิดจนสมองจะระเบิดแถมกิจกรรมแต่ละอย่างก็โคตรยาก แต่พอเห็นเพื่อนทั้งกลุ่มตัวเองและกลุ่มอื่นนำเสนอ คือไม่น่าเชื่ออะพูดกันได้ยังไง มองแค่ infographic แล้วก็พูดออกมาเลย แถมมีท่าทางด้วยนะ”

“I like learning your class very much. You came to class, but it seemed like you didn't teach us. You always came up with learning activities which made me feel like my brain was exploding. Each learning activity was extremely difficult! But when I see other groups and even my group were presenting, incredibly, they could give the oral presentation. They just glanced at their infographic; then they could present as well as used the gesture.”

Also, the tasks provided in class facilitated a conceptual understanding of each section of science project to be presented. Students also mentioned that sequencing the class lesson from simple to more complex topics enabled them to gradually enhance their understanding in terms of scientific vocabulary skills and language use. For the examples, S 1 from Group 2 expressed that they could present the details in each section of science project by heart after the instruction.

Excerpt 4

Group 2 S 1: “ตอนแรกก็กลัวที่ครูบอกว่าจะให้นำเสนอโครงการงานวิทย์เป็นภาษาอังกฤษ แต่พอหลังจากที่เรียนไปสองโปรเจค รู้สึกว่าเราไม่ได้เอาแต่ท่องจำแล้วออกมาเป็นพูดเหมือนครั้งก่อนๆ เราพูดมันออกมาจากความเข้าใจของเรา เหมือนออกมาเล่างานของเราเองว่าทำเรื่องอะไร ทำเรื่องนี้ทำไม ทำอย่างไร แล้วได้อะไร คลาสอาจารย์ยากแต่คุ้ม”

“When you first told the class that we need to present the science project in English, I felt really afraid. After I had learned 2 science projects, I found I didn't memorize the script, then presented in front of the class, but I could present it from my understanding as if I was explaining my work of why I did this project, how I did it and what I found. Your class is difficult but worth it.”

In addition to the previous positive aspects, the thread was ranked in the third most frequencies from the obtained data. According to Stoller and Grabe (2017), effective threads are those emerging in class as a result of students' comments, personal experiences, questions, and observation. From the semi-structured interview, some students highlighted that they were aware and concerned about the environmental problems and would like to take action protecting and preserving environment and biodiversity after learning through the 4 consecutive science projects on environment and natural resources. The examples were shown in the excerpt 1

Group 3 S2.

Excerpt 5

Group 3 S2: “หนูไม่รู้มาก่อนว่าผักตบชวาช่วยแก้ปัญหา^{น้ำเสีย}ได้ คิดมาตลอดว่ามันคือขยะ หนูว่าจะลองไปทดลองในคลองใกล้ๆบ้านหน่อย น้ำจะได้ใสขึ้น”

“I have never known before that water hyacinth can treat wastewater and thought that it was kind of floating weeds. I think after this I will conduct the similar experiment to the community canal. The wastewater will turn better.”

Usefulness for further application

To elaborate on the usefulness for further application, this positive aspect obtained the second frequencies from the students' answer. The students ($f = 49$) described that the role of tasks enhanced content understanding in each science project section. Excerpt 3 S1 from group 2 and Excerpt 4 S1 and S2 from group 15 mentioned the usefulness of infographic from writing a summary task and scientific vocabulary & language patterns booklet from choosing appropriate vocabulary, and language patterns in writing a summary task reinforce their comprehension on science project to be presented.

Excerpt 1

Group 2 S1: “...พอเห็นเพื่อนทั้งกลุ่มตัวเองและกลุ่มอื่นนำเสนอ คือไม่น่าเชื่ออะพูดกันได้ยังไง มองแค่ infographic แล้วก็พูดออกมาเลย แอ้มมีท่าทางด้วยนะ”

“...when I see other groups and even my group were presenting, incredibly, they could give the oral presentation. They just glanced at

their infographic; then they could present as well as used the gesture.”

Excerpt 2

Group 15 S1: “หนูคิดว่า infographic เป็นตัวช่วยเช็คความเข้าใจในโครงการที่จะนำเสนอได้ดี เรา
จะสรุปออกมาเป็นภาพพร้อมประโยคได้ เราต้องเข้าใจเรื่องก่อน หนูค่อนข้างโอเค
กับ infographic มาก ไม่มีมันคงพูดไม่รู้เรื่อง”

“I think infographic is a tool helping us understand the content in
science project. We had to understand the content before summarizing
it into the picture-like format with the sentence. I feel OK with it.

Without it, I would have presented without any sense.”

S2: “สำหรับผมต้องสมุดศัพท์ใน task 2 เลยที่ช่วยให้เข้าใจเนื้อหาในโครงการ รู้สึกได้ว่า
พอจะพูด ประโยคและศัพท์นั้นก้อยู่ในหัวแล้ว”

“For me, a booklet in task 2 helped me to understand content of the
science project. *I felt like while I was presenting, both vocabulary and*
sentence structures were existed in my mind.”

In addition, some students gave positive comments towards the sequence of
topics enabled them to gradually enhance their understanding in terms of scientific
vocabulary skills and language use as shown in the below excerpt.

Excerpt 3

Group 6 S3: “หลังจากที่ผมเรียนทั้ง 4 โครงการแล้ว ผมคิดว่าความรู้ คำศัพท์ที่เกี่ยวกับสิ่งแวดล้อม และ

*สิ่งมีชีวิตผมมีมากขึ้นเยอะๆ บทเรียนแต่ละบทเพิ่มคำมากขึ้น คำบางคำเจอมาจาก
คาบเรียนก่อนช่วยให้ ผมนำเสนอโครงการในบทหลังๆ ได้ดีและเข้าใจมากขึ้น”*

“After I had finished learning the 4 science projects, I think my knowledge and vocabulary about environment and creatures were more increased. Each consecutive project contained a greater range of scientific vocabulary so that the words experienced in the previous projects helped me better present the later projects with understanding.”

Besides, involving the students with the repetitive tasks in the instruction helped them easily recall and use vocabulary and language structures learned from the previous lesson whenever they were assigned to give the English oral presentation in science. The analysis, as shown in sample excerpt 1 S3 from Group 3, revealed that the Content-Based Instruction using Six-T’s Approach sustainably maintained students’ understanding of scientific vocabulary and language patterns used in each section of the science project and also in the 3 parts of scientific oral presentation in order to autonomously apply in the later presentation. The excerpt of S3’s transcribed opinion was presented below.

Excerpt 4

Group 3 S3: “ผมเห็นประโยชน์จากวิชานี้ก็ตอนที่อาจารย์ชี้แนะให้ห้องเราเตรียมพร้อมเพื่งานทดลองทำ
 บทเป็นภาษาอังกฤษ ผมรู้เลยว่าต้องเตรียมพร้อมทั้งใจ ภาษาที่ใช้พร้อมก็มัน
 อยู่ในหัวละ เหลือแค่ไปเตรียมส่วนเนื้อหาเท่านั้น”

“I gain benefits from your course when my biology teacher assigned the class to prepare the oral presentation about the experiment in English.

I know how to prepare it. The language used in the presentation is in my mind. The only thing to do is to prepare the content part.

Consistently with S2 from Group 11’s comment, the excerpt 2 below showed how what she had learned in English for Scientific Oral Presentation Course helped her achieve the presentation task from another course, even though, she was assigned to present her project individually.

Excerpt 5

Group 11 S2: “หนูได้ใช้สิ่งที่เรียนจากอาจารย์ในวิชาเพิ่มพูนประสบการณ์ด้วยแหละ อาจารย์เค้าให้ทุกคนพร้อมเพื่งานทดลองที่ทำมาตลอด 3 สัปดาห์ เป็นงานเดี่ยวนะคะ แต่รู้ไหม
 อาจารย์หนูเตรียมสบายมาก ภาษาที่ใช้ในการนำเสนอมันอยู่ในหัวหนูละ เวลาพูดก็เอา
 ประโยคเหล่านั้นมาใช้ได้เลย เพื่อนตะลึงเลยจ้ะว่าทำไมหนูพูดใช้คำไฮโซ หนูว่าภาษา
 หรืออะไรต่างๆหนูได้เยอะมากจากตอนที่ทำกลุ่มกับเพื่อน”

“I applied what I had learned with you in another course. That teacher assigned the class to prepare the presentation of our individual 3-week experiment. You know. I feel really comfortable to prepare it because

the presentational language was already in my mind. *Just apply the sentences I learned into my presentation.* The classmates felt surprised when I was using some academic sentences in my presentation. I realized a group work increased language and other skills.

Regarding collaboration, the same student (S2 from Group 11), who stated that the instruction sustainably maintained understanding to apply for further presentation, revealed that she enriched the language and other skills from participating in group work.

Excerpt 6

Group 11 S2: “หนูได้ใช้สิ่งที่เรียนจากอาจารย์ในวิชาเพิ่มพูนประสบการณ์ด้วยแหละ อาจารย์เค้าให้ทุกคนปริทัศน์การทดลองที่ทำมาตลอด 3 สัปดาห์ เป็นงานเดี่ยวนะคะ แต่รู้ไหม อาจารย์หนูเตรียมสบายมาก ภาษาที่ใช้ในการนำเสนอมันอยู่ในหัวหนูละ เวลาพูดก็เอาประโยคเหล่านั้นมาใช้ได้เลยเพื่อนตะลึงเลยจ้ะว่าทำไมหนูพูดใช้คำไฮโซ หนูว่าภาษาหรืออะไรต่างๆหนูได้เยอะมากจากตอนที่ทำกลุ่มกับเพื่อน”

“I applied what I had learned with you in another course. That teacher assigned the class to prepare the presentation of our individual 3-week experiment. You know. I feel really comfortable to prepare it because the presentational language was already in my mind. Just apply the sentences I learned into my presentation.

The classmates felt surprised when I was using some academic sentences in my presentation. *I realized group work increased language*

and other skills.

Creating learning engagement

Engagement to the lesson was the sub-category which obtained least frequencies in students' answers ($f = 2, 1.20\%$). The analysis showed that the Content-Based Instruction using Six-T's Approach created students' engagement to the class's activities. For example, the excerpt 1 S2 from Group 1 reported that a set of teacher-generated tasks provided in both content and oral presentation lessons required active students and their attention.

Excerpt 1

Group 1 S2: “จากที่หนูสังเกตตอนเรียน หนูว่าเพื่อนๆทุกคนใส่ใจและตั้งใจร่วมกิจกรรมมากมายค่ะ กิจกรรมต่างๆเน้นให้พวกเรามีส่วนร่วม ทำให้เรากระตือรือร้นที่จะใช้ภาษามากขึ้น”

“From my observation, I think all of my classmates had much attention to class because the provided activities required our engagement and encouraged us to use English more.”

Difficulty

From the semi-structured interview, some students ($f = 17$) reported that the task difficulty was found as the negative aspect during the implementation of Content-Based Instruction using Six-T's Approach. For example from the excerpt 1, the conversation between S1 – S3 from Group 7 and teacher best represented other groups' feedback on the task difficulty. They reflected that tasks given by the teacher

in both content and oral presentation lessons required students' higher level of thinking, analyzing and interpreting abilities to achieve the task objectives as shown in the following excerpt 1.

Excerpt 1

Group 7 S3: “เวลาที่ครูให้งานหนูไปสืบค้นการใช้คำศัพท์วิทยาศาสตร์ในประโยคตัวอย่างจาก แหล่งข้อมูลต่างๆ แล้วย้ำว่าต้องเป็นแหล่งที่เชื่อถือได้ แค่นี้หนูก็ว่ายากละนะ เพราะ แต่ละที่ที่พวกหนูไปหากันส่วนใหญ่ใช้ศัพท์อลังการเวอร์มาก ซึ่งหลายครั้งหนูยอมรับ ว่าหนูแปลไม่ออก พอครูบอกอีกว่าให้เรานำประโยคทั้งหมดที่หาได้มาวิเคราะห์ แล้ว ฝึกใช้คำศัพท์ในประโยคตามโครงสร้างที่สังเกตได้ พระเจ้า ยากมากๆ ยากจริงๆนะ ครู”

“When you assigned us to search for the sample sentences representing the scientific vocabulary use from any of reliable sources, I realized *it was so difficult* because each source I visited always contained such difficult vocabulary that I didn't understand. Then you asked us to analyze how the vocabulary was used in the sample sentences and enabled to write the sentences from what we analyzed. Oh Gosh! *It was very and very tough task!*”

S1: “เห็นด้วยกับเพื่อนค่ะ หนูว่ามันยากตรงที่ต้องวิเคราะห์ ดีความประโยค ดูแต่ละ ประโยคว่ามีวิธีใช้คำนั้นหรือโครงสร้างนั้นยังไง แล้วค่อยนำมาเป็นแบบสำหรับการ เขียนของเรา มันทั้งยากและซับซ้อน คาบเรียนนำเสนอพอกันเลยค่ะ ยากตอน วิเคราะห์สคริปท์และที่ต้องดูโครงสร้างประโยค ง่ายอันเดียวตอนดูคลิปนำเสนอของ

คนอื่นแล้วครูให้เขียนข้อดีข้อเสียของท่าทาง น้ำเสียง สายตา คาบนั้นอะคะ”

“I agree with her; I think the task is difficult when we had to analyze, interpret and observe how the words were used in each sentence, then used what we analyzed as a model for our writing. It was so difficult and complicated. Similar to the oral presentation lesson, I felt the task was difficult when analyzing and observing the sentence structure.

Only easy task was the analysis of other presenters’ gestures, voice and eye contact.

- S2: “ผมว่าตั้งแต่ที่ผมเรียนมายากหมด ผมไม่เคยเรียนวิชาไหนที่ต้องทำงานที่ยากแล้ว คิดเยอะขนาดนี้มาก่อนเลย จากวันหยุดเคยได้ออกไปเที่ยว ตั้งแต่ที่เรียนวิชานี้มาแทบไม่ได้ไปไหนเลย 3 คำที่ผมให้จารย์เลยนะ ยาก ยากมาก โคตรยาก ปวดหัว”
- “I think all I had been learning in class were so difficult. I have never learned any subjects that the tasks were so difficult, and I needed to think a lot before. After I had been learning your course, I scarcely went out during weekends. Three words I’ll give to your course: difficult, very difficult and extremely difficult.”

In conclusion, implementing Content-Based Instruction using Six-T’s Approach into English for Scientific Oral Presentation Course could help students improve their presentation skills together with content knowledge comprehension on the science project to be presenting. This instruction supported students’ engagement to the class lessons and strengthened the collaboration skills among groups. Besides, from the

semi-structured interview, students reflected that they applied the related vocabulary and presentational expressions learned throughout 8-week instruction into other subject classes and found it worthwhile studying the content on each topic because at least, some students from this course concerned and tried to apply solution based on what they learned through science project to solve the environmental problem in their surrounding community. However, what seemed to be the major negation towards the instruction was the difficulty of teacher-generated tasks.

The suggestions from students towards the further instruction

Apart from the 5 semi-structured interview questions which were intentionally constructed to explore the lower secondary school students' opinions towards the Content-Based Instruction using Six-T's Approach, the last open-ended question aimed at listening to students' voice and suggestions for a better development of the further course.

Based on the answers, the majority of students agreed that the instruction having been implemented throughout 8 weeks in EN23207 English for Scientific Oral Presentation Course was a new way of learning and practicing science project presentation with the emphasis on content preparation. Also, they strongly supported that their content knowledge comprehension on the science project and the presentation delivery skills were simultaneously developed and strengthened through this instruction when compared with other English communication courses which mostly focused on practicing the English oral presentation skills in particular.

In addition, approximately 80% of students made comments on how highly critical and complicated tasks affected their learning engagement and the task completion. As appeared in both content knowledge and oral presentation lessons, the teacher-generated tasks required a high level of analytical skills of students to complete the tasks which this sometimes resulted in students' learning exhaustion. Students expected that teacher would decrease the level of task difficulty and adjusted tasks to be more fun, so students would comfortably participate in class activities with less tension. Some also suggested that instead of learning only through task sheet, the task should be something students were able to click and play online, for example, in task which asked students to rearrange parts of presentation script into the correct order and match the sentence strips with the correct section based on the scientific presentation.

Regarding class time, students stated that 3 periods of 50 minutes each per one topic were not enough to finish both content and oral presentation preparation. Some tasks should have completed before the class began to save spare time for oral presentation practice. In oral presentation practice task, students asked for more class time to practice delivering science project presentation with the teacher which they expected to receive immediate feedback and some useful techniques to give a better presentation from the teacher.

Another issue obtained from the semi-structured interview was that students requested other types of science project to learn in the further presentation course.

At this point, students said that they felt more comfortable with presenting the investigatory science project. What they expected in the further course was to learn more about how to give effective English presentation in other types of science project, including demonstration, models, and collections. Group work with 2 – 3 participants were still in their preference.

Lastly, students added that at least once in the entire presentation course, they would like to attend any of national science project competition or a science fair as a part of the course to experience the live and real situation and learn how to cope with a quick fix occurred while giving a presentation.

Summary

The findings of this study revealed that the English oral presentation skills of lower secondary school students significantly improved after implementing the Content-Based Instruction using Six-T's Approach. To assure the effect of treatment, both content and English oral delivery aspects were investigated to compare the scores between pretest and posttest. It was found that there was statistically significant difference in 2 aspects in every group of participants. In order to explore students' opinions towards the implementation of Content-Based Instruction using Six-T's Approach in EN23207 English for Scientific Oral Presentation Course, the students' answers reflected both positive and negative perspectives towards applying this treatment in the presentation classroom. The positive category found included realizing the worthiness of learning activities, usefulness for further application, and

creating learning engagement. On the contrary, the main negative category found in the students' answer was task difficulty.

To conclude, the findings of both quantitative and qualitative study assure that the Content-Based Instruction using Six-T's Approach is an effective approach to enhance lower secondary school students' English oral presentation skills.



CHAPTER 5

DISCUSSIONS AND RECOMMENDATIONS

This final chapter encompasses a summary of the research study, a summary of the findings and discussion of the results in comparison with the previous studies. Besides, the limitation of the study, pedagogical implications, and suggestions for future research are presented.

