

Effects of Content and Language Integrated Learning (CLIL) Training Program on Thai Pre-Service Teachers' Knowledge of CLIL Approach, CLIL Material Design, and CLIL Teaching

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ABSTRACT

The purpose of this study is to explore the effects of the Content and Language Integrated Learning (CLIL) training program on Thai pre-service teachers' knowledge of CLIL approach, CLIL material design and CLIL teaching and their opinions toward the training program. A mix-method with a quasi-experimental study was employed in this research. The sample consisted of 14 pre-service Social Studies teachers from a university in Bangkok, Thailand. Data collection tools of the research included an achievement test, a questionnaire and an interview. A non-parametric statistical hypothesis test was used to assess quantitative data. Results revealed that the pre-service teachers' knowledge of CLIL approach, CLIL material design and CLIL teaching improved with a statistically significant difference. The results also revealed that the pre-service teachers had favorable opinions toward the training program when it comes to training program, learning experiences, CLIL material design, and CLIL teaching. It was concluded that the CLIL training program could have a favorable effect on pre-service teachers. As a result, it was recommended that more CLIL programs be developed and provided to pre-service teachers.

Key words: Content and Language Integrated Learning, Training program, Pre-service teacher

INTRODUCTION

Since the spread of English worldwide, it has thus become both a global language and a lingua franca for people around the world whose mother tongue is something other than English (Kirkpatrick, 2010). As a result, English is used in a variety of domains such as international relations, politics, business, technology, entertainment and education. Indeed, English is taught as foreign language at all educational levels in Thailand. Nowadays, Thai students are required studying English in compulsory and elective courses for 12 years. However, even though it is compulsory for Thai students to study English for 12 years, they still have an insufficient knowledge of the English language (Noom-ura, 2013). It was asserted in 2022 report by the Education First English Proficiency Index that Thailand had an extremely low level of English proficiency, ranked 97th out of a total of 111 countries (Education First, 2022). Therefore, the improvement of language teaching and learning is an important policy, and extending the English Program (EP) and mini-EP in all areas of education should be a priority. Thus, the Ministry of Education made the decision to convert content classrooms into English-integrated classrooms, and the English Program has since gained popularity in Thai society as a result. Moreover, content teachers have become teachers

who use English to teach their courses because of this widespread recognition.

There was an official strategy for promoting the delivery of content subjects by using English in communication, and instruction. The strategy has been suggested to improve the effectiveness of Contents and Language Integrated Learning (CLIL) in teaching as well as learning activities within school and to boost the English proficiency levels of Thai students (Kewara, 2016). CLIL is one method for fomenting awareness of the role of literacy across the curriculum (Lorenzo et al., 2011). Foreign language literacy can be developed in CLIL context where English is taught focusing on real communication that can enhance the learning, thinking and academic skills of students. Therefore, reading comprehension, which includes the ability to decipher meaning and locate information in written texts, as well as the ability to retain that information and connect it to prior knowledge, are essential language skills for teachers and students to teach and study practically any subject in English.

According to research, CLIL teachers do not have the confidence needed to teach in English due to insufficient language skills as part of their role in implementing this program (Lorenzo et al., 2010). Since they know that teaching methods differ from what they have been taught and practiced, CLIL teachers are not in a position to conduct classes

(Pavón, 2013). Thus, these CLIL teachers have failed to meet the objective of a policy change because they lack comprehension of the principle of content and language integration (Fernández & Halbach, 2011). This implies that sufficient CLIL teacher training is vitally required.

However, big challenge to implementing CLIL into the class is non-native English speaking teachers and learners who have low English proficiency (Charunsri, 2019). Further, there has been a lack of official pre-service training programs about CLIL, and an official program for professional development that is concerned with changing from regular classes to CLIL based classes is lacking as well (Kewara & Prabjandee, 2018). Thus, there is a great need for a curriculum that teaches pre-service teachers the principals of CLIL, how they can develop materials relevant in the Thai context of education that have the correct language and content for learners and their culture, and how they can use CLIL effectively in their teaching. All knowledge can be utilized and practice finally.

Within the aforementioned challenge context, the pre-service teachers were given the knowledge from the CLIL training program on the aspects of CLIL approach, CLIL material design and CLIL teaching in this study. The research findings might be useful to pre-service EFL teachers, in-service teachers, teacher educators and course training developers. Additionally, it can be applied when developing courses and programs for teacher professional development.

The objectives of this study were twofold:

1. To investigate the effects of CLIL training program on the knowledge of the CLIL approach, CLIL material design and CLIL teaching.
2. To examine the opinion of pre-service teachers towards CLIL training program.