Summary of the study

The main objectives of the present study were 1) to examine the effect of Content-Based Instruction using Six-T's Approach on the lower secondary school students' English oral presentation skills and 2) to explore students' opinions towards implementing the Content-Based Instruction using Six-T's Approach into EN23207 English for Scientific Oral Presentation Course. The samples were 45 ninth grade students from class 2 of the Gifted Education Program who studied English for Scientific Oral Presentation course in the second semester in the academic year 2016. The students were assigned to cooperatively work in a group of 3 students which was similar to the science fair competition context requiring students to prepare and deliver a science project presentation in group.

To examine the effect of the Content-Based Instruction using Six-T's Approach, this research employed the pretest-posttest single group experimental design to compare each group of students' English oral presentation skills before and after the

instruction. The English oral presentation pretest and posttest were assigned to each group of students to assess the English oral presentation skills using the English Oral Presentation Evaluation Scale developed by Valencia Community College (2006 – 2007). The quantitative data obtained from English oral presentation pretest and posttest were analyzed and compared by using the Wilcoxon Signed Rank Test (Non-Parametric Test) and the descriptive statistics.

The qualitative data obtained from the semi-structured interview was used to explore the ninth grade students' opinions towards the instruction. The content analysis method was applied to analyze the students' responses to the interview questions which were constructed to explore overall opinions towards the instruction, generated tasks, and the language learned from the created tasks. The 3 categories which consisted of realizing the worthiness of the learning activities, usefulness of further application, and creating learning environment were set as the key themes in operating the content analysis.

Summary of the findings

This research study revealed two major findings according to the research questions. Firstly, the quantitative data from the pretest and posttest scores using the English Oral Presentation Evaluation Scale showed that students' English oral presentation skills had statistically significant enhanced regarding the two aspects of content and oral presentation after implementing Content-Based Instruction using Six-T's Approach.

Lastly, the data from semi-structured interview showed that there were positive and negative opinions derived from the students. The positive opinions towards the Content-Based Instruction using Six-T's Approach included the state of realizing the worthiness of learning activities, usefulness for further application, and creating learning engagement. However, the only negative opinion found from the data analysis was the difficulty of teacher-generated tasks.

Discussions

In this research study, both quantitative and qualitative findings revealed that the effects of Content-Based Instruction using Six-T's Approach could enhance the lower secondary school students' English oral presentation skills. The following section discusses the significance of the present study's findings in light of what was investigated in previous related studies on two aspects: the effects of the Content-Based Instruction using Six-T's Approach on English oral presentations skills and opinions towards the instruction.

The Effects of the Content-Based Instruction using Six-T's Approach on English

Oral Presentation Skills

Based on the findings which revealed the statistic differences in pretest and posttest scores, the lower secondary school students' English oral presentation skills of all groups significantly improved after having studied under the Content-Based Instruction using Six-T's Approach. The findings are consistent with the studies of lemamnuay (2013) and Promsang (2010) which support the present study that the

learning activities and tasks created under the principles of Content-Based Instruction can help the EFL secondary school and vocational school students enhance the oral presentation.

The major factor which helps the lower secondary students improve the English oral presentation skills in this study is influenced by the course materials, learning and teaching tasks, and lesson plans designed under the principles of Six-T's Approach. The achievement of the Six-T's Approach in this course is discussed as follows:

The effects of 6Ts

The reasons for the significant English oral presentation skill improvement as well as the content knowledge in each group of the lower secondary school students in the study can be explained by the integration of Six Ts in building a coherence in the Content-Based English for Scientific Oral Presentation Course.

Theme and topic

Firstly, the thematic units and course materials which are considered as the outcome of the 2 primary Ts (Themes and Topics), can significantly develop students' content knowledge on the selected topics to enhance English oral presentation skills. It can be confirmed by the findings that the theme and topic selection, which was derived from the commitment of a group of teacher committees in stead of having students choose the topics of their preferences and interstests as mostly appeared in other CBI studies, can create motivation and engagement to the lesson resulting in a higher language performance. However, a set of the theme (enviroment) and topics

(ecosystem and environmental & natural resources) specified by the committees are based on the science curriculum goal in grade 9 level which is relevant to students' daily life. According to Stoller and Grabe (2017), Lemamnuay (2013), and Brinton in Nunan (2003), any themes and topics related to students' daily life and interests help students learn better, feel more confidence, and highly engage to the learning activities.

Transition

Secondly, still in the course planning stage, the topical transition created across the simple topics to more complicated ones in sequence allows students to link the known with the new knowledge which to help improve their English oral presentation skills as well as gain scientific literacy. The concept, vocabulary, language developed from the science project about the guppy fish (topic 1) and flowers (topic 2) can be recalled and applied when they presented the topic 3 and 4 science projects. This was confirmed in terms of the pedagogical principles by Brinton, Snow, and Wesche (2003) that the learners' previous experience about a given topic and existing knowledge of subject matters and language should be built on in any teaching to help them make use of what they knew in the further application. The consequences of the topical transition were also found in students' interview results of the study. From the interview, student 3 from group 6 highlighted that the sequence of topics enabled them to gradually enhance their understanding in terms of scientific vocabulary skills and language use "*content and words relevant to environment experienced in the*

previous projects (topics) helped me better present the later projects with understanding.”

Thread

Thirdly, the thread was specified to create a linkage across the themes of this study to activate students' responsibility to help community preserve the natural equilibrium. According to Stoller and Grabe (2017), threads emerge in class as a result of students' personal experience, comments, questions, and observation. In the study, task 1 activating students' background knowledge in lesson 1, the observation to the written scientific experiment, and learning from the significance of each science project can create the deep understanding about the theme of environment resulting in a better comprehensible presentation on those science project topics. Also, the finding from the students' interview answers reflected the values they learned through the organized themes, for example from student 2 group 3, said that *“I think after this I will conduct the similar experiment to the community canal. The wastewater will turn better.”* The set themes created the value to students to prevent and preserve the nature surrounding their community.

Text

Based on the Six-T's principles, this study applied the teacher-compiled texts such as an online dictionary in science, journal articles, encyclopedia, and science project relevant to the topics to support students to improve scientific concept, vocabulary, and language patterns through a variety of compiled texts. Therefore, the

exposure to the authentic texts help students enhance their oral academic language, content knowledge as well as creating motivation towards the lessons. This can be supported by Stoller and Grabe (2017) and Vega (2010) that the interaction with materials in the real world can develop students' oral communication ability.

Task

Finally, tasks or the learning activities are the key factor enhancing the lower secondary students' English oral presentation skills. The tasks were developed concerning the content and language mastery and the level of development in the psychological aspect. According to McCormick, Loeb, and Schiefelbusch (2003), ninth grade students can complete the tasks requiring the critical analysis, evaluation, synthesis, and production of novel ideas. The teacher-generated tasks under the Six-T's principle promote the students' deeper understanding of a new knowledge as well as the academic language in a science projects which result in a better recall for further oral presentation lesson (Anderson, 2010; Eysenck & Keane, 2010; Fujioka-Ito, 2005). The learning activities designed in the tasks begin with having each group of students research and study the concept and vocabulary essential in presenting the given science project through the exposure to a wide range of teacher-compiled texts, namely online science dictionary, journal articles relevant to the theme of environment, and sample sentences from the websites. Then each group applied the concepts and the academic languages explicated from the sample sentences into writing a project summary in the form of infographic. As a result, the generated tasks

help students remember content, vocabulary, and academic languages which can be recalled for the further lessons.

In addition to depth-processing, engaging students with teacher-generated discourse comprehension processing tasks influences students' English oral presentation skills improvement concerning the application of recognized academic language discourse which inextricably linked to the texts (Grabe, 2009). Students gain benefits from learning presentation languages through the considerate features of texts such as a presentation written script of science project presentation. In class, the discourse structure awareness practice involves the analysis of sentences to explicit the language features (Grabe & Stoller, 1997), as a result, after students had finished the learning activities in each task, they can make use of comprehensible linguistics features mastered through the instructional tasks to better recall for the further presentation and enable to deliver a better presentation. Also, Students' interview answers revealed the Content-Based English for Scientific Oral Presentation Course using Six-T's Approach strengthens their presentation skills which enable to apply in other similar courses.: *"I gain benefits from your course when my biology teacher assigned the class to prepare the oral presentation about the experiment in English. I know how to prepare it. The language used in the presentation is in my mind. The only thing to do is to prepare the content part."* Supported by another scholar (Pangroean, 2015) who gives the light on using discourse analyzing techniques on secondary school students' English oral communication ability, study reported that

the instruction using discourse analyzing technique make them feel interested and comprehend the spoken text easily.

Students' Opinions towards the Content-Based Instruction Using Six-T's

Approach

From the semi-structured interview, the findings derived from content analysis could be implied that there were both positive and negative categories towards the Content-Based Instruction Using Six-T's Approach. This sections discusses the findings in the following categories: realizing worthiness of learning activities, usefulness for further application, and creating learning engagement.

Realizing worthiness of the learning activities

Regarding positive outlook of the Content-Based Instruction using Six-T's Approach, this study found that most of the students (49%) agree and gain advantages from the treatment regarding presentation skills enhancement. One interesting issue of how lower secondary school students' English oral presentation skills are improved is the use of infographics as an authentic material in reinforcing both content and English language delivery skills. According to Hauschild, Poltavtchenko, and Stoller (2012), they claimed that authentic materials promoted language acquisition and prepared students for meaningful communication. In this study, the research considered that content inextricably links to science presentation due to the fact that the literacy in science can help students better deliver the presentation from their understanding. From students' answers, excerpt 3 S1 from group 2 and Excerpt 4 S1

and S2 from group 15 mentioned the infographic reinforces their comprehension on a science project to be presenting. They reported that when they glanced at the infographic, they know what to present: “I think an infographic is a tool helping us understand the content in science project. We had to understand the content before summarizing it into the picture-like format with sentence. I feel OK with it. *Without it, I would have presented without any sense.*” This phenomenon can be explained according to Davidson (2014) which pointed out that infographic help students present complex information quickly and clearly in the science classroom. It helps students simultaneously develop science literacy and the English oral presentation skills.

For negative aspect, the findings revealed that students felt difficult when engaging some teacher-generated tasks and requested more time to participate in English oral practice tasks with teacher. This was consistent with the previous studies done by Whai and Mei (2016) which the results of their study showed that the main course of oral presentation difficulties faced by the students was lack of practice. This might result in low motivation in learning this course.

Usefulness for further application

Students’ results showed the positive effect of the *Content-Based English* for Scientific Oral Presentation Course that could help them sustain and apply both content and presentation language learned from the lessons into other courses. As reported in S2 from group 11’s comment, the student mentioned that the learning activities from English for Scientific Oral Presentation Course helped her achieve the

presentation task from another course, even though, she was assigned to present her project individually “*You know. I feel really comfortable to prepare it because the presentational language was already in my mind. Just apply the sentences I learned into my presentation.*” Task 2 choosing appropriate vocabulary and language patterns in the content knowledge lesson, Task 1 to 3 (analyzing presentation model, language features and non-verbal communication) in the oral presentation lesson were the learning activities which students mentioned that they benefited from. By looking at the construct and design of the above mentioned tasks, all of them were created from the concept of discourse organization task (Stoller & Grabe, 2017) which shared the same purpose of having students analyze and synthesize the language patterns from the model texts. Therefore, it can be concluded that discourse organization can sustain content and language students had learned from the previous class for further application.

Creating learning engagement

The findings of this study have ensured that students benefit from participating in group work. In this study, the concept of social constructivist approach or engaging in a group work was employed in every task at the beginning of the instruction and played an important role in lower secondary students’ English oral presentation skill improvement. Instead of presenting the science project individually, the instruction centers around the group with learning frequently performed through group-based cooperation. Students’ task operation seems more productive, and they feel less

anxiety during task participation. Many studies support the use of a cooperative group work in oral production class (Addison & Walker, 2012; Boussiada, 2010; Linda, 2003; Matsuura, Chiba, & Hilderbrandt, 2001). According to Linda (2003), when students work in a small group, they create an intimate atmosphere where they can share ideas, exchange information, encourage each other and learn from each other as well as enhance students' thinking and a better oral performance.

Limitation of the study

Even though this present study has successfully conducted and the findings significantly support the hypotheses of the study that the Content-Based Instruction using Six-T's Approach enhance lower secondary school students' English presentation skills, the limitations are found in the study. First of all, the major concern is the time constraint. Because the English for Scientific Oral Presentation Course is an additional course, and all additional courses in Thailand's secondary school curriculum spend 2 period hours a week, it is seen that the allocated time might not be adequate for students to achieve the tasks for both content and oral presentation lessons. Although teacher created the out-of-class section for students to cooperatively complete the study skill and vocabulary learning tasks for the content lesson before applying the completed tasks in writing a summary in a class time, students reported that they also need advices and interaction with teacher while doing the tasks. Moreover, the students' diverse background in science and language might affect the understanding of teacher-compiled sources in order to achieve the tasks. The language difficulty

appeared in the available sources which might obstruct students from scientific literacy development and task engagement. Also, this will lead to low motivation in learning this course.

Suggestions for future research

It is hoped that this research study, to some extent, will shed some light on exploring the effects of the content-based instruction using Six-T's approach on lower secondary school students' English oral presentation skills. The following suggestions are presented to help the researchers whose interests correspond to the area of this study.

Firstly, the text types used in the future studies should be varied to help students understand the distinctive characteristics of each type of science project. In this study, as interviewed by the science teachers and teachers who are always involved in the science fair international competition, they suggested to focus only one type of project which is the experiment project first. Because most of the science project competitions seem to encourage students to work collaboratively to investigate the variables they would like to study using scientific methods, this type of project appropriately matched the needs of the school. Therefore for the further course, other types of science project such as innovation project, demonstration project, and etc. should be considered to be mastered in the class.

Secondly, the Content-Based Instruction course should be created throughout the academic year to investigate the efficacy of the Six-T's Approach as a whole, the

individual Ts and their relationships. Teacher should design a series of Six-T's coherent curricula as English for Scientific Oral Presentation I and II with meaningful conceptual connections across thematic units, topics, texts, and tasks. These relationship can prove the effectiveness of the approach as well as the motivation of the students.

Thirdly, the future research should compare the effectiveness of students' English oral presentation skills gained from working individually and in group. The positive and negative distributes of these 2 settings should be presented for other researchers who are interested in the English oral presentation development. It will affect the classroom arrangement to facilitate the task completion.

Finally, to reduce the overtime consumption for in-class task completion, teacher of CBI should generate the study skills, discourse organization, and synthesis of content materials tasks proposed by (Stoller and Grabe (2017)) for the students to complete before starting the in-class lessons. These instructional tasks can help teacher increase the class time which can be used for the oral presentation practice with peers and teacher. Also, if CBI teacher can possibly create the computer-assisted interactive tasks which allow students to complete the tasks through computer or personal mobile phone, students will get highly engaged, and the overtime consumption will be reduced.

REFERENCES

- Adamson, H. D. (1993). *Academic competence: Theory and classroom practice: Preparing ESL students for content courses*: Longman Publishing Group.
- Addison, N. M., & Walker, R. J. (2012). Contending with Content: Notes on Introducing a Content-based Instruction (CBI) Approach in a Media English Course for Third/Fourth Year Elective Students in a Japanese University. *文京学院大学外国語学部文京学院短期大学紀要*(11), 241-257.
- Anderson, J. R. (2010). *Cognitive psychology and its implications* ((7th ed.) ed.). New York: NY: Worth.
- Apple, M., & Kikuchi, K. (2007). Practical PowerPoint group projects for the EFL classroom. *The JALT CALL Journal*, 3(3), 110-122.
- Armer, T. (2011). *Cambridge English for Scientists*: Ernst Klett Sprachen.
- Arslan, R. P., & Saka, C. K. (2010). Teaching English to science students via theme-based model of content-based instruction. *Journal of Turkish Science Education*, 7(4), 26.
- Boussiada, S. (2010). *Enhancing Students Oral Proficiency through Cooperative Group Work*. (Master Degree Dissertation), University of Constantine.
- Brewster, J. (1999). Teaching English through content: supporting good practice. *Innovation and Best Practice*, 83-95.
- Brinton, D. (2007). *Content-based instruction: reflecting on its applicability to the teaching of Korean*. Paper presented at the 12th Annual Conference American Association of Teachers of Korean.
- Brinton, D., Snow, M. A., & Wesche, M. B. (1989). *Content-based second language instruction*. New York, NY: Newbury House
- Brinton, D., Snow, M. A., & Wesche, M. B. (2003). *Content-based second language instruction*: University of Michigan Press.
- Bruce, I. (2011). *Theory and concepts of English for academic purposes*: Palgrave Macmillan.

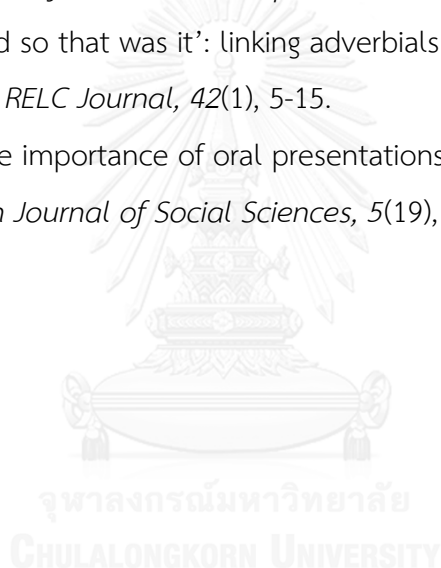
- Canagarajah, A. S. (2006). TESOL at forty: What are the issues? *Tesol Quarterly*, 40(1), 9-34.
- Changpueng, P. (2014). *English for engineers* (3rd ed.). Bangkok: Textbook Publishing Center, KMUTNB.
- Chiu, A. (2004). The festival presentation: Making classroom presentations interactive and fun. *LANGUAGE TEACHER-KYOTO-JALT-*, 28(8), 32-32.
- Council, N. R. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*: National Academies Press.
- Crandall, J. (1999). Content-based instruction (CBI). Concise encyclopedia of educational linguistics: Oxford, UK: Cambridge University Press.
- Davidson, R. (2014). Using infographics in the science classroom. *The Science Teacher*, 81(3), 34.
- Duff, P. A. (2010). Language socialization into academic discourse communities. *Annual review of applied linguistics*, 30, 169-192.
- Dupuy, B. C. (2000). Content-Based Instruction: Can it Help Ease the Transition from Beginning to Advanced Foreign Language Classes? *Foreign language annals*, 33(2), 205-223.
- Ellis, R. (2003). *Task-based language learning and teaching*: Oxford University Press.
- Eysenck, M. W., & Keane, M. T. (2010). *Cognitive psychology: A student's handbook*. New York: NY: Psychology Press.
- Fujioka-Ito, N. (2005). Developing a Project in Content-Based Instruction Extended from a Reading Passage.
- Giba, J., & Ribes, R. (2011). *Preparing and delivering scientific presentations: A complete guide for international medical scientists*: Springer Science & Business Media.
- Girard, T., Pinar, M., & Trapp, P. (2011). An exploratory study of class presentations and peer evaluations: Do students perceive the benefits? *Academy of Educational Leadership Journal*, 15(1), 77.
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*: Ernst Klett Sprachen.

- Grabe, W., & Stoller, F. L. (1997). Content-based instruction: Research foundations. *The content-based classroom: Perspectives on integrating language and content*, 5-21.
- Hauschild, S., Poltavtchenko, E., & Stoller, F. L. (2012). *Going Green: Merging Environmental Education and Language Instruction*. Paper presented at the English Teaching Forum.
- Hovane, M. (2009). Teaching presentation skills for communicative purposes.
- Iberri-Shea, G. (2009). *Using Public Speaking Tasks in English Language Teaching*. Paper presented at the English Teaching Forum.
- Iemamnuay, S. (2013). THE EFFECTS OF USING LEARNING ACTIVITIES IN CONTENT-BASED INSTRUCTION ON ORAL PRESENTATION SKILL OF THE FIRST YEAR VOCATIONAL STUDENTS, ENGLISH PROGRAM, CHETUPON COMMERCIAL COLLEGE. *An Online Journal of Education*, Vol.8(No.1), 2502-2515.
- Jordan, R. R. (1997). *English for academic purposes: A guide and resource book for teachers*: Cambridge University Press.
- Kasper, L. F. (2000). *Content-based college ESL instruction*. Mahwah, NJ: Lawrence Erlbaum.
- Kim, S. (2006). Academic oral communication needs of East Asian international graduate students in non-science and non-engineering fields. *English for Specific purposes*, 25(4), 479-489.
- King, J. (2002). Preparing EFL learners for oral presentations. *Dong Hwa Journal of Humanistic Studies*, 4, 401-418.
- Krahnke, K. (1987). *Approaches to Syllabus Design for Foreign Language Teaching*. *Language in Education: Theory and Practice*, No. 67: ERIC.
- Lee, O. (2013). *Oral Discourse in Teaching and Learning Science in Relation to the Next Generation Science Standards*. Paper presented at the National Research Council Conference on "Literacy for Science in the CCSS and NGSS.
- Liangming, X. (2012). *Improving Chinese business English teaching under CBI concept: based on a survey of business English in Tianhua College*. (Master Master), Shanghai International Studies University.

- Linda, B. (2003). *The effect of group work on students' oral performance: the case of first year students of English at Batna university*. Université El Hadj Lakhdar de Batna 1.
- Matsuura, H., Chiba, R., & Hilderbrandt, P. (2001). Beliefs about learning and teaching communicative English in Japan. *JALT Journal*, 23(1), 67-82.
- McCormick, L., Loeb, D., & Schiefelbusch, R. L. (2003). *Supporting Children with Communication Difficulties in Inclusive Settings* (2nd ed.). Boston, MA: Allyn & Bacon.
- Meloni, C. F., & Thompson, S. E. (1980). Oral reports in the intermediate ESL classroom. *Tesol Quarterly*, 503-510.
- Morita, N. (2000). Discourse socialization through oral classroom activities in a TESL graduate program. *Tesol Quarterly*, 34(2), 279-310.
- Nordmeyer, J. (2010). At the intersection of language and content. *Integrating language and content*, 1-13.
- Nunan, D. (2003). *Practical English language teaching* (1st ed.): McGraw-Hill/Contemporary.
- Pangroean, N. (2015). *Development of A Curriculum to Enhance an Informative English Speaking Ability Based on Competency-Based Approach for Upper Secondary School Students*. (Doctor of Philosophy Dissertation), Chulalongkorn University.
- Promsang, P. (2010). *The Development of English Communicative Learning Activities Using Content-Based Instruction (CBI) for Mathayomsuksa 3 Students*. Independent Study. Curriculum and Instruction. Naresuan University.
- Quinn, H., Lee, O., & Valdés, G. (2012). Language demands and opportunities in relation to Next Generation Science Standards for English language learners: What teachers need to know. *Commissioned Papers on Language and Literacy Issues in the Common Core State Standards and Next Generation Science Standards*, 94, 32.
- Radzuan, N. R. M., & Kaur, S. (2011). Technical oral presentations in English: Qualitative analysis of Malaysian engineering undergraduates' sources of anxiety. *Procedia-Social and Behavioral Sciences*, 29, 1436-1445.

- Richards, J. C., & Rodgers, T. S. (2014). *Approaches and methods in language teaching*: Cambridge university press.
- Ross, E. (2007). Are oral classroom presentations necessary. *Insights into TEFL*.
- Rowley-Jolivet, E., & Carter-Thomas, S. (2005). Genre awareness and rhetorical appropriacy: Manipulation of information structure by NS and NNS scientists in the international conference setting. *English for Specific purposes*, 24(1), 41-64.
- Snow, M. A. (2014). *Content-based and immersion models for second and foreign language teaching*. In M. Celce-Murcia, D. M. Brinton, & M. A. Snow (Eds.) (4th ed. ed.). Boston, MA: National Geographic Learning/ Heinle Cengage Learning.
- Stoller, F. L., & Grabe, W. (1997). A six-T's approach to content-based instruction. *The content-based classroom: Perspectives on integrating language and content*, 78-94.
- Stoller, F. L., & Grabe, W. (2017). Buidling Coherence into the Content-Based Curriculum: Six Ts Revisited. In M. A. Snow & D. Brinton (Eds.), *The Content-Based Classroom: New Perspectives on Integrating Language and Content* (2nd ed., pp. 53-66): University of Michigan Press.
- Stryker, S. B., & Leaver, B. L. (1997). *Content-based instruction in foreign language education: Models and methods*: Georgetown University Press.
- Swales, J. (2004). *Research genres: Explorations and applications*: Ernst Klett Sprachen.
- Thipwajana, P. (2010). *Effects of content-based English lessons incorporating form-focused tasks on upper secondary school students' content and grammatical knowledge*. (Master Master), Chulalongkorn University, Bangkok.
- Thornbury, S. (2005). *How to teach speaking*: Longman.
- Vega, P. (2010). *Effect of Team Teaching of Thai and Foreign Teachers of English in Task-Based Instruction on English Oral Communication Ability and Opinions about Team Teaching of Upper Secondary School Students*. Master Dissertation. Curriculum and Instruction. Chulalongkorn University. Bangkok.

- Vollmer, H. J. (2010). *Items for a description of linguistic competence in the language of schooling necessary for learning/teaching sciences (end of compulsory education): an approach with reference points*: Council of Europe.
- Wesche, M. B. (2010). *Content-based second language instruction*. New York, NY: Oxford University Press.
- Whai, M. K. G., & Mei, L. L. (2016). Causes of Academic Oral Presentation Difficulties Faced by Students at a Polytechnic in Sarawak. *THE ENGLISH TEACHER*(3), 11.
- Zareva, A. (2009). Informational packaging, level of formality, and the use of circumstance adverbials in L1 and L2 student academic presentations. *Journal of English for Academic Purposes*, 8(1), 55-68.
- Zareva, A. (2011). 'And so that was it': linking adverbials in student academic presentations. *RELC Journal*, 42(1), 5-15.
- Živković, S. (2014). The importance of oral presentations for university students. *Mediterranean Journal of Social Sciences*, 5(19), 468.



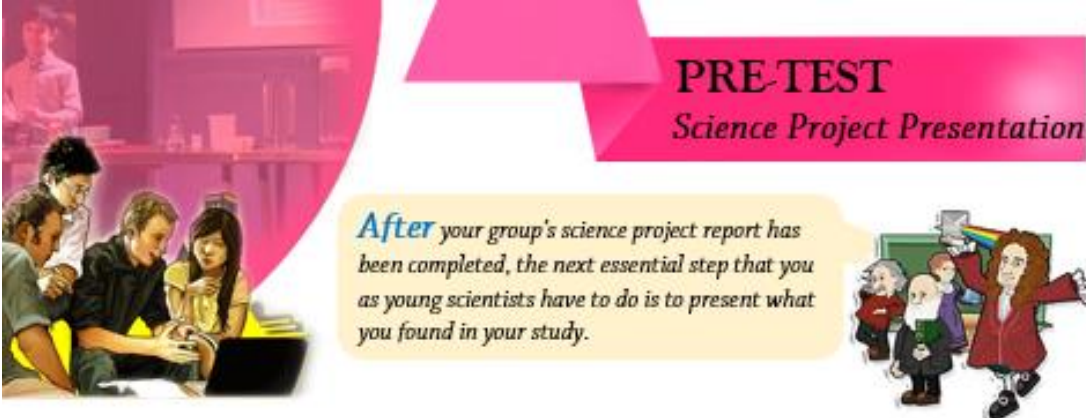


APPENDIX

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

APPENDIX A

The English Presentation Pretest



PRE-TEST
Science Project Presentation

After your group's science project report has been completed, the next essential step that you as young scientists have to do is to present what you found in your study.

Direction: Before your project will be presented in Streetsmutprakan Science Fair 2016 which will be arranged at the end of the semester, your group is required to upload "a 5-minute video clip" about your project in the Facebook group entitled "SSP Science Fair 2016". Your clip needs to be approved by the committees. To start, please follow the information below.

SSP Science Fair 2016 **A 5-Minute Video Presentation**

To prepare the presentation, follow the information below.

1. Numbers of presenters: 3 students/ group
2. Time: 5 minutes
3. Material: Powerpoint slides
4. Topics to be evaluated: content (50 marks)
presentation skills (50 marks)

There are 3 main parts of presentation your group needs to prepare:

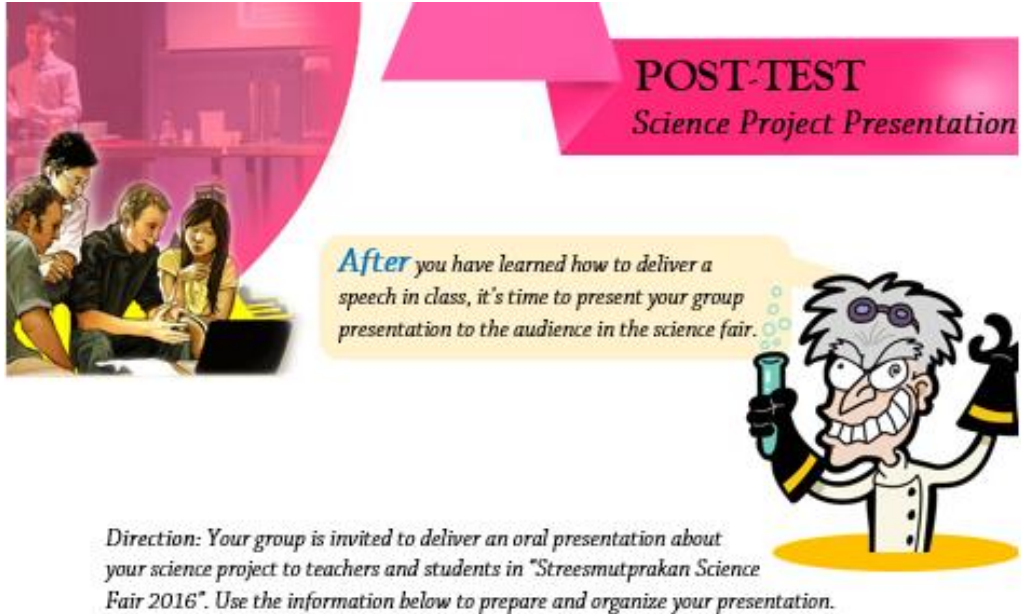
- A. Introduction
- B. Methods and Results
- C. Conclusion

Your video clip will be assessed by three people:

- Thai teacher from language department
- Foreign teacher from English Program (EP) who teaches science.

APPENDIX B

The English Presentation Posttest



POST-TEST
Science Project Presentation

After you have learned how to deliver a speech in class, it's time to present your group presentation to the audience in the science fair.

Direction: Your group is invited to deliver an oral presentation about your science project to teachers and students in "Streemutprakan Science Fair 2016". Use the information below to prepare and organize your presentation.

You're invited...
to present the science project

Details for the presenters:

- Time: 5 minutes
- Materials: Powerpoint
- Evaluation: You will be evaluated in two criteria:
 - Content (50 marks)
 - Presentation skills (50 marks)

Venue:
Chalermprakiat Building Auditorium

STREEMUTPRAKAN
science fair
2016



APPENDIX C

The Evaluation of Pretest and Posttest's Validity

Research Instrument Evaluation Form for Pre-test and Post-test

Directions: Please put the √ in the opinion box and write the comments in the space provided.

The explanation for the rating scale is described as following:

-1 means the item is appropriate

0 means not sure

+1 means the item is not appropriate

Item	+1	0	-1	Comments
1. The pre-test and post-test are parallel.				
2. The direction is clear to understand and unambiguous.				
3. The direction guides students what they will be performing.				
4. The objective of the tests is relevant to the research question.				
5. The scenarios provided to students are appropriate.				
6. The test tasks can assess students' scientific oral presentation skills				
7. The criteria for scoring is appropriate.				

APPENDIX D

English Oral Presentation Evaluation Scale

Part 1 General Information about the Presentation

Direction: Please complete the significant information below

Project title: _____

Name of presenters: 1. _____ M. ___/___ No. ____
 2. _____ M. ___/___ No. ____
 3. _____ M. ___/___ No. ____

Advisers: 1. _____

Type of evaluation: Teacher/ judge evaluation

Name of evaluator: _____

Presentation date: ___/___/2016 Start time: _____ End time: _____

Part 2 Evaluation Criteria

Aspects to be Evaluated	Levels of Achievement			
	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
1. Content				
1.1 Introduction: gains attention, connects to topic, establishes credibility				
1.2 Thesis Statement explicit, identifies topic, previews main point				
1.3 Connection to Audience: needs & interest, demonstrates understanding				
1.4 Subject Knowledge: depth of content, relevant support, clear explanation				
1.5 Organization: main points distinct from support, transitions, coherence				

Aspects to be Evaluated	Levels of Achievement			
	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
2. Delivery				
2.1 Eye Contact: establish rapport; expand zone of interaction				
2.2 Movement: expressive, comfortable, enhances message				
2.3 Voice: rate, pitch, volume and tone are natural and authentic				
2.4 Fluency: pronunciation, enunciation, articulation are smooth; lack of fillers				
Total				

General comment:

Strengths:

What need to be improved:

APPENDIX E

Scoring Rubrics

Description: This rating scales aims at assessing students' content knowledge about their science project and the presentation skills.

Section 1 Rubric for the assessment of oral communication: Content

Indicators of Effective Content	Levels of Achievement			
	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
Introduction: gains attention, connects to topic, establishes credibility	No attention getting strategy was evident. No clear or relevant connection to topic or speech purpose. No credibility was established.	Use of attention getting strategy, but did not seem to adequately capture audience attention and/or lead to desired outcome. Credibility was implied.	Effective strategy to capture listeners' attention. Adequate introduction of the topic. Credibility was established by the speaker.	Creative attention getting strategy captures listeners' attention to introduce the topic. It is relevant to the topic and clearly gains the desired response from the audience. Credibility was established by speaker.
Thesis Statement: explicit, identifies topic, previews main point	No thesis statement. Main points are not clearly identified, audience unsure of the direction of the message.	Thesis is implied, although not explicitly stated. Topic is clearly identified, but main points are not clearly previewed.	Thesis statement identifies topic and lists/ previews main points.	Speaker clearly stated a well formulated thesis statement during the speech introduction. Thesis statement identifies topic and lists/ previews main points.

Indicators of Effective Content	Levels of Achievement			
	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
Connection to Audience: needs & interest, demonstrates understanding	Topic seems irrelevant to audience needs and interests. No attempt made to connect topic to audience.	Topic seems somewhat relevant to audience. Vague reference to audience needs and or interests. Identifies target audience.	Clearly stated the relevance of topic to audience needs and interests. Expresses an understanding of their target audience.	Connection of topic to audience needs and interests is stated with sophistication. Identifies and expresses a deep understanding of their target audience.
Subject Knowledge: depth of content, relevant support, clear explanation	Provides irrelevant or no support. Explanation of concepts is inaccurate or incomplete.	Provides some support for main points, but needed to elaborate further with explanations, examples, descriptions, etc. Support is relevant, but not timely.	Main points adequately substantiated with timely, relevant and sufficient support. Accurate explanation of key concepts.	Depth of content reflects thorough understanding of topic. Main points well supported with timely, relevant and sufficient support. Provided precise explanation of key concepts.
Organization: main points distinct from support, transitions, coherence	Lack of structure. Ideas are not coherent. No transitions. Difficult to identify introduction, body, and conclusion.	General structure/ organization seems adequate. Difference between main points and supporting details is blurred. Logical flow, but no clear signposts for transitions.	Clear organizational pattern. Main points are distinct from supporting details. Smooth transitions differentiate key points.	Effective organization well suited to purpose. Main points are clearly distinct from supporting details. Graceful transitions create coherent progress toward conclusion.

Section 2 Rubric for the assessment of oral communication: Delivery

Indicators of Effective Delivery	Levels of Achievement			
	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
Eye Contact: establish rapport; expand zone of interaction	Reads speech from notes/manuscript. Avoids eye contact with audience.	Conspicuous use of speaker notes. Only occasional, sporadic glances at audience.	Eye contact establishes rapport with audience. Unobtrusive use of speaker notes. Scanning of audience to establish a zone of interaction.	Consistently uses eye contact to maintain rapport with audience. Inconspicuous use of speaker notes. Effective use of scanning to expand zone of interaction.
Movement: expressive, comfortable, enhances message	Body language is not supportive of the message, may contradict it. Gestures, facial expressions, and posture are stiff or distracting.	Body language is a minimal support of the verbal message. Gestures, facial expressions, and posture reflect speaker discomfort that occasionally interferes with the message.	Body language is an adequate support of the message. Movement and gestures clarify key points. Facial expressions and posture seem comfortable.	Gestures, facial expressions, and posture reinforce and enhance the verbal message. Body language is expressive, dynamic, natural and comfortable.
Voice: rate, pitch, volume and tone are natural and authentic	Fails to maintain audience interest and support the verbal message due to excessive monotone, inappropriate rate and volume. Pitch may be strained or flat.	Inconsistent use of voice to support message. Monotone passages interfere with audience interest. Rate may be too fast or slow; volume too high or low. Pitch is strained at times, too artificial or too nervous.	Tone fits verbal message, changing for emphasis at appropriate moments. Rate and volume allow audience to follow message. Pitch seems natural to speaker.	Tone is authentic and appropriate to topic. Rate, pitch and volume vary at key points to support the verbal message and keep audience interest. Voice is natural to the speaker and topic, talking with rather than at audience.