The following were the research questions:

1. What are the effects of the CLIL training program on the knowledge of CLIL approach, CLIL material design and CLIL teaching?
2. What are the opinions of pre-service teachers toward the CLIL training program?

LITERATURE REVIEW

Content and Language Integrated Learning (CLIL)

CLIL is a dual-focused academic approach in which both language and content are acquired and instructed using another language. It also has a connection with setting, culture, and contextualized methodologies, as well as studying based on related methodologies (Coyle et al., 2010). In addition, CLIL has gained a widely acceptance around the world as it allows learners to improve their language literacy. Moreover, they also have a proclivity for expressing ideas on the subject matter fluently. CLIL, unlike a communicative learning, provides authenticity based on second language acquisition theories. Furthermore, it meets the demands of learners because English is required for learning other topics. For example, in order to learn sciences, English is a required to learn the lesson. The lack of relevant language skills being taught such

as grammar, and CLIL may affect learner motivation. CLIL also provides a natural environment for acquiring languages, learning subject matter, improving cognitive skills, cultural understanding, and promoting pupils' creativity. The use of CLIL in language training can meet the demands of learners (Harrop, 2012; Coyle et al., 2010).

4Cs Framework of CLIL

CLIL's framework consists of content, communication, cognition, and culture. First, the content is referred to as the subject. The subject matter theme or subject lesson is the content element (Coyle et al., 2010). It is the advancement of knowledge and abilities in the subject field. Second, language acquisition and application are referred to as communication. It is communication in the various contexts; for example, when learning most subjects, learners are encouraged to use English and the four language skills related to it: listening, speaking, reading and writing. Likewise, Cognition refers to the process of thinking and learning; it is the engagement with related cognitive domain. Finally, culture fosters global citizenship and intercultural and self-awareness; it tends to increase intercultural knowledge. Culture provides learners with numerous things, and as a result, they achieve uniqueness and self-awareness. Additionally, learners get the opportunity to learn about other cultures and all aspects of those cultures like religion and political issues through interaction and communication (Coyle, 2008). Teachers should emphasize the importance of interaction in the classroom whereas contributing learning since the CLIL classroom can be actively supported in this way. Figure 1 presents Coyle et al.'s (2010) framework.

The Language Triptych

The Language Triptych is a classification of three forms of language use in CLIL lessons. The Language Triptych consists of the languages of learning, for learning, and through learning. It is a concept that bridges the gap between content and language (Coyle et al., 2010). The language of learning is the language required by learners to comprehend the subject matter concepts and knowledge. Learners want

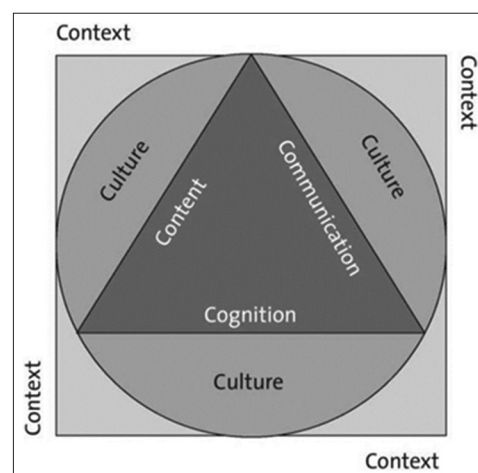


Figure 1. CLIL framework (Coyle et al., 2010)

specialized language (for example, the language of cooking, the language of sciences, and the language of social studies). Furthermore, a language for learning is one that requests learners to interact in a foreign language context. When collaborating with classmates and teachers, students must be supported. This language covers the vocabulary used in the classroom, the instructions to complete the tasks in class such as presentation, discussion and negotiation. Language through learning is the language that emerges during the engagement, thinking, and questioning, as well as classroom activities. Language through learning is unplanned and cannot be foreseen in advance.

Teacher Professional Development

Professional development for teachers is an ongoing process of reflection, learning, and developing action that leads to improved teaching practices that have a beneficial impact on student learning. Several research studies have shown the critical role that teachers play in ensuring learner outcomes (Creemers & Kyriakides, 2013; Hattie 2012). As a result, by enhancing the practices of instructors through effective professional development opportunities, learner achievement will improve as well. Moreover, professional development programs can increase teacher motivation by giving them understanding of abilities over their professional development which promotes intrinsic motivation in teachers. In addition, professional development programs serve schools by facilitating the distribution of best practice pedagogies for sector-wide reform.