Indicators of Effective Delivery	Levels of Achievement			
	Beginning 1	Developing 2	Competent 3	Accomplished 4
Fluency: pronunciation, enunciation, articulation are smooth; lack of fillers	Incoherent presentation due to many factors that undermine fluency including poor pronunciation. Long pauses interrupt flow of speech. Excessive use of vocalized fillers distracts audience.	Pronunciation is mostly correct yet enunciation and articulation are still tentative. Speaker recovers from awkward pauses and proceeds. Vocalized fillers are noticeable but not excessive.	Careful pronunciation supports coherence of presentation. Enunciation and articulation of words are mostly clear. Pauses were momentary and did not interrupt fluency of speech. Vocalized fillers are minimal and do not distract the audience.	Coherence of presentation strongly supported by correct pronunciation, confident enunciation and articulation. Pauses are purposeful and enhance fluency of speech. Virtually no vocalized fillers are noticeable.

Source: Rubrics for oral and writing communication (Valencia Community College, 2006 - 2007)

APPENDIX F

The Sample of Content Knowledge Lesson Plan

Lesson 1

Theme: Environment

Time: 50 minutes (1 period)

Topic: Project1 Which is the Most Appropriate Environment for Propagating Guppies?

1. Lesson description:

This lesson aims at building up the students' enduring comprehension of the introduction section of the published science project 1 in L1. 5 groups with 3 students each collaboratively read the introduction and write a summarizing infographic, a type of graphic organizer, about the main topics, issues or problems generalized in the introduction part of the science report. The summarizing infographic is considered as a task reflecting student's understanding after reading the introduction of the science report and as a note used while delivering the oral presentation. Concurrently, students build up the scientific vocabulary skills with definition, synonyms and usage, and the language use in the introduction section through the study skills task, vocabulary and language structure learning tasks and discourse organization tasks. The outcome of this lesson will be applied as a linkage to the lesson 2 when students are assigned to write a presentation script about the science project 1.

2. Objectives:

Content:

1. Students will be able to comprehend the background of the introduction section of science project 1 (L1 version)
2. Students will be able to identify the topics or problems that the writers of science project 1 provided in the introduction section
3. Students will be able to summarize the introduction section of science project 1 in English in the form of infographic.

Language:

1. Students will be able to analyze the sample phrases and sentences used in writing introduction section from the researched sources.
2. Students will be able to build up the vocabulary or terms relevant to the introduction of the science project 1 in English by studying the definition, synonyms, parts of speech and usage from sources such as dictionaries, encyclopedia, etc.


Learning strategies

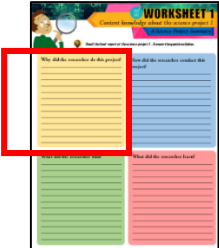
1. Students will be able to develop study skills by researching the definition, synonyms, parts of speech and usage of vocabulary and scientific terms
2. Students will be able to comprehensibly summarize and translate the science project 1 from L1 to English
3. Students will be able to enhance collaborative working skills

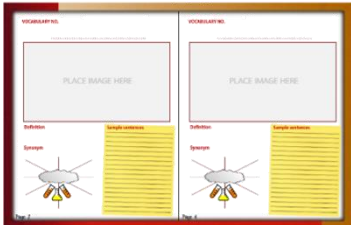
- 3. Materials:**
1. Science project 1 report “Which is the Most Appropriate Environment for Propagating Guppies” (Text)
 2. Worksheet 1: a science project summary (Task)
 3. Scientific vocabulary and sample usage booklet (Task)

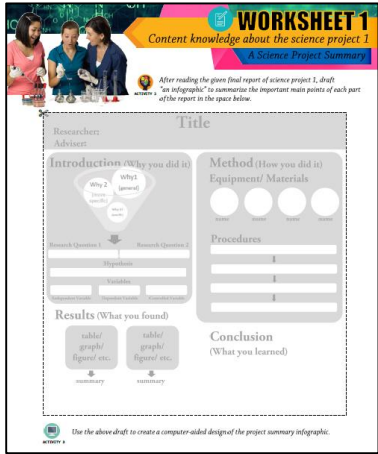


4. Teaching procedures:

Teaching steps	Teacher's activities	Student's activities	Materials
Pre-task (10 minutes)	<p>- Teacher greets students and has a small talk on everyday conversation.</p> <p><i>In-class time</i></p> <p><u>Raising student's awareness and understanding about science content:</u></p> <p>(Predicting)</p> <p>- Before each group of students summarize the science project 1 report (text), teacher activates students' background knowledge about the topic they are going to present by assigning each group to brainstorm about sub-topics or significant details relevant to the topic of science project 1 in the scrap paper.</p> <p><u>Guided questions to ask students:</u></p> <p><i>From the topic,</i></p> <ol style="list-style-type: none"> 1. <i>What would the researcher of this topic like to know?</i> 2. <i>What was the researcher going to observe?</i> 3. <i>What should be the objectives of this study?</i> 4. <i>What would be the expected result?</i> <p>- Teacher draws the concept map on the board with the topic in the middle.</p> <div data-bbox="453 1682 823 1917" style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;">  </div>	<p>- Students interact with teacher and classmates.</p> <p>- Students collaboratively brainstorm idea in their groups about the sub-topics or significant details relevant to the science project 1's topic (as teacher guides) and write the possible answers in a scrap paper.</p> <p>- Students discuss the answer once again in group.</p>	

Teaching steps	Teacher's activities	Student's activities	Materials
	<ul style="list-style-type: none"> - Teacher asks students to share discussed idea to the whole class as many as possible. - Teacher writes student's answers on the board in the form of mind map. - Teacher distributes the science project 1 report (text) and worksheet 1 (a science project summary) to the students. - In worksheet 1 activity 1, Teacher reads four questions aloud together with students. <i>(Theses four questions aim to help students understand the researcher's idea of why he did this project, how he conducted the project and what they found in doing the science project 1)</i> - As the first lesson focuses on the background in the introduction section, teacher gives students 5 minutes to skim the science project 1 report to find the answer for question 1 and write them in the provided space.  <ul style="list-style-type: none"> - Teacher asks each group to share their answers. - Teacher recaps the key points about the science project 1 report. 	<ul style="list-style-type: none"> - Students from each group orally share their answers to the whole class and give some comments with other groups. - From the answers written on the board, students predict and wrap up what they are going to read. - Students read four questions aloud. - Based on four questions, students thoroughly read only the introduction part of the report to find the answers. <i>(skimming skills and reading for gists)</i> - Students write the possible answers in the provided space. - Students recheck answers in their group. - Students orally share their answers to the whole class. 	<ul style="list-style-type: none"> - science project report 1 (Text) - worksheet 1: a science project summary (Task)

Teaching steps	Teacher's activities	Student's activities	Materials
	<p><u>Choosing appropriate vocabulary:</u></p> <p>To write a summary from Thai to English, students need to deal with some vocabulary that they might not experience before, especially scientific terms and verbs. The created booklet helps students when they choose any words to summarize, they need to find more details relevant to those words such as definition, synonyms, word stress and sample sentences to decide whether the words or terms selected are suitable to the context.</p> <ul style="list-style-type: none"> - Teacher asks students to read the science project 1 (written in Thai) together to highlight scientific terms, verbs and unknown words with three different colors. - Teacher gives students scientific vocabulary and sample usage booklet (task). - Teacher lets students write the highlighted words on top of every page in the booklet (1 word a page) and explains the task.  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><u>Directions:</u></p> <p>There are 4 activities that students are going to achieve in order to choose the appropriate words in writing a summary:</p> <ol style="list-style-type: none"> 1. Word stress: After students have written the word on top of the page, they need to look for the stress appeared in dictionary and put the stress mark on the word. </div>	<ul style="list-style-type: none"> - Students cooperatively skim the Thai- written science project 1 and highlight scientific terms, verbs and words that they do not know how to write in English. - Students write all words on top of each page, put the stress mark on the word, write its definition, stick picture, find the synonym words and write sample sentences on the space provided. 	<ul style="list-style-type: none"> - scientific vocabulary and sample usage booklet (Task)

Teaching steps	Teacher's activities	Student's activities	Materials
	<p>2. <i>Definition:</i> Students look up the meaning in dictionary, write it down in the space. To make the word more visualized, students find picture available on the internet and place it in the space.</p> <p>3. <i>Synonym:</i> Students find the words which have the same meaning and put them in provided mind map.</p> <p>4. <i>Sample sentences:</i> Students find the sample sentences using that word as many as possible from the online or written sources and write them down in the space.</p> <ul style="list-style-type: none"> - Teacher sets the time for them around 10minutes to complete the task. In this stage, teacher will facilitate the class and help students if needed. - Teacher asks students to briefly share the answers with other groups. 	<ul style="list-style-type: none"> - Students exchange the answers to friends. 	
<p>During-task (20 minutes)</p>	<p><u>Writing a science project summary</u> <u>Drafting a summary:</u></p> <ul style="list-style-type: none"> - Teacher introduces the worksheet 1 activity 2 to students. In activity 2, the infographic is used as a tool to help them summarize the whole report easily and systematically.  <ul style="list-style-type: none"> - Teacher explains rules and suggestion in writing a summary. 		<ul style="list-style-type: none"> - worksheet 1: a science project summary, activity 2 (Task)

Teaching steps	Teacher's activities	Student's activities	Materials
	<p><u>Summarizing rules and suggestion:</u></p> <p>To write an effective summary, students need to follow the guideline below:</p> <ol style="list-style-type: none"> 1. Read the original text carefully 2. Look for the main points 3. Paraphrase only the key points. Do not paraphrase the examples and details. 4. Chronologically follow the ideas from the original text. 5. Do not add your personal ideas or interpret the original text. 6. The style in writing and wording do not stay the same as the original. 7. Use transitions. If two or more sentences are combined, logical coherences are needed. <ul style="list-style-type: none"> - Teacher asks students to carefully read all parts of the science project 1 report again until its meaning is clear to them. - To find the main ideas of each part, teacher has students underline the main points or messages that the researcher would like to present in each part of the report. - Teacher asks students to shorten all underlined sentences by paraphrasing and write those paraphrased phrases or sentences into the infographic. (In this activity, students are able to design the infographic in their own way. If they are not familiar with the design, use the one in worksheet as a guideline) - Teacher lets students among the group have a self-check before submitting the draft. 	<ul style="list-style-type: none"> - Students read the original report once again carefully. - Students underline the key points of each part of the original report. - Students cooperatively write the infographic summary of the introduction part of the science project 1 report. 	

Teaching steps	Teacher's activities	Student's activities	Materials
Post-task (20 minutes)	<p><u>Peer-editing</u></p> <ul style="list-style-type: none"> - Teacher pairs up the groups to exchange reviewing each other's infographics (worksheet 1 activity 2), discuss about pros and cons of the written summary, give some comments (on content, language use, vocabulary, writing structures, etc.) and edit it by using different pen color. - Teacher has a quick review and check on students' infographic. Teacher edits the grammatical errors and language use in this stage. <p><u>Assignment:</u></p> <ul style="list-style-type: none"> - Teacher asks students to finalize the written infographic and rewrite according to what teacher comments and create a computer-aided version of infographic. 	<ul style="list-style-type: none"> - Students exchange their written infographic with other groups to share some comments and edit friends' works. - Students submit the infographic to teacher to be checked. 	<ul style="list-style-type: none"> - worksheet 1 activity 2 (infographic summary) - A summary writing checklist

- 5. Evaluation:** Students submit the electronic version of infographic summarizing the science project 1. Teacher uses a summary writing checklist to grade the summarizing infographic in terms of content, vocabulary use and structures. If a grammatical error is found, the students are allowed to edit and submit the final version before the lesson 2 begins.

SCIENCE PROJECT

1



ฝึกทำโครงการที่ 1

ฝึกลองทำ
ภาคเรียนที่
1

สภาพแวดล้อมแบบใดที่ทำให้ปลาหางนกยูง
ขยายพันธุ์ได้มากที่สุด



ขั้นตอนที่
1

การตั้งประเด็นคำถามและสมมติฐาน
Learning to Question



ปัจจุบันได้มีการเพาะเลี้ยงปลาหางนกยูงเพื่อความสวยงาม และเพื่อกำจัดลูกน้ำยุงลายในชุมชน โดยคนส่วนใหญ่มักจะซื้อพ่อแม่พันธุ์ปลาหางนกยูงมาเลี้ยงเพื่อให้ขยายพันธุ์เอง ซึ่งปัญหาสำคัญที่พบ คือ จำนวนลูกปลาหางนกยูงมีจำนวนไม่เพียงพอต่อความต้องการของคนในชุมชน ปลาเกิดโรคเนื่องจากคุณภาพน้ำไม่ดี สภาพแวดล้อมที่ต่างกันของตู้ปลา ทำให้ได้ปริมาณลูกปลาหางนกยูงที่แตกต่างกัน จึงเกิดแนวคิดที่จะจัดสภาพแวดล้อมของตู้ปลาเพื่อให้เหมาะสมกับการขยายพันธุ์ของปลาหางนกยูง

**ประเด็นคำถาม**

1. การขยายพันธุ์ปลาหางนกยูงนิยมขยายพันธุ์แบบใด
2. การเลือกพ่อแม่พันธุ์ปลาหางนกยูงมีผลต่อการขยายพันธุ์ปลาหรือไม่
3. สภาพแวดล้อมแบบใดที่ทำให้ปลาหางนกยูงไม่เป็นโรค
4. สภาพแวดล้อมแบบใดที่เหมาะสมกับการขยายพันธุ์ปลาหางนกยูงมากที่สุด

**สมมติฐาน**

สภาพแวดล้อมแบบใ้ส่กรวดและปะการังเทียม ทำให้ปลาหางนกยูงขยายพันธุ์ได้มากที่สุด

【 ตัวแปร 】

ตัวแปรต้น : สภาพแวดล้อมแบบต่างๆ (สภาพแวดล้อมแบบใ้ส่พีชน้ำ สภาพแวดล้อมแบบใ้ส่กรวด และปะการังเทียม สภาพแวดล้อมแบบใ้ส่จุลินทรีย์ขยาย (EM) และสภาพแวดล้อมแบบใ้ส่หน้าปลา)

ตัวแปรตาม : จำนวนลูกปลาหางนกยูง

ตัวแปรควบคุม : 1. บริเวณที่ตั้งกะละมัง
2. อาหารปลา
3. พ่อพันธุ์และแม่พันธุ์ปลาหางนกยูง

【 ประโยชน์ที่คาดว่าจะได้รับ 】

1. ได้เรียนรู้วิธีการขยายพันธุ์ปลาหางนกยูง
2. สามารถเลี้ยงปลาหางนกยูงได้ผลผลิตดีและมีคุณภาพ
3. นำความรู้เกี่ยวกับการจัดสภาพแวดล้อมในตู้ปลาไปใช้ในการขยายพันธุ์ปลานิตต่างๆ
4. นำความรู้ที่ได้จากการทำโครงการไปเผยแพร่ให้แก่สมาชิกในครอบครัว และคนในชุมชนได้นำไปใช้ในชีวิตประจำวัน



ขั้นตอนที่
2

การสืบค้นความรู้และสารสนเทศ
Learning to Search



ข้อมูลที่ได้จากการสืบค้น

อ่านหนังสือ



ปลาหางนกยูง มีแหล่งกำเนิดอยู่ในน้ำจืดและน้ำกร่อยในแถบ
ประเทศบราซิล ต่อมาได้มีการนำไปแพร่กระจายทั่วไปทั้งในเขตอบอุ่น
และเขตร้อน



การขยายพันธุ์ ปลาหางนกยูงออกลูกเป็นตัว ชอบอาศัยอยู่ในน้ำที่มี
อุณหภูมิ 20 - 26 องศาเซลเซียส ตามปกติแล้วปลาหางนกยูงจะสามารถ
แพร่พันธุ์ได้ดีตลอดปี เมื่อปลาเจริญวัยถึงขั้นสมบูรณ์เพศ ปลาเพศผู้ก็จะเข้ามาผสมพันธุ์กับปลาเพศเมีย
โดยยื่นท่อน้ำเชื้อเข้าไปทางช่องสืบพันธุ์ของปลาเพศเมียแล้วปล่อยน้ำเชื้อเข้าผสมกับไข่ในท้องของปลาเพศเมีย
ซึ่งเป็นการผสมพันธุ์ภายใน จากนั้นไข่จะมีการพัฒนาต่อไปจนฟักออกเป็นตัวก็จะถูกปล่อยหรือคลอดออกจาก
แม่ปลา ลูกปลาที่คลอดออกมาใหม่ๆ จะมีขนาดตัวค่อนข้างใหญ่เมื่อเทียบกับลูกปลาที่ฟักออกจากไข่ที่เกิดจาก
การผสมภายนอก และยังค่อนข้างมีความแข็งแรง คือ สามารถว่ายน้ำอย่างรวดเร็วเพื่อหาที่หลบซ่อน มีฉะนั้น
จะถูกแม่ปลาหรือปลาตัวอื่นจับกินเป็นอาหาร

ที่มา : พิชัย สัทพิทักษ์เกียรติ และคณะ. 2540. การทำธุรกิจปลาสวยงาม. สถาบันพัฒนาปลาสวยงามและพันธุ์ไม้น้ำ : กรมประมง.