METHODOLOGY

Study Design

This research was conducted by employing a quantitative and qualitative research method together that was the mixed method (Creswell et al., 2003). The quantitative part was to investigate the impact of the CLIL training program on pre-service teachers' knowledge of CLIL approach, CLIL material design and CLIL teaching. The achievement test was used in the quasi-experimental study with the control group design. The questionnaire was used to examine the pre-service teachers' opinion toward the training program. During the qualitative part, interviews were carried out to determine the opinions of pre-service teachers toward the training program.

Participants

To ensure all participants have certain characteristics pertinent to this study, purposive sampling was used for selecting the subjects. The samples were the fifth-year students from Social Studies Education who have studied the content of Social Studies and the courses related to being content teacher for 4 years. Moreover, they attended general English courses of the university, but they never learn about CLIL approach before. They took the English Proficiency Test, which is given to all final-year students in all programs by

the university and got the score at B1 or above. This test is based on Common European Framework of Reference for Languages (CEFR). According to Banegas (2015), CLIL is usually aimed at B1 learners. This indicates that CLIL is effective with people who already know some English. CLIL is a dual-focused educational approach where the learning and teaching of content and language is carried out by additional language, so the knowledge of content and language proficiency of samples should be taken into consideration.

After the consent forms were distributed to pre-service teachers with an English Proficiency Test score of B1 or higher, 14 pre-service teachers volunteered to participate in the study. Table 1 displays the demographic information of the study's participants. Of 14 participants, 5 were male (35.70%) and 9 were female (64.30%). Half of the participants (50.0%) were 20 years old while the rest were 21 (42.85%) and 22 years old (7.10%). In terms of the English proficiency test score, half of the participants (50.0%) obtained the B2 level, while 14.30% were at the B1 level and 35.70% were at the C1 level.

Data Collection

The achievement test was performed both before and after training to investigate the effectiveness of the CLIL training program. Moreover, the questionnaire was utilized to conduct the investigation on the opinion of the pre-service teachers after attending the training program. Interviews were also carried out and used as a data collection tool.

Achievement test

Prior to the training phase, a pretest was distributed to the participants. The test aimed to investigate whether or not the pre-service teachers became more proficient in their knowledge of CLIL approach, CLIL material design, and CLIL teaching, all of which are essential components of the training program. The test was also used as the posttest to investigate the differences in knowledge before and after training. After the training, a posttest (which was the same

Table 1. Demographic information and english proficiency test score of the participants

Demographic Information	Number	Percentage
Gender		
Male	5	35.70
Female	9	64.30
Age (years)		
20	7	50.00
21	6	42.85
22	1	7.10
English proficiency test score		
B1	2	14.30
B2	7	50.00
C1	5	35.70
Total	14	100.00

as the pretest) was used again to compare the difference. The multiple-choice format and short answer were chosen for the test because they could be used to assess a variety of objectives and be customized to different levels of learning outcomes (Burton et al, 1991). The achievement test consisted of 50 items with total 50 scores. The questions were covered knowledge of CLIL approach, CLIL material design, and CLIL teaching. For example, the pre-service teachers were asked about the fundamental CLIL principles, framework, CLIL materials, lesson planning, classroom language and how to apply CLIL into classroom. The item objective congruence (IOC) index was used to validate the content validity by three experts in the fields of Education, English, and Social Studies.

Questionnaire

The questionnaire was organized into three sections which were demographic information of the participant, the opinion of participants toward the CLIL training program and suggestions or additional comments. For the first part, the participants were asked their demographic information. The second part asked the pre-service teachers about their opinions toward the CLIL training program. It consisted of 26 items which were mainly categorized into four dimensions: components of training program, learning experience, CLIL materials design, and CLIL teaching. It employed a 5-point Likert scale to measure agreement levels of the pre-service teachers. The scale ranged from 5 “Strongly Agree” to 1 “Strongly Disagree”. The third part was provided so that the participants could add suggestions or comments. The questionnaire was adapted from Chansri and Wasanasomsithi (2016) and aimed to examine the pre-service teachers’ opinion of the CLIL training program. The questionnaire items were validated with the index of item objective congruence (IOC) by the three experts in the fields of Education, English, and Social Studies. In addition, the Cronbach Alpha reliability coefficient of the scale was found to be 0.86.

Interview

The pre-service teachers were interviewed individually utilizing a semi-structured interview with six prepared questions to gain in-depth data that supported their opinions about the CLIL training program. The individual interview took about 20-30 minutes.