ฉบับ
แก้ไข

ถามผู้รู้



การคัดเลือกพ่อแม่พันธุ์ปลาหางนกยูงเพื่อทำการผสมพันธุ์ ควรเลือกปลาที่มีอายุ 3 เดือนขึ้นไป ลักษณะ
ลำตัวมีขนาดใหญ่ หนาสมส่วน โค้นหางใหญ่ แข็งแรง ครีบสมบูรณ์ ครีบหางใหญ่พลิ้วหนา แข็งแรงสมบูรณ์
ไม่ฉีกขาด มีสีและลวดลายสวยงาม ปลาเพศผู้จะมีลักษณะต่างจากปลาเพศเมียตรงที่มีอวัยวะในการสืบพันธุ์
เรียกว่า gonopodium ซึ่งดัดแปลงมาจากครีบกัน ปลาเพศผู้และปลาเพศเมียควรมีลักษณะสีและลวดลายที่
เหมือนกันหรือคล้ายกันมากที่สุด เพื่อให้ได้ลูกปลาที่มีลักษณะไม่แปรเปลี่ยนมากในการผสมพันธุ์

ที่มา : คุณครูสมรศรี งามยิ่ง สอนวิชาเกษตร

ถามผู้รู้



น้ำที่ใช้ในการเลี้ยงปลา ควรเป็นน้ำสะอาดปราศจากคลอรีน มีความเป็น กรด - เบส (pH) 6.5 - 7.5
มีปริมาณออกซิเจนที่ละลายในน้ำไม่ต่ำกว่า 5 มิลลิกรัมต่อลิตร อุณหภูมิของน้ำ 25 - 29 องศาเซลเซียส ควรมี
น้ำไหลหมุนเวียนตลอดเวลา

ที่มา : คุณครูสมรชยา มีสุข สอนวิชาเกษตร

อินเทอร์เน็ต

น้ำจุลินทรีย์ชยาย (EM) มีลักษณะเป็นของเหลวสีน้ำตาลดำ กลิ่นหอมอมเปรี้ยว เป็นกลุ่มจุลินทรีย์ที่มีชีวิต ช่วยปรับสภาพความสมดุลของสิ่งแวดล้อม โดยมีประโยชน์ในการเพาะเลี้ยงสัตว์น้ำ ดังนี้

1. ช่วยควบคุมคุณภาพน้ำในบ่อเลี้ยงสัตว์น้ำได้
2. ช่วยแก้ปัญหาโรคพยาธิในน้ำซึ่งเป็นอันตรายต่อสัตว์น้ำที่เลี้ยงได้
3. ช่วยลดปริมาณเชื้อในบ่อ และทำให้น้ำไม่เน่าเหม็น
4. ช่วยรักษาโรคแผลต่างๆ ในปลาและสัตว์น้ำได้

ที่มา : <https://sites.google.com/site/nasomfun/culinthry-thi-mi-prasiththiphaph-em-mi-prayochh-xyangri>

อินเทอร์เน็ต

พืชน้ำ หมายถึง พืชที่อยู่ในน้ำโดยอาจจะจมอยู่ใต้น้ำทั้งหมด หรือใล่บางส่วนขึ้นมาอยู่เหนือน้ำ หรือเป็นพืชที่ขึ้นอยู่ตามริมน้ำ นอกจากนี้จะมีความสวยงามแล้วยังมีประโยชน์อย่างยิ่งกับปลาที่เลี้ยงอยู่ร่วมกัน ตู้ปลาที่มีพืชน้ำอยู่มากจะทำให้ปลามีสุขภาพดี สีสวย ทำให้น้ำบริสุทธิ์มากขึ้น เป็นแหล่งอาหาร เป็นที่วางไข่ของสัตว์น้ำ นอกจากนี้ของเสียที่ขับถ่ายออกจากตัวปลายังใช้เป็นปุ๋ยสำหรับการเจริญเติบโตของพืชน้ำได้

ที่มา : http://www.3.egat.co.th/re/egat_wind/wind_technology.htm

อินเทอร์เน็ต

กรวดและปะการังเทียม เป็นวัสดุที่ใช้ในการรองพื้นตู้ปลาเพื่อให้ดูเป็นธรรมชาติ และยังมีประโยชน์ในการเป็นที่อยู่อาศัยของสัตว์น้ำ ซึ่งจะช่วยให้ปลาไม่รู้สึกเครียด เพราะมีที่หลบซ่อนตัวและคล้ายคลึงกับที่อยู่อาศัยในธรรมชาติ

ที่มา : <http://www.bims.buu.ac.th>



วิธีดำเนินการ

【 วัสดุอุปกรณ์ 】

1. กะละมัง ขนาดเส้นผ่านศูนย์กลาง 12 นิ้ว สูง 5 นิ้ว	4 ใบ	9. น้ายาล้างจาน	1 ขวด
2. พ่อพันธุ์ปลาหางนกยูง อายุ 3 เดือน	4 ตัว	10. ฟองน้ำ	1 ก้อน
3. แม่พันธุ์ปลาหางนกยูง อายุ 3 เดือน	4 ตัว	11. ถังน้ำขนาดเล็ก	4 ใบ
4. จอก	2 ดัน	12. อาหารปลา	1 ถุง
5. สาทร่าย	2 ดัน		
6. กรวด	1 ถุง		
7. ปะการังเทียมขนาดเล็ก	1 ถุง		
8. น้ำจุลินทรีย์ชยาย (EM)	12 ซีซี		



ขั้นเตรียม

1. การเตรียมวัสดุอุปกรณ์ โดยปฏิบัติดังนี้

- 1) การเตรียมกะละมัง
 - (1) นำกะละมังขนาดเส้นผ่านศูนย์กลาง 12 นิ้ว สูง 5 นิ้ว 4 ใบ (ขนาดปรับได้ตามความเหมาะสม) มาล้างทำความสะอาดด้วยน้ำยาล้างจาน แล้วคว่ำไว้ให้แห้ง
 - (2) เมื่อกะละมังแต่ละใบแห้งสนิทแล้ว นำหมายเลข 1-4 มาติดไว้ที่กะละมังแต่ละใบ
- 2) การเตรียมวัสดุต่างๆ ที่จะใช้ในการจัดสภาพแวดล้อม
 - (1) นำพืชน้ำ ได้แก่ จอก และสาหร่าย มาอนุบาลไว้ในถังน้ำขนาดเล็ก (แยกชนิดกัน)
 - (2) นำกรวด และปะการังเทียมขนาดเล็ก มาล้างทำความสะอาด แล้วผึ่งไว้ให้แห้ง
- 3) การเตรียมปลาหางนกยูง
 - (1) นำถึงน้ำขนาดเล็ก 2 ใบ มาใส่น้ำสะอาด โดยใส่น้ำลงไปครึ่งถัง แล้วตั้งทิ้งไว้เป็นเวลา 1 วัน
 - (2) นำพ่อพันธุ์และแม่พันธุ์ปลาหางนกยูง เพศละ 4 ตัว ที่มีอายุ 3 เดือนขึ้นไป มาอนุบาลไว้ในถังน้ำที่เตรียมไว้ในข้อ (1) โดยใส่แยกเพศกัน

2. การจัดสภาพแวดล้อม โดยปฏิบัติดังนี้

- 1) นำน้ำสะอาดใส่ลงในกะละมังหมายเลข 1-4 ประมาณ 3 ใน 4 ของกะละมัง
- 2) จัดสภาพแวดล้อมในกะละมัง แต่ละหมายเลข ดังนี้
 - กะละมังหมายเลข 1 นำพืชน้ำที่เตรียมไว้ ได้แก่ จอก และสาหร่าย มาใส่ลงในกะละมัง
 - กะละมังหมายเลข 2 นำกรวด และปะการังเทียมที่เตรียมไว้มาจัดวางลงในกะละมัง
 - กะละมังหมายเลข 3 นำน้ำจุลินทรีย์ขยาย (EM) 3 ซีซี ใส่ลงในกะละมัง
 - กะละมังหมายเลข 4 ไม่มีการจัดสภาพแวดล้อมใดๆ
- 3) ตั้งกะละมังหมายเลข 1-4 เอาไว้ในบริเวณใกล้เคียงกันเป็นเวลา 3 วัน เพื่อให้หน้ามีการปรับสภาพให้คงที่ (ควรเลือกบริเวณที่มีแสงแดดส่องถึง)

ขั้นปฏิบัติ

1. นำพ่อพันธุ์และแม่พันธุ์ปลาหางนกยูง อย่างละ 1 ตัว มาใส่ลงในกะละมังแต่ละใบ
2. ให้อาหารปลาในกะละมังแต่ละใบ วันละ 2 เวลา คือ เช้าและเย็น โดยให้ในปริมาณที่เท่ากัน
3. สังเกตการออกลูกและเริ่มนับจำนวนลูกปลาหลังจากพบปลาในแต่ละกะละมัง แล้วบันทึกผล (ควรย้ายลูกปลาออกจากกะละมังทุกครั้งที่พบว่า มีลูกปลาในกะละมัง) โดยเลี้ยงปลานาน 4 สัปดาห์

ผลการดำเนินการ

ตาราง แสดงจำนวนลูกปลาหางนกยูงในสภาพแวดล้อมที่ต่างกัน

กะละมัง หมายเลข	สภาพแวดล้อม	จำนวนลูกปลาที่นับได้ (ตัว)				
		สัปดาห์ แรก	สัปดาห์ ที่ 2	สัปดาห์ ที่ 3	สัปดาห์ ที่ 4	สัปดาห์ ที่ 5
1	แบบใส่พืชน้ำ	-	-	18	17	35
2	แบบใส่กรวดและปะการังเทียม	-	-	7	8	15
3	แบบใส่น้ำจืดอินทรีย์ขยาย (EM)	-	-	13	9	22
4	แบบใส่น้ำเปล่า	-	-	2	-	2

ขั้นตอนที่ 3 การสรุปองค์ความรู้ Learning to Construct

สรุปองค์ความรู้

ผลจากตาราง พบว่า

สภาพแวดล้อมที่ทำให้ปลาหางนกยูงมีลูกปลาได้มากที่สุด คือ สภาพแวดล้อมแบบใส่พืชน้ำ มีจำนวนลูกปลา 35 ตัว รองลงมา คือ สภาพแวดล้อมแบบใส่น้ำจืดอินทรีย์ขยาย (EM) มีจำนวนลูกปลา 22 ตัว สภาพแวดล้อมแบบใส่กรวดและปะการังเทียม มีจำนวนลูกปลา 15 ตัว และสภาพแวดล้อมแบบใส่น้ำเปล่า มีจำนวนลูกปลา 2 ตัว ตามลำดับ



ตรวจสอบข้อสรุปกับสมมติฐาน

ตรงตามสมมติฐาน

ไม่ตรงตามสมมติฐาน

เพราะ สภาพแวดล้อมแบบใส่กรวดและปะการังเทียมมีจำนวนลูกปลาน้อยกว่าสภาพแวดล้อมแบบใส่พืชน้ำ



WORKSHEET 1

Content knowledge about the science project 1

A Science Project Summary

Task 1 Activate Background Knowledge about the Science Project

Task Description:

This task is designed based on the study skill task aiming to promote the comprehension reading skill using skimming technique through questions. Students use skimming technique in order to essentially understand each part of the science project report as a primary basis before preparing the oral presentation.



ACTIVITY 1

Directions: Look at the following questions. Quickly read the science project given and write the answers in the provided space below.

Why did the researcher do this project?

How did the researcher conduct this project?

What did the researcher find?

What did the researcher learn?

Task 2 Choosing Appropriate Vocabulary and Language Patterns in Writing a Summary

Scientific Vocabulary and Sample Usage Booklet

Task Description:

To write a summary from Thai to English, students need to deal with some vocabulary that they might not experience before, especially scientific terms and verbs. This task is designed in accordance with the vocabulary and language structure task aiming to help students appropriately choose vocabulary, terms, grammatical phrases and sentences to summarize a good science project summary in English by learning through the available sources then write them in the booklet which is considered as the storage and reference book of scientific vocabulary and language use.

Directions:

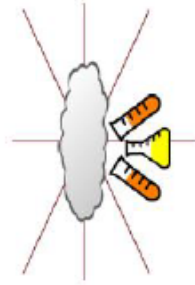
1. Read the given science project 1 (written in Thai) together to highlight scientific terms, verbs and unknown words with three different colors. Write the highlighted words on top of each page in the booklet (1 word a page).
2. There are 4 activities that your team is going to achieve in order to choose the appropriate words in writing a summary:
 1. Word stress: After you have written the word on top of the page, look for the stress appeared in dictionary and put the stress mark on the word.
 2. Definition: Look up the meaning in dictionary, write it down in the space. To make the word more visualized, students find picture available on the internet and place it in the space.
 3. Synonym: Find the words which have the same meaning and put them in provided mind map.
 4. Sample sentences: Find the sample sentences using that word as many as possible from the online or written sources and write them down in the space.

VOCABULARY NO.

PLACE IMAGE HERE

Definition

Synonym



Sample sentences



WORKSHEET 1

Content knowledge about the science project 1

A Science Project Summary

Task 3 Summarizing a Science Project

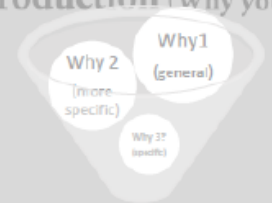
Task Description:
 This information transfer task is the final outcome of the content knowledge lesson which students are required to summarize the science project in an infographic version in English using the analyzed vocabulary and language patterns researched from the previous activity to complete the summary. This task will be used as a transition to draft a presentation script in the language lesson.

Directions:
 After reading the given final report of science project, draft "an infographic" to summarize the important main points of each part of the report. Use vocabulary and language patterns researched in the previous activity to help you write.

Researcher:
Adviser:

Title

Introduction (Why you did it)



Research Question 1 Research Question 2

Hypothesis

Variables

Independent Variable Dependent Variable Controlled Variable

Method (How you did it)

Equipment/ Materials

○
name

○
name

○
name

○
name

Procedures

↓

↓

↓

Results (What you found)

table/
graph/
figure/ etc.

↓

summary

table/
graph/
figure/ etc.

↓

summary

Conclusion (What you learned)



Use the above draft to create a computer-aided design of the project summary infographic.

A Summary Writing Checklist

Group name: _____

Project Title: _____

Idea

- State the main idea of the science project.
- Details give the reader important information.
- Only necessary details are included.
- Use own words.

Organization

- Details follow the order of the author's thought.
- One detail sentence or phrase per paragraph/ section if article is long.
- Ties all points together and brings summary to an end.
- Summary is approximately 1/4 - 1/3 the length of the original project.

Sentence Fluency

- Each sentence or phrase starts with a different word.
- Sentences or phrases build upon one before it.
- Sentences or phrases are different lengths.
- The meaning of sentence or phrase is clear.
- Sentences are grammatically correct.

Conventions

- First word in a sentence and proper nouns are capitalized.
- There are no spelling errors.
- Correct internal punctuation is used.
- Ending punctuation is used if needed.
- Graphics representing each section are clear.

(adapted from a summary writing checklist developed by AWS ESL Student Academy, Cambodia)
<http://awsstudentacademy.hbicambodia.com/wp-content/uploads/2015/04/Summary-Writing-Checklist.pdf>

APPENDIX G

The Evaluation of Content Knowledge Lesson Plan's Validity

Directions: Please put the √ in the opinion box and write the comments in the space provided.

The explanation for the rating scale is described as following:

-1 means the item is appropriate

0 means not sure

+1 means the item is not appropriate

Aspects	+1	0	-1	Comments
1. Contents				
1.1 The content is suitable for students' level.				
1.2 The content is relevant to the theme.				
2. Time:				
2.1 The time is suitable for the lesson.				
3. Objectives:				
3.1 The objectives are relevant to the research questions.				
3.2 The terminal objective is suitable for the lesson.				
3.3 The enabling objectives helps students to achieve the terminal goal of the lesson.				
4. Materials/ Worksheets:				
4.1 The worksheets and additional materials are suitable for the students.				
4.2 The worksheets and additional materials are relevant to the lesson.				
5. Content-based Instruction Using Six-T's Approach lesson:				
5.1 The teaching procedures are planned in suitable sequence.				
5.2 The assigned tasks are suitable for the students.				
5.3 The lesson plan applying content-based instruction using Six-T's approach is relevant to the research questions of the study.				
5.4 The designed tasks applying content-based instruction using Six-T's approach help students to understand the Thai science content (text) which will be summarized into English.				

Aspects	+1	0	-1	Comments
5.5 The designed tasks applying content-based instruction using Six-T's approach help students to comprehensibly transfer the science content using the infographic.				
5.6 The designed tasks applying content-based instruction using Six-T's approach increase students' vocabulary skills (e.g. meaning, usage and pronunciation).				
5.7 The designed tasks applying content-based instruction using Six-T's approach help students to prepare the science content in order to draft the written presentation script in the next lesson (oral presentation delivery).				
6. Assessment:				
6.1 Students summarize the important points of each part of the Thai science project report in English using the infographic.				



APPENDIX H

The Sample of Oral Presentation Lesson Plan

Lesson 1

Theme: Environment

Time: 50 minutes (1 period)

Topic: Project1 Which is the Most Appropriate Environment for Propagating Guppies?

1. Lesson description:

This lesson aims at developing the students' oral presentation skills of the introduction section of the science project 1. Students will analyze both verbal and non-verbal characteristics of the oral presentation delivery through the effective models generated and compiled by teacher such as the presentation script and the VDO clips and students will be able to apply the language features and non-verbal characteristics observed from the VDO clips into their oral interaction practice task. The summarizing task from lesson 1 (content knowledge) is concerned as task transition to help each group of students transfer the summarized ideas of the science project 1 in planning and drafting the oral presentation script in lesson 2. The evaluation of the oral presentation task will be completed online by three evaluators, including self, peer and teacher to reflect the overall abilities in science project delivery.

2. Objectives:

Content:

Students will be able to comprehend the background of the introduction section of science project 1.

Language:

1. Students will be able to analyze the language functions used in the introduction section from the model VDO clip or script and the good characteristics of the presenters.

(Expected language functions:

I. Listener orientation

- a. greeting the audience*
- b. thanking the audience for coming*
- c. introducing yourself/ team*
- d. introducing topic/ subject of the presentation*

II. Content orientation

e. presenting background and rationale

f. introducing research questions

g. introducing hypotheses

2. Students will be able to analyze non-verbal traits from the model VDO clips.
3. Students will be able to write the presentation script following the model languages analyzed.
4. Students will be able to orally present the introduction section of the science project 1

Learning strategies

1. Students will be able to analyze the language functions and non-verbal communication from the oral scientific presentation model script and VDO clips.
2. Students will be able to enhance collaborative working skills

3. Materials:

1. Worksheet 1: a science project summary (Task transition)
2. Task 1 worksheet: Analyzing a presentation model (discourse organization task)
3. Task 2 worksheet: Analyzing language features (discourse organization task)
4. Task 3 worksheet: Analyzing non-verbal communication (discourse organization task)
5. Task 4 worksheet: Practicing oral presentation (communicative interaction task)
6. Facebook group of scientific oral presentation course
7. Oral presentation evaluation form (Google docs version)
8. Balabolka—pronunciation practice software

4. Teaching procedures:

Teaching steps	Teacher's activities	Student's activities	Materials
Pre-task (50 minutes) <i>In-class time</i>	<ul style="list-style-type: none"> - Teacher greets students and has a small talk on everyday conversation. - Teacher asks questions for class discussion to raise students' awareness of the oral presentation context. <p><u>Possible questions:</u></p> <ol style="list-style-type: none"> 1. Do you think oral presentation is important in everyday life? If yes, what are purposes of delivering oral presentation? 2. Have you ever given an oral science project presentation before? If yes, how many part should the oral science project presentation have? 3. What kind of language is used in an oral science project presentation, formal or informal? 4. How did you feel during the presentation? 5. What are the problems experiencing while delivering the oral presentation? 6. What are the similarities and differences of a general and science project oral presentation? 7. Could you list the names of the scientific conferences or science fair that you knew or participated? 	<ul style="list-style-type: none"> - Students interact with teacher and classmates. - In the group, students discuss each question raised by a teacher with friends before sharing the opinion to the whole class. Try to use the schema on giving oral presentation in general to share the opinion. - Students carefully listen to classmates' opinion and compare with the own group's answers. - Students understand the basic ground of delivering oral presentation. 	Oral presentation worksheet: Task 1 Analyzing a presentation model


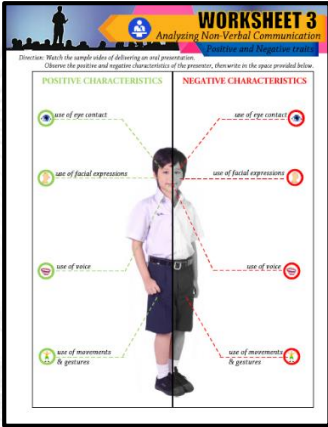
Teaching steps	Teacher's activities	Student's activities	Materials
	<p><u>TASK 1: Analyzing a presentation model</u></p> <p><i>Task description:</i></p> <p><i>This task is designed based on discourse organization task which aims at helping students analyze and identify components of the introduction section by noticing the signaling words or phrases from the model script.</i></p>		
	<ul style="list-style-type: none"> - Teacher distributes the oral presentation worksheet to each group of students. - Teacher explains two sub-activities to achieve task 1 to the students. <p><i>Activity 1</i></p> <ul style="list-style-type: none"> - Teacher lets students look at the excerpts from the presentation model script of the introduction section shown in the worksheet and help rearranging the scrambled excerpts into the correct order to make a complete introduction part of the scientific oral presentation. <p>Activity 1 Directions: Work in a group of 3 students. Look at the excerpts below, then rearrange them into the correct order to make a complete introduction of the scientific oral presentation.</p> <p>☞ Good afternoon, everybody. I'd like to start by thanking you all for coming to my talk today. My name is Chanida Yawingj and let me introduce my team, Sirimas Pokbunruang, Nopparit Fuang-ngern and Pimpaka Chando-ngok. We're students at Tanthongwittaya (Pa Ruek) School.</p> <p>☞ We're going to talk today about my recent research comparing soil characteristics between eroded soils and non-eroded soils at Huay San Ton Reservoir. Tanthong subdistrict, Phan district, Chiang Rai Province.</p> <p>☞ Middle school students became interested in nature during a course on local environment in 2004. Students had an opportunity to explore the local forest community and Huay San Ton Reservoir at Ban Dong Kanoon. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river.</p> <p>☞ As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas. The study could lead to the conservation of surface soil in the community.</p> <p>☞ In this talk, I'd like to deal with these questions: How do eroded soils near the reservoir differ from non-eroded soils? and How do soils with greater erosion rates differ from soils with lower erosion rates?</p> <p>☞ Therefore, we hypothesized that soils in the mountain, on the roadsides, and in the non-erosion areas differ in many ways: soil texture, surface soil structure, bulk density, soil erodibility and density of vegetative covers and soils with greater erosion rates contain more sand than do soils with lower erosion rates.</p> <p><small>Adapted from Cambridge English for Scientists Student's Book (2011) and Earth System Science Student Book Grade 7-8, Alcorn Smart Co., Ltd. (2014)</small></p>	<ul style="list-style-type: none"> - Students primarily scan what to do in the task sheet given. - Students listen to the directions carefully. - Each group looks at the scrambled excerpts quickly, discuss and arrange all of the scrambled into the correct order. - Each group shares the answers to the class. <p>- Students read the arranged excerpts again to identify the names for each part of the introduction section by highlighting the signaling words and phrases appeared in each excerpt.</p>	

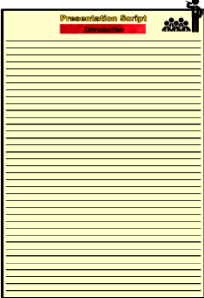
Teaching steps	Teacher's activities	Student's activities	Materials
	<p>- To compare the answers, teacher asks each group to read what they arranged in order to the whole class. After all groups share the answers, teacher presents the correct arrangement of the introduction section script to the students.</p> <p><i>Activity 2</i></p> <p>- Teacher has each group of students to read the completely arranged excerpts, identify the parts of the introduction by highlighting the signaling key words or phrases, then chronologically write the names of each part in the worksheet.</p> <p>- Teacher walk around the class to facilitate each group if they need helps or suggestions.</p> <p><i>Possible Answer Key:</i></p> <div style="border: 1px solid black; padding: 5px;"> <p>Parts of the Introduction Section</p> <ul style="list-style-type: none"> • Listener orientation <ul style="list-style-type: none"> a. Greeting the audience <i>Key words: 1) Good morning</i> b. Thanking the audience for coming <i>Key words: 1) I'd like to start by thanking you all 2) This disaster obstructed * the advantages/ usefulness of this research Key words: 1) As a result, ...</i> c. Introducing yourself/ team <i>Key words: 1) My name is 2) let me introduce my team</i> d. Introducing the topic/ subject of the presentation <i>Key words: 1) We're going to talk today about</i> </div>		



Teaching steps	Teacher's activities	Student's activities	Materials
	<p>• Content orientation</p> <p>e. Presenting background and rationale</p> <p>* reasons why you became interested in the problem</p> <p><i>Key words: 1) Middle school students became interested in</i></p> <p><i>2) Students had opportunity to...</i></p> <p>* the importance of the research topics</p> <p><i>Key words: 1) During the rainy..., a landslide occurred</i></p> <p>* the extent of the questions</p> <p><i>Key words: 1) The study could lead to</i></p> <p>- Teacher lets each group share the answers to the class by telling the names of the parts that they can identify and the signaling words or phrases helping them identify the parts of the introduction section.</p> <p>- Teacher wraps up the overall parts of the introduction section.</p> <p><u><i>TASK 2: Analyzing language features</i></u></p> <p><i>Task description:</i></p> <p><i>The designation of task 2 is a combination of discourse organization and vocabulary and structure learning tasks which aims at helping students analyze and learn the language features of each part of the introduction section.</i></p>	<p>- Each group presents their answers to the whole class.</p>	

Teaching steps	Teacher's activities	Student's activities	Materials																																																																												
	<p><i>Activity 1</i></p> <ul style="list-style-type: none"> - To help students analyze the linguistic aspect in each part of the introduction section, teacher asks students to cooperatively notice the model sentences provided in activity 1 and write them into the correct categories of the introduction part in the activity 2. <p><i>Activity 1</i> <small>Directions: Look at the sentences below, write them in the correct path on the next page.</small></p> <table border="1" data-bbox="459 869 815 1256"> <tr> <td>Let me introduce myself and my colleagues</td> <td>So, the question is this</td> </tr> <tr> <td>First of all, let me thank you all for coming here today</td> <td>As you can see on the screen, our topic/subject today is</td> </tr> <tr> <td>Therefore, we hypothesized that</td> <td>The question is then</td> </tr> <tr> <td>Middle school students became interested in nature during a course on local environment in 2004</td> <td>Students had an opportunity to explore the local forest community and Hway Sun To-Saenvar of Ban Dong Kamen. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river</td> </tr> <tr> <td>My name's/ I'm Haidach Kulniyo and these are my colleagues/ my team members</td> <td>This morning, I'm/ we're going to</td> </tr> <tr> <td>I'd like to start by introducing myself</td> <td>is there</td> </tr> <tr> <td>is there</td> <td>good afternoon all</td> </tr> <tr> <td>If I increase the current supplied to an electric motor, then the RPM (revolutions per minute) of the motor will increase</td> <td>I'm/ We're here in my/ our function as students/ representatives of Srasamutprakan School</td> </tr> <tr> <td>The topic/subject of my/ our presentation is</td> <td>I'm/ We're students/ representatives of Srasamutprakan School, Thailand</td> </tr> <tr> <td>I'm/ we're very grateful to have this opportunity to talk to you about</td> <td>I'm happy/ delighted that so many of you could make it today</td> </tr> <tr> <td>Today, I'm/ we're going to tell you about</td> <td>As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas</td> </tr> <tr> <td>The study could lead to the conservation of surface soil in the community</td> <td>I'd like to introduce myself/ my colleagues</td> </tr> <tr> <td>This made us wonder</td> <td>Hello/ Hi, everyone</td> </tr> <tr> <td>Thanks for being here today</td> <td>I'd like to start by thanking you all for coming to my talk/ presentation today</td> </tr> <tr> <td>In this talk/ presentation, we'd like to deal with these/ following questions</td> <td>I'd like to introduce myself/ my colleagues</td> </tr> <tr> <td>What I'd/ we'd like to present to you today is</td> <td></td> </tr> </table> <p>(sample page of activity 2)</p> <p>② GREETING THE AUDIENCE</p> <table border="1" data-bbox="459 1328 810 1514"> <tr> <td colspan="2">Sample sentences</td> </tr> <tr> <td>Sentence 1</td> <td>_____</td> </tr> <tr> <td>Sentence 2</td> <td>_____</td> </tr> <tr> <td>Sentence 3</td> <td>_____</td> </tr> <tr> <td>Sentence 4</td> <td>_____</td> </tr> <tr> <td>Sentence 5</td> <td>_____</td> </tr> <tr> <td>Sentence 6</td> <td>_____</td> </tr> <tr> <td>Sentence 7</td> <td>_____</td> </tr> <tr> <td>Sentence 8</td> <td>_____</td> </tr> </table> <p>Language Features Analysis</p> <table border="1" data-bbox="469 1536 810 1787"> <thead> <tr> <th>VOCABULARY</th> <th>STRUCTURES</th> </tr> </thead> <tbody> <tr> <td>What are the commonly found nouns or noun phrases from your observation?</td> <td>Sentence patterns:</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>What are the commonly found verbs or verb phrases from your observation?</td> <td>Tenses:</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>What are other commonly found words or phrases from your observation?</td> <td>Other grammar points found:</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </tbody> </table>	Let me introduce myself and my colleagues	So, the question is this	First of all, let me thank you all for coming here today	As you can see on the screen, our topic/subject today is	Therefore, we hypothesized that	The question is then	Middle school students became interested in nature during a course on local environment in 2004	Students had an opportunity to explore the local forest community and Hway Sun To-Saenvar of Ban Dong Kamen. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river	My name's/ I'm Haidach Kulniyo and these are my colleagues/ my team members	This morning, I'm/ we're going to	I'd like to start by introducing myself	is there	is there	good afternoon all	If I increase the current supplied to an electric motor, then the RPM (revolutions per minute) of the motor will increase	I'm/ We're here in my/ our function as students/ representatives of Srasamutprakan School	The topic/subject of my/ our presentation is	I'm/ We're students/ representatives of Srasamutprakan School, Thailand	I'm/ we're very grateful to have this opportunity to talk to you about	I'm happy/ delighted that so many of you could make it today	Today, I'm/ we're going to tell you about	As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas	The study could lead to the conservation of surface soil in the community	I'd like to introduce myself/ my colleagues	This made us wonder	Hello/ Hi, everyone	Thanks for being here today	I'd like to start by thanking you all for coming to my talk/ presentation today	In this talk/ presentation, we'd like to deal with these/ following questions	I'd like to introduce myself/ my colleagues	What I'd/ we'd like to present to you today is		Sample sentences		Sentence 1	_____	Sentence 2	_____	Sentence 3	_____	Sentence 4	_____	Sentence 5	_____	Sentence 6	_____	Sentence 7	_____	Sentence 8	_____	VOCABULARY	STRUCTURES	What are the commonly found nouns or noun phrases from your observation?	Sentence patterns:	_____	_____	_____	_____	_____	_____	What are the commonly found verbs or verb phrases from your observation?	Tenses:	_____	_____	_____	_____	_____	_____	What are other commonly found words or phrases from your observation?	Other grammar points found:	_____	_____	_____	_____	_____	_____	<ul style="list-style-type: none"> - Students notice each model sentence strips and write them into the correct categories of the introduction section. 	<p>Oral presentation worksheet: Task 2 Analyzing language features</p>
Let me introduce myself and my colleagues	So, the question is this																																																																														
First of all, let me thank you all for coming here today	As you can see on the screen, our topic/subject today is																																																																														
Therefore, we hypothesized that	The question is then																																																																														
Middle school students became interested in nature during a course on local environment in 2004	Students had an opportunity to explore the local forest community and Hway Sun To-Saenvar of Ban Dong Kamen. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river																																																																														
My name's/ I'm Haidach Kulniyo and these are my colleagues/ my team members	This morning, I'm/ we're going to																																																																														
I'd like to start by introducing myself	is there																																																																														
is there	good afternoon all																																																																														
If I increase the current supplied to an electric motor, then the RPM (revolutions per minute) of the motor will increase	I'm/ We're here in my/ our function as students/ representatives of Srasamutprakan School																																																																														
The topic/subject of my/ our presentation is	I'm/ We're students/ representatives of Srasamutprakan School, Thailand																																																																														
I'm/ we're very grateful to have this opportunity to talk to you about	I'm happy/ delighted that so many of you could make it today																																																																														
Today, I'm/ we're going to tell you about	As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas																																																																														
The study could lead to the conservation of surface soil in the community	I'd like to introduce myself/ my colleagues																																																																														
This made us wonder	Hello/ Hi, everyone																																																																														
Thanks for being here today	I'd like to start by thanking you all for coming to my talk/ presentation today																																																																														
In this talk/ presentation, we'd like to deal with these/ following questions	I'd like to introduce myself/ my colleagues																																																																														
What I'd/ we'd like to present to you today is																																																																															
Sample sentences																																																																															
Sentence 1	_____																																																																														
Sentence 2	_____																																																																														
Sentence 3	_____																																																																														
Sentence 4	_____																																																																														
Sentence 5	_____																																																																														
Sentence 6	_____																																																																														
Sentence 7	_____																																																																														
Sentence 8	_____																																																																														
VOCABULARY	STRUCTURES																																																																														
What are the commonly found nouns or noun phrases from your observation?	Sentence patterns:																																																																														
_____	_____																																																																														
_____	_____																																																																														
_____	_____																																																																														
What are the commonly found verbs or verb phrases from your observation?	Tenses:																																																																														
_____	_____																																																																														
_____	_____																																																																														
_____	_____																																																																														
What are other commonly found words or phrases from your observation?	Other grammar points found:																																																																														
_____	_____																																																																														
_____	_____																																																																														
_____	_____																																																																														

Teaching steps	Teacher's activities	Student's activities	Materials
	<ul style="list-style-type: none"> - After each group puts the sentences into the correct categories, teacher explains the language features that students are going to analyze including 1) vocabulary use (find the commonly found noun, verb, or other words identifying each part) and 2) structures (analyze the sentence patterns, tenses, and other grammar points used in each part). - Teacher pairs two groups together to exchange sharing what they have just analyzed from each part. - Teacher wraps up the use of language in each part of the introduction section. <p><u>TASK 3: Non-verbal communication analysis</u></p> <p><i>Task description:</i></p> <p><i>This task is designed based on the discourse organization task aiming at helping students analyze the non-verbal communication used in delivering an effective scientific presentation from the model VDO clips of the winning team participating in the international science fair competition.</i></p> <p><u>Non-verbal aspects that students will analyzed are presented as follow:</u></p> <ol style="list-style-type: none"> 1. body stance and movement 2. hands and arm gestures 3. eye contact and facial expression 4. vocal traits 	<ul style="list-style-type: none"> - Students look at the model sentences written in each part of the introduction section, highlight the commonly found words (N./ V/ etc.) with one color and the structures (sentence pattern, tenses, other grammar points found) with another color and write the answers from each group's analysis in the provided space. - Two groups are gathered to orally share the answers. In the talk, students are allowed to add friends' answers into their group's worksheet in order to complete the tables. 	<ul style="list-style-type: none"> - Oral presentation worksheet: Task 3 non-verbal communication analysis

Teaching steps	Teacher's activities	Student's activities	Materials
	<ul style="list-style-type: none"> - Teacher distributes the worksheet task 3 to each group and lets them look at the non-verbal aspects from the figure. - Teacher plays a model video clip of <i>David Wu and Xinchu Tian, team winners from Troy High School, Troy school district, Michigan. They presented the project entitled "Exosomes Derived from Mesenchymal Stromal Cells Promote Axonal Growth" in 2014 Siemen Competition in Math, Science and Technology</i>, and asks each group to take notes about the non-verbal aspects in terms of positive and negative characteristics while watching the model clip in worksheet. <p>(https://www.youtube.com/watch?v=J8F4vuO2jzE&t=49s)</p>  <ul style="list-style-type: none"> - Teacher runs the discussion to share each group's answers. - Teacher wraps up for the appropriateness of the use of non-verbal communication during the presentation. 	<ul style="list-style-type: none"> - Students watch David and Xinchu's presentation and write down the observational non-verbal communication according to 4 aspects in worksheet 3  <ul style="list-style-type: none"> - Students watch the model VDO clip, observe the positive and negative characteristics of the presenters and note them down in worksheet 3. - Students discuss what they have noted down from observation with friends and teacher and remember all the good characteristics in order to apply in their presentation in the next stage. 	<ul style="list-style-type: none"> - science project model video clip of David Wu & Xinchu Tian

Teaching steps	Teacher's activities	Student's activities	Materials
<p>During-task Out-of-class time</p>	<p><u><i>TASK 4: Oral presentation practice</i></u></p> <p><i>Task description:</i></p> <p><i>The final activity of this task is designed based on communicative interaction task which aims at helping students practice oral presentation delivery with peers through role-play activity to develop pronunciation, fluency, content delivery, verbal and non-verbal delivery and collaborative working skills. Before role playing, students will need to write the presentation script and practice pronunciation through software. Students will record VDO clip of their presentation and upload it into the course's Facebook group to be assessed.</i></p> <p><i>Activity 1 (My Presentation Script)</i></p> <ul style="list-style-type: none"> - Teacher asks each group of students to write a presentation script for the introduction section of the science project 1 “Which is the most appropriate environment for propagating the guppies?” following the sequences of delivering the scientific introduction and according to the analyzed language in the previous task. The summarizing infographic from the content lesson is used as guideline in drafting the presentation script. 	<ul style="list-style-type: none"> - Each group writes the presentation script for the introduction section following the sequences of introduction parts, the analyzed language and the content summarized in the infographic. 	<p>Oral presentation worksheet: Task 4 Oral presentation practice</p> <p>Summarizing infographic (worksheet from content lesson)</p>

Teaching steps	Teacher's activities	Student's activities	Materials
	<p><i>Activity 2 (Let's Have a Sound Check)</i></p> <ul style="list-style-type: none"> - Teacher asks each group to download the pronunciation practice software named “Balabolka” and explains how to use this software. <p><u>Steps of using Balabolka:</u></p> <ol style="list-style-type: none"> 1. Copy your written and paste your written script into the program. 2. Select the accent of preference 3. Click on “Play” button to listen to the pronunciation 4. Mark down any symbols on the stressed syllables, sentence intonation and so on. 5. Replay to check the marked 6. Repeat practicing accompanying the guiding audio. <p><i>Activity 3 (Role-Play)</i></p> <ul style="list-style-type: none"> - Teacher distributes the role cards to each group, then asks the students to assign the roles themselves to each group member. - Teacher lets students read and follow the directions written in the role cards carefully in order to practice delivering the oral presentation of the introduction section of the project 1. <p style="text-align: center;">Role Play for Scientific Oral Presentation Practice</p> <p style="font-size: small;">Scenario: Your team is the school representative to give a 5-minute presentation of the prepared topic in Thailand's International Science Fair 2016 at Impact Forum Hall 9, IMPACT Exhibition and Convention Center, Norththaburi province. The participants are middle and high school students, teachers, administrators and scientists who come from several countries in ASEAN. The presentation will be presented in a hall setting with approximately 40 participation a session. A powerpoint slide of your science project is required in order to visualize what you did in your project to the audience.</p> <p style="font-size: small;">*Additional detail: As the class is the beginning in a series of three lessons to prepare a scientific oral presentation, students are required to practice giving only a shortcut introduction section of the 5-minute presentation.</p> <p style="font-size: x-small;">Directions: Read the oral presentation role card below and follow the directions.</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px dashed gray; padding: 5px; width: 45%;"> <p style="text-align: center;"> Student 1</p> <p>You are the leader of a team. Your roles are to prepare the presentation slides and begin the presentation of the introduction section in "the listener orientation part"</p> <p>Listener Orientation:</p> <ul style="list-style-type: none"> ✓ Create the audience ✓ Thank the audience for coming ✓ Introduce yourself/team ✓ Introduce the topic/subject </div> <div style="border: 1px dashed gray; padding: 5px; width: 45%;"> <p style="text-align: center;"> Student 2 & Student 3</p> <p>You are the leader of a team. Your role is to present the introduction section in "the content orientation part"</p> <p>Content Orientation:</p> <p>Student 2</p> <ul style="list-style-type: none"> ✓ Present background & rationale in the problem - The importance of the research topic - The advantages/weakness of the research <p>Student 3</p> <ul style="list-style-type: none"> ✓ Introduce research questions ✓ Introduce hypotheses </div> </div> <p style="font-size: x-small;">After practicing, record the VDO clip and post it in the Facebook group of the course.</p>	<ul style="list-style-type: none"> - Each group downloads the Balabolka program into the laptop. - Students follow the steps of using this program to practice pronunciation. <ul style="list-style-type: none"> - Each group assigns the roles according to the role cards given to the group member. - Students read and follow the directions written in role cards. - Students practice the oral presentation with their groups. - Each group record the VDO clip of their presentation, then upload it in the Facebook group for evaluation and comments. 	<p>Balabolka, pronunciati on practice software</p> <p>Oral presentation role card</p> <p>VDO recorder or mobile phone to record the clip</p>

Teaching steps	Teacher's activities	Student's activities	Materials
Post-task Out-of-class time	<p><i>Activity 4 (Your Comment Is Welcome!)</i></p> <ul style="list-style-type: none"> - Teacher assigns each group to upload their recorded VDO clip to the class's Facebook group to be evaluated by three evaluators: self, peer and teacher. - In order to assess other groups' presentation VDO clip, click on the Google docs link posted in Facebook group. - The assessment of the oral presentation follows these two major aspects: <ul style="list-style-type: none"> • Content of the science project (50 marks : evaluator) • Oral presentation skills (50 marks : evaluator) The total scores are 300. Then the raw scores from three evaluators will be processed into the percentile system. (total scores: 100 marks) - After the evaluation process is done, teacher asks students to watch friends' presentation again, then write comments or feedback underneath the posted clips. - Teacher assigns each group to take some notes of peer and teacher comments in their groups' personal notebooks for the next presentation and use all the comments as guidelines improving the oral presentation skills. 	<ul style="list-style-type: none"> - Each group uploads the VDO clip in the class's Facebook group. - Students read the criteria for oral presentation evaluation carefully and assess self- and peer presentation VDO clips through Google docs version of the evaluation form. - Students write some comments to other groups' presentation clips. - Each group takes notes of the comments gained from the classmates and teacher. 	Facebook group of the class Google docs evaluation form

- 5. Evaluation:** Students record an oral presentation VDO clip about the introduction section of the given science project, then upload the recorded clip in the course's Facebook group. Teacher, peers and the presenter group use the online evaluation form to grade the oral presentation assignment following these two major aspects: 1) content delivery and 2) presentation skills. The three evaluators type out the comments underneath each uploaded clip in order to be used as a guideline developing the presentation skills next assignments.





TASK 1

Analyzing a presentation model
Introduction Section

Task 1 Getting to know the components of the introduction

Task Description:

This task is designed based on discourse organization task which aims at helping students analyze and identify components of the introduction section by noticing the signaling words or phrases from the model script.

Activity 1

Directions: Work in a group of 3 students. Look at the excerpts below, then rearrange them into the correct order to make a complete introduction of the scientific oral presentation.



- ✂ Good afternoon, everybody. I'd like to start by thanking you all for coming to my talk today. My name is Chanida Yawiraj and let me introduce my team, Sirimas Pokbunruang, Nopparit Fuang-ngern and Pimpaka Chanda-ngok. We're students at Tanthongwittaya (Pa Ruak) School.
- ✂ We're going to talk today about my recent research comparing soil characteristics between eroded soils and non-eroded soils at Huay San Tor Reservoir, Tanthong subdistrict, Phan district, Chiang Rai Province.
- ✂ Middle school students became interested in nature during a course on local environment in 2004. Students had an opportunity to explore the local forest community and Huay San Tor Reservoir at Ban Dong Kanoon. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river.
- ✂ As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas. The study could lead to the conservation of surface soil in the community.
- ✂ In this talk, I'd like to deal with these questions: How do eroded soils near the reservoir differ from non-eroded soils? and How do soils with greater erosion rates differ from soils with lower erosion rates?
- ✂ Therefore, we hypothesized that soils in the mountain, on the roadsides, and in the non-erosion areas differ in many ways: soil texture, surface soil structure, bulk density, soil erodibility and density of vegetative covers and soils with greater erosion rates contain more sand than do soils with lower erosion rates.

Adapted from Cambridge English for Scientists Student's Book (2011) and Earth System Science Student Book Grade 7-9, Aksorn Smart Co., Ltd. (2014)



TASK 2

Analyzing Language Features

Introduction Section

Task 2 Language Focus

Task Description:

In order to deliver an effective introduction for scientific oral presentation, understanding only the components may be not enough. Students also need to focus on the language features, such as phrases, sentence structure, vocabulary and tenses, which the scientists use in each component to give an effective oral presentation.

The rationale for this task designation is a combination of discourse organization task and vocabulary and structure learning tasks which aims at helping students analyze and learn the language features of each part of the introduction section.

Activity 1

Directions: Look at the sentences below, write them in the correct parts on the next pages.

Let me introduce myself and my colleagues	So, the question is this
First of all, let me thank you all for coming here today.	As you can see on the screen, our topic/subject today is
Therefore, we hypothesized that	The question is then
Middle school students became interested in nature during a course on local environment in 2004.	Students had an opportunity to explore the local forest community and Huay San Tor Reservoir at Ban Dong Kanoon. During the rainy season, a landslide occurred in the community. This disaster obstructed the road and triggered sediment runoff into the river.
My name's/ I'm Nadech Kukimiya and these are my colleagues/ my team members	
I'd like to start by introducing myself	This morning, I'm/ we're going to
Hi there.	Good afternoon all.
If I increase the current supplied to an electric motor, then the RPMs (revolutions per minute) of the motor will increase.	I'm/ We're here in my/ our function as students/ representative at Streemutprakan School.
The topic/subject of my/ our presentation is	I'm/ We're students/ representatives at Streemutprakan School, Thailand.
I'm/ we're very grateful to have this opportunity to talk to you about	I'm happy/ delighted that so many of you could make it today.
Today, I'm/ we're going to tell you about	As a result, students became curious about soil characteristics, structure, density and erodibility in the areas where erosion was frequent in comparison with the non-erosion areas.
The study could lead to the conservation of surface soil in the community.	
This made us wonder	I'd like to introduce myself/ my colleagues
Thanks for being here today.	Hello/ Hi, everyone.
In this talk/ presentation, we'd like to deal with these/ following questions	I'd like to start by thanking you all for coming to my talk/ presentation today.
What I'd/ we'd like to present to you today is	I'd like to introduce myself/ my colleagues

Activity 2

Directions: After writing the sample sentences into the correct section, notice all sentences analyze the language use in terms of vocabulary and structures.



Introduction of the scientific oral presentation

Listener Orientation

a. GREETING THE AUDIENCE

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____ _____ Tenses: _____ _____ Other grammar points found: _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	
What are other commonly found words or phrases from your observation? _____ _____	

b. **THANKING THE AUDIENCE FOR COMING**

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	Tenses: _____ _____
What are other commonly found words or phrases from your observation? _____ _____	Other grammar points found: _____ _____



INTRODUCING YOURSELF/ TEAM

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	Tenses: _____ _____
What are other commonly found words or phrases from your observation? _____ _____	Other grammar points found: _____ _____

d.) INTRODUCING THE TOPIC/ SUBJECT OF THE PRESENTATION

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	Tenses: _____ _____
What are other commonly found words or phrases from your observation? _____ _____	Other grammar points found: _____ _____


Content Orientation

PRESENTING BACKGROUND & RATIONALE
Sample sentences**Reasons why you became interested in the problem**

Sentence 1 _____

The importance of the research topics

Sentence 2 _____

The advantages/ usefulness of this research

Sentence 3 _____

The extent of the questions

Sentence 4 _____


Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>noun</i> , verb or phrases from your observation in move1? _____ _____	Sentence patterns: _____ Tenses: _____ Other grammar points found: _____
What are the commonly found <i>noun</i> , verb or phrases from your observation in move2? _____ _____	Sentence patterns: _____ Tenses: _____ Other grammar points found: _____
What are the commonly found <i>noun</i> , verb or phrases from your observation in move3? _____ _____	Sentence patterns: _____ Tenses: _____ Other grammar points found: _____
What are the commonly found <i>noun</i> , verb or phrases from your observation in move4? _____ _____	Sentence patterns: _____ Tenses: _____ Other grammar points found: _____

f. INTRODUCING RESEARCH QUESTIONS

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	Tenses: _____ _____
What are other commonly found words or phrases from your observation? _____ _____	Other grammar points found: _____ _____

g.) INTRODUCING HYPOTHESES

Sample sentences

Sentence 1 _____

Sentence 2 _____

Sentence 3 _____

Sentence 4 _____

Sentence 5 _____

Sentence 6 _____

Sentence 7 _____

Sentence 8 _____

Language Features Analysis

VOCABULARY	STRUCTURES
What are the commonly found <i>nouns</i> or <i>noun phrases</i> from your observation? _____ _____	Sentence patterns: _____ _____
What are the commonly found <i>verbs</i> or <i>verb phrases</i> from your observation? _____ _____	Tenses: _____ _____
What are other commonly found words or phrases from your observation? _____ _____	Other grammar points found: _____ _____



TASK 3

Non-Verbal Communication Analysis

Introduction Section

Task 3 Non-Verbal Communication Analysis

Task Description:

In order to deliver an effective presentation, non-verbal communication is an essential skill for the presenters to learn and follow the good traits of presentation delivery. Watching the presentation model VDO clips is a good way to analyze the good characteristics of the speakers and see what was going on during a real conference or situation. Therefore, this task is designed based on discourse organization task which aims at helping students analyze those positive characteristics from the role models and follow them in order to make an effective delivery.

Activity 1

Directions:



Watch the model VDO clip of David Wu and Xinchu Tian, a winning team presenters in Siemen Competition in Math, Science and Technology 2014 and write comments on good and bad characteristics while giving a presentation in the figure below.

Link to watch: <https://www.youtube.com/watch?v=J8F4vuO2jzE>





TASK 4
Oral Presentation Practice
Introduction Section

Task 4 Role play

Task Description:

This task is designed based on communicative interaction task which aims at helping students practice the oral presentation delivery with peers to develop the pronunciation, fluency, and collaborative working skills.

To complete this task successfully, students start by writing a presentation script, check the pronunciation of the written script through the software and practice the oral presentation through role play activity.

Activity 1 *My Presentation Script*

Directions: Write a presentation script for the introduction section of the science project 1 "Which is the most appropriate environment for propagating the guppies?" according to the sequences of delivering the scientific introduction and the analyzed languages in the previous tasks on the next page. The summarizing infographic in worksheet 1 is required to use as a guideline to develop a script.



Activity 2 *Let's Have a Sound Check!*

Directions: Download the software named "Balabolka" Copy your written script and paste it in the program. Listen carefully to the spoken version of your script with the native accent, then create your symbols to mark a stressed syllable of each word, intonation, pause etc. in the presentation script next page. After marking the symbols, practice, practice and practice with peers in your group.



Activity 3 *Role-Play*

Directions: With your group of 3 students, read and follow the directions in role cards on the next page. What you need to take into consideration while preparing and practicing is that your presentation will be assessed both content knowledge and presentation skills. For the presentation skills, verbal and non-verbal communication needs to be emphasized equally. After practicing, record the VDO clip, then post it in the Facebook group for evaluation and comments.



Activity 4 *Your Comment Is Welcome!*

Directions: Share your recorded 5-minute presentation clip to the class's Facebook group. Assess your oral presentation through Google docs version following the criteria below. After the online assessment is done, read all of the comments from peers and teacher and take some notes to be applied as guideline improving the next presentation.



ASSESSMENT

Your oral presentation clip will be assessed by 1) your group, 2) the classmates and 3) teacher in two major aspects:


- Content of the science project (50 marks/ evaluator)
- Oral presentation skills (50 marks/ evaluator)

The total scores are 300. Then your raw scores will be processed into the percentile system. (Total: 100 marks)

*The assessment link and rubric details will be posted in Facebook group.

Presentation Script

Introduction



Lined area for writing the presentation script.

Role-Play for Scientific Oral Presentation Practice



Scenario: Your team is the school representative to give a 5-minute presentation of the prepared topic in Thailand's International Science Fair 2016 at Impact Forum Hall 9, IMPACT Exhibition and Convention Center, Nonthaburi province. The participants are middle and high school students, teachers, administrators and scientists who come from several countries in ASEAN. The presentation will be presented in a hall setting with approximately 65 participation a session. A powerpoint slide of your science project is required in order to visualize what you did in your project to the audience.

**Additional detail: As this class is the beginning in a series of three lessons to prepare a scientific oral presentation, students are required to practice giving only a shortcut, introduction section, of the 5-minute presentation.*

Directions: Read the oral presentation role card below and follow the directions.



Student 1

You are the leader of a team.
Your roles are to prepare the presentation slides and begin the presentation of the introduction section in "the listener orientation part"

Listener Orientation:

- Greet the audience
- Thank the audience for coming
- Introduce yourself/ team
- Introduce the topic/ subject



Student 2 & Student 3

You are the leader of a team.
Your role is to present the introduction section in "the content orientation part"

Content Orientation:

Student 2

- Present background & rationale
 - Reasons why you became interested in this problem
 - The importance of the research topic
 - The advantages/ usefulness of this research
 - The extent of the question

Student 3

- Introduce research questions
- Introduce hypotheses



After practicing, record the VDO clip and post it in the Facebook group of the course.

APPENDIX I

The Evaluation of Oral Presentation Lesson Plan's Validity

Directions: Please put the ✓ in the opinion box and write the comments in the space provided.

The explanation for the rating scale is described as following:

- 1 means the item is appropriate
- 0 means not sure
- +1 means the item is not appropriate

Aspects	+1	0	-1	Comments
1. Contents				
1.1 The content is suitable for students' level.				
1.2 The teaching procedures are planned in suitable sequence.				
2. Time:				
2.1 Time allocation is suitable for each stage of the lesson.				
3. Objectives:				
3.1 The objectives help students orally present the scientific content in English which relate to the research questions.				
3.2 The terminal objective is clear and suitable for the lesson.				
3.3 The enabling objectives helps students to achieve the terminal goal of the lesson.				

Aspects	+1	0	-1	Comments
4. Materials/ Worksheets:				
4.1 The worksheets and additional materials are suitable for the students.				
4.2 The worksheets and additional materials are relevant and appropriate to the lesson.				
5. The teaching stages of task-based instruction incorporating the designed tasks under the concept of 6T's Approach employed to enhance students' oral presentation skills:				
<u>Pre-task stage</u>				
5.1 Students' background knowledge about oral scientific presentation structures is activated effectively through task 1, analyzing a presentation model. (discourse organization task)				
5.2 Task 2, analyzing language features, raises students' consciousness about specific language features of each part of the scientific presentation, including vocabulary use and structures. (discourse organization and vocabulary and structure learning task)				
5.3 The model presentation script in worksheets represents an effective oral scientific presentation to be analyzed in terms of structural pattern of the scientific presentation (format) and language features (lexical and grammatical)				
5.4 Tasks 3, non-verbal communication analysis, helps students cooperatively analyze non-verbal delivery skills, including body stances and movement, hands and arms gestures, eye contact and facial expression and vocal traits, through the model clip.				
5.5 The model presentation clip represents an effective non-verbal communication skills to be analyzed and applied in students' presentation.				

Aspects	+1	0	-1	Comments
<u>During-task stage</u>				
5.6 Task 4, oral presentation practice, requires students to cooperatively perform their oral scientific presentation potential effectively.				
5.7 The infographic (Task transition) can be effectively used as a while-delivering note to avoid reading the written script.				
6. Assessment:				
<u>Post-task stage</u>				
6.1 The criteria details are relevant and appropriate to the task.				
6.2 The task requires students as a test taker to perform their oral presentation potential.				
6.3 The task requires students as a test taker to comprehensibly deliver their content of the science project.				
6.4 Feedback part is suitable to improve students' oral presentation skills.				
6.5 The indicators stated in the rubrics are measurable and suitable.				
6.6 The description stated in each level of the rubrics (beginning, developing, competent, and accomplished) can reflect the progress of what we have been observing clearly.				

APPENDIX J

The Semi-Structured Interview Questions

Semi-structured interview questions

1. What do you think about implementing content-based instruction using 6T's approach Into English for Scientific Presentation Course?

2. How can the tasks designed using 6T's approach develop the content knowledge comprehension and the oral presentation skills?

3. What do you think about the tasks in the content knowledge lesson?

The tasks are:

- Task 1 Activating background knowledge about the science project
- Task 2 Choosing appropriate vocabulary and language patterns in writing a summary
- Task 3 Writing a science project summary

4. How can English language learned from the content knowledge lesson's tasks help you develop your oral presentation skills?

5. What do you think about the tasks in the oral presentation lesson?

The tasks are:

- Task1 Analyzing a presentation model
- Task2 Analyzing language features
- Task3 Non-verbal communication analysis
- Task4 Oral presentation practice

6. Are there any comment to improve the instruction in this course?

APPENDIX K

The Evaluation of Interview question's Validity

Directions: Please put the √ in the opinion box and write the comments in the space provided.

The explanation for the rating scale is described as following:

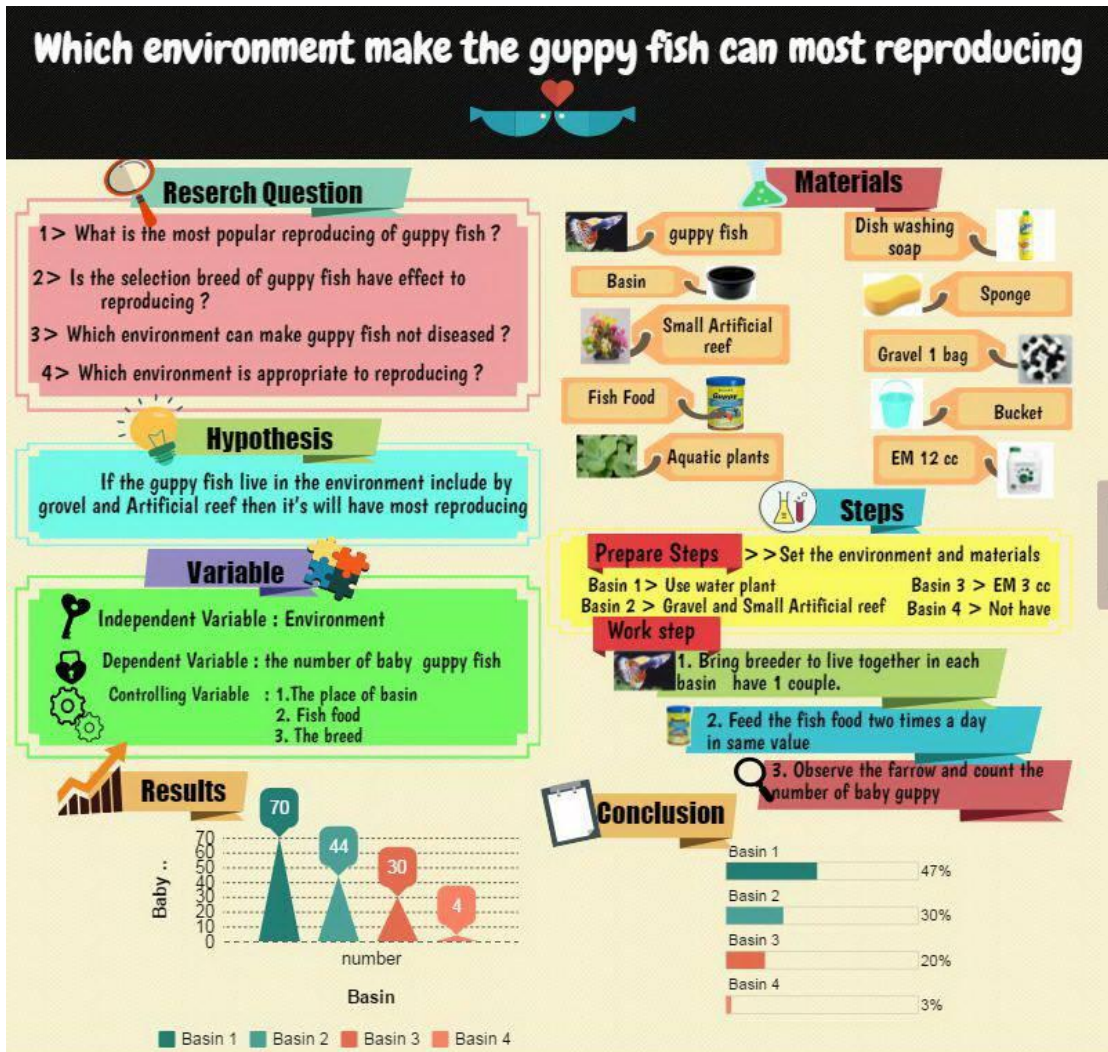
- 1 means the item is appropriate
- 0 means not sure
- +1 means the item is not appropriate

Item	+1	0	-1	Comments
<p>1. What do you think about implementing content-based instruction using 6T's approach Into English for Scientific Presentation Course?</p> <p>นักเรียนคิดอย่างไรเกี่ยวกับการเรียนวิชาภาษาอังกฤษเพื่อการนำเสนอโครงงานวิทยาศาสตร์ผ่านการจัดการเรียนรู้ที่เน้นเนื้อหาวิชาโดยใช้วิธีสอนแบบซิกซ์ที</p>				
<p>2. How can the tasks designed using 6T's approach develop the content knowledge comprehension and the oral presentation skills?</p> <p>ภาระงานที่สร้างจากวิธีสอนแบบซิกซ์ทีช่วยให้นักเรียนพัฒนาความเข้าใจที่มีต่อเนื้อหา และทักษะการนำเสนองานด้วยวาจาอย่างไร</p>				
<p>3. What do you think about the tasks in the content knowledge lesson?</p> <p>The tasks are:</p> <ul style="list-style-type: none"> - Task 1 Activating background knowledge about the science project - Task 2 Choosing appropriate vocabulary and language patterns in writing a summary - Task 3 Writing a science project summary <p>นักเรียนคิดอย่างไรเกี่ยวกับภาระงานที่ครูมอบให้ในบทเรียนด้านเนื้อหา</p>				

Item	+1	0	-1	Comments
<p>4. How can English language learned from the content knowledge lesson's tasks help you develop your oral presentation skills?</p> <p>ภาษาอังกฤษที่เรียนรู้ผ่านภาระงานในบทเรียนด้านเนื้อหาช่วยพัฒนาทักษะการนำเสนองานด้วยวาจาอย่างไร</p>				
<p>5. What do you think about the tasks in the oral presentation lesson?</p> <p>The tasks are:</p> <ul style="list-style-type: none"> - Task1 Analyzing a presentation model - Task2 Analyzing language features - Task3 Non-verbal communication analysis - Task4 Oral presentation practice <p>นักเรียนคิดอย่างไรเกี่ยวกับภาระงานที่ครูมอบให้ในบทเรียนด้านทักษะการนำเสนอ</p>				
<p>6. How each stage of content-based instruction using 6T's approach help you improve your English oral presentation skills and other skills?</p> <p>ขั้นตอนในการเรียนผ่านการจัดการเรียนรู้ที่เน้นเนื้อหาวิชาโดยใช้วิธีสอนแบบซิกซ์ทีที่ช่วยพัฒนาทักษะการนำเสนองานด้วยวาจาภาษาอังกฤษ และทักษะอื่นอย่างไร</p>				
<p>7. Are there any comments to improve the instruction in this course?</p> <p>คำแนะนำเพิ่มเติมเพื่อปรับปรุงด้านการสอนในรายวิชานี้</p>				

APPENDIX L

Example of Students' Infographics of Content Knowledge Lesson



Which environment is the best for guppy fish breeding?

Introduction

? Because guppy fish are beauty and to get rid of mosquitoes.

Research Q.

1. How does the guppy fish breed?
2. Is the selection of Family guppy fish affect to fish breeding?
3. Which environment makes guppy fish healthy?
4. Which environment is the best for guppy fish breeding?

Hypothesis → Environment with gravels and reefs gives the most reproduction rate of guppy fish.

Variable

- Independent variables: Environments
- Dependent variables: Number of guppy fish
- Control variables: 1. Place of basins, Fish's food, Male and female guppy fish

Result: In every bucket, the guppy fish is born on week 3

Bucket	Number of Guppy Fish
Bucket 1	45
Bucket 2	15
Bucket 3	22
Bucket 4	2

Materials

1. Basin
2. Guppy fish
3. Alga and tumbler
4. Fish's food
5. Gravel
6. Reef
7. Microbes water
8. Dish washing soap
9. 4 water buckets

Step

1. Put guppy fish in each bucket.
2. Feed the fish twice a day in the morning and the evening.
3. Observe the fish after 4 weeks.

Conclusion

The water plant environment is the best for guppy fish breeding because the gravel and reef environment gave less baby fish.

APPENDIX M

Example of Students' English Oral Presentation Script

Good afternoon, everybody. First of all, I'd like to thank you all for coming to my talk today. My name's Warahporn Thongmueangluang. And let me introduce my team: Anuchit Anukulanan and Napat Piewpai. We're representative of Streesamutprakan School.

The topic of our presentation is "Which Aquatic Plant Can Best treat Wastewater?"

Nowadays water sources in community encounter waste water problem. It seems that many households produce water contaminate by chemicals into water sources. As a result, aquatic animals can't live in this area and ecosystem is destroyed.

There are several ways to treat wastewater such as using chemicals to adjust waste water's pH which causes a high expense. So, aquatic plants are concerned as the best choice in order to treat wastewater and create the eco-friendly environment.

In this talk, we would like to deal with this question: "Which Aquatic Plant Can Best Treat Wastewater?"

Therefore, we hypothesized that the water hyacinth can best treat wastewater.

To test this hypothesis, we designed a series of experiments as follow:

First, we explored the wastewater source in the community and took wastewater sample to test pH value before experiment using pH Meter.

Then, the three aquatic plants including morning glory, water hyacinth and water lettuce were chosen to compare the effectiveness in wastewater treatment for a week.

Finally, we observed the pH value of the three basins and recorded an experiment.

So, what did we find? As you can see from this table, it shows ...

Before experiment, the pH value among three basins is at 6.6.

After experiment, the pH value of basin 1 is at 7.19. The water color is lighter and can see the container's bottom. The pH value of basin 2 is at 7.47. The water color is lighter, but can't see the container's bottom.

The pH value of basin 3 is at 7.22. The water color is lighter, but can't clearly see the bottom as in basin 1.

Taken together, these results point to two conclusions:

- 1) The pH value of water in basin 1 is the closest in natural pH value at 7.19; as the result, we can clearly see the bottom of container.
- 2) The water hyacinth adjusts the wastewater's pH at natural value.

Again, the wastewater is lighter in color which is highly equivalent to the quality water.

I'd like to take a minute to go over these two take-home points:

Water hyacinth can adjust the wastewater into natural pH which can be best used in the wastewater treatment system in community. We lastly want to stress that we should understand and value the conservation of water resources.

That just about wraps things up. I hope you have enjoyed my talk.

Thank you for your attention. I would be happy to try to answer any questions you might have.

APPENDIX N

Sample specification of core objectives in terms of content, language and learning strategy for topic 1 of Ecosystem theme unit.

week	Theme	Topics	Objectives			Final tasks
			content	Language	Learning strategy	
1	Eco-system	Project 1 Which is the most appropriate environment for propagating guppies?	<p><u>Lesson 1</u></p> <p>Students will be able to:</p> <p>1) to comprehend the background of the introduction section of science project 1 (L1 version)</p> <p>2) to identify the topics or problems that the writers of science project 1 provided in the introduction section</p> <p>3) to build up the vocabulary or terms relevant to the introduction of the science project 1 in English by studying the definition, synonyms, parts of speech and usage from sources such as dictionaries, encyclopedia, etc.</p> <p>4) to summarize the introduction section of science project 1 in English in the form of infographic (a type of graphic organizer)</p>	<p><i>Description: In the language lesson, students learn how to give the oral scientific presentation both verbal and non-verbal communication from the model VDO clips and orally present the science project 1.</i></p> <p>Students will be able to</p> <p>1) to analyze the language functions used in the introduction section from the model VDO clip or script and the good characteristics of the presenters</p> <p><i>(Expected language functions:</i> <i>a. Opening the talk</i> <i>b. Introducing objectives, hypothesis and research questions)</i></p> <p>2) to write the presentation script following the model languages analyzed</p> <p>3) to orally present the introduction section of the science project 1</p>	<p>1) develop study skills by researching the definition, synonyms, parts of speech and usage of vocabulary and scientific terms</p> <p>2) comprehensibly summarize and translate the science project 1 from L1 to English</p> <p>3) analyze the language functions and non-verbal communication in the oral scientific presentation model VDO clips</p> <p>4) enhance collaborative working skills</p>	Presenting the introduction section of science project 1

week	Theme	Topics	Objectives			Final tasks
			content	Language	Learning strategy	
1	(continued) Eco-system	(continued) Project 1 Which is the most appropriate environment for propagating guppies?	<p><u>Lesson 2</u></p> <p>Students will be able to:</p> <p>1) to comprehend The body section of science project 1 (L1 version)</p> <p>2) to identify the methods, main points and findings in the body section</p> <p>3) to build up the vocabulary or terms relevant to the body of the science project 1 in English by studying the definition, synonyms, parts of speech and usage from sources such as dictionaries, encyclopedia, etc.</p> <p>4) to summarize the body section of science project 1 in English in the form of infographic (a type of graphic organizer)</p>	<p>Students will be able to:</p> <p>1) to analyze the language functions used in the body section from the model VDO clip or script and the good characteristics of the presenters</p> <p><i>(Expected language functions:</i></p> <p>c. Talking about methods</p> <p>d. Presenting data in tables</p> <p>e. Talking about figures</p> <p>f. Emphasizing a point</p> <p>g. Reiterating</p> <p>h. Introducing slides and making transitions</p> <p>2) to write the presentation script following the model languages analyzed</p> <p>3) to orally present the body section of science project 1</p>	<p>1) develop study Skills by researching the definition, synonyms, parts of speech and usage of vocabulary and scientific terms</p> <p>2) comprehensibly summarize and translate the science project 1 from L1 to English</p> <p>3) analyze the language functions and non-verbal communication in the oral scientific presentation model VDO clips</p> <p>4) enhance collaborative working skills</p>	Presenting the body section of science project 1

week	Theme	Topics	Objectives			Final tasks
			content	Language	Learning strategy	
1	(continued) Eco-system	(continued) Project 1 Which is the most appropriate environment for propagating guppies?	<p><u>Lesson 3</u></p> <p>Students will be able to:</p> <p>1) to comprehend the conclusion section of science project 1 (L1 version)</p> <p>2) to identify the take-home messages and sense of responsibility to help community preserve the natural equilibrium in the conclusion section</p> <p>3) to build up the vocabulary or terms relevant to the conclusion section of the science project 1 in English by studying the definition, synonyms, parts of speech and usage from sources such as dictionaries, encyclopedia, etc.</p> <p>4) to summarize the conclusion section of science project 1 in English in the form of infographic (a type of graphic organizer)</p>	<p>Students will be able to:</p> <p>1) to analyze the language functions used in the conclusion section from the model VDO clip or script and the good characteristics of the presenters</p> <p><i>(Expected language functions:</i></p> <p>i. Concluding the talk</p> <p>2) to write the presentation script following the model languages analyzed</p> <p>3) to orally present the conclusion section of science project 1</p>	<p>1) develop study skills by researching the definition, synonyms, parts of speech and usage of vocabulary and scientific terms</p> <p>2) comprehensibly summarize and translate the science project 1 from L1 to English</p> <p>3) analyze the language functions and non-verbal communication in the oral scientific presentation model VDO clips</p> <p>4) enhance collaborative working skills</p>	Presenting the conclusion section of science project 1

APPENDIX O

List of Experts

Experts

1. Mrs. Nonglack Pangroean
Nakhon Sawan School
(Language for Communication expert)
2. Ms. Somruethai Kongngam
Streemutprakan School
(Content expert)
3. Mr. Griffin Patterson
Streemutprakan School
(Content and Language expert)



VITA

Mr. Thanyawit Wuthisawangwong was born on 11 May 1990 in Bangkok, Thailand and lived in Samutprakan Province. He graduated with a Bachelor's Degree in Education majoring in English (first class honor). In 2013, he started working as an English teacher at Streesmutprakan School and has been working since then. At the same year, he continued his Master's degree in Teaching English as a Foreign Language (International Program), Faculty of Education, Chulalongkorn University. His particular interest is exploring the methods in English language teaching to develop Thai students' English oral presentation skills in a variety of subject matters to get ready for international competition.