Intervention (training program)

The purpose of the training phase was to introduce pre-service teachers to the fundamental principles of CLIL approach, CLIL material design and CLIL teaching. A needs analysis was carried out in order to comprehend the current needs, teaching methods, interest and expectations of pre-service teachers to develop a training program. There were 3 modules to cover the essential aspects as shown in Table 2.

The lesson plan of each module was not used as a research tool, but it was used as material for training the pre-service teachers. However, three professionals in the

fields of Education, English, and Social Studies validated the lesson plans in terms of content validity. The lessons were reconsidered and reconstructed according to the experts’ suggestions. After reconstruction, the module lessons were used in this study.

Research Procedures

The training program was 26 hours. It was separated into days, and the pre-service teachers attended the training on the weekends. First of all, the participants took the pretest at the beginning of the training. Then, they went by the three modules of training program onsite at the university. The post-test was distributed to the pre-service teachers at the end of the training. Next, the questionnaire was distributed to the participants, and sit for an interview about their opinions toward the CLIL training program. Afterward, there was an analysis of the data.

Data Analysis

In the quantitative part of this research, the pre-service teachers’ correct answers were coded as 1 and the incorrect answers as 0 in the achievement test, which was, again, used as a pretest and a post-test. To compare the results of the exams taken before and after the training, the Wilcoxon Signed Ranks Test was used due to the small size of the sample (14 is the number of pre-service teachers that participated in this study). Furthermore, the data from the questionnaire was analyzed by the descriptive statistics, and interview responses were analyzed by content analysis.

FINDINGS AND DISCUSSION

Research Question1: What are the Effects of CLIL Training Program on the Knowledge of the CLIL Approach, CLIL Material Design and CLIL Teaching?

The findings of the achievement test given at the end of the training program regarding the pretest and post-test scores of the pre-service teachers are presented in Table 3. See Appendix A for the pretest and post-test scores of the teachers.

Table 3 shows that the mean rank was 7.50 that was in the positive rank, and there was no negative rank. This result clearly indicated that the pre-service teachers’ mean score of post-test was higher than the mean score of pretest.

Table 4 displays the findings of the CLIL training program’s effectiveness based on the pretest and post-test, with a total score of 50. Table 4 reveals that 14 participants had a higher score in the post- test than in the pretest. The Asymptotic Significance test was 0.001, so this value was inferior to 0.05. In a nutshell, the Wilcoxon Signed Ranks Test revealed that the CLIL training program implemented with 14 pre-service teachers had a statistically significant profitable impact.

The descriptive statistics of pretest and post-test scores were also presented in Table 5.

Table 5 illustrates the descriptive statistics of tests scores before and after the training in terms of CLIL knowledge,

Table 2. Training session

Module	Duration	Content
1. CLIL Principles	6 hrs.	- CLIL theories and principles for teachers - The importance of CLIL - The 4 Cs framework - Roles of CLIL teachers
2. CLIL Classroom and Teaching	10 hrs.	- Essential features of a CLIL classroom - Language triptych and classroom language in English - Teaching methods and activities - Formative and summative assessments
3. CLIL Material and lesson plan designing	10 hrs.	- CLIL lesson planning - Characteristics of CLIL materials - Materials design

Table 3. Pretest and post-test results

Wilcoxon Signed Ranks Test				
		Ranks		
		N	M Rank	Sum of Ranks
Post-test - Pretest	Negative Ranks	0 ^a	0.00	0.00
	Positive Ranks	14 ^b	7.50	105.00
	Ties	0 ^c		
	Total	14		

a. Post-test < Pretest

b. Post-test > Pretest

c. Post-test = Pretest

Table 4. Wilcoxon signed ranks test

Wilcoxon Signed Ranks Test Test Statistics ^a	
Posttest - Pretest	
Z	-3.321 ^b
Asymp. Sig. (2-tailed)	0.001

Significance level (p): < 0.05 – significant

Table 5. Pretest and post-test mean scores

Domain	n	Pretest		Post-test	
		M	SD	M	SD
CILL approach	14	7.36	1.82	12.14	1.75
CILL material design	14	6.64	1.78	10.07	1.33
CILL teaching	14	7.93	1.27	12.93	2.13
Total	14	23.50	2.65	35.50	3.01

CLIL materials design and CLIL teaching. The scores on the tests before and after the training were provided in the table. As can be seen in Table 5, the pretest mean score of knowledge of CLIL approach is 7.36 ($SD = 1.82$) from the total score 50. The post-test mean score is 12.14 ($SD = 1.75$). The pretest mean score of knowledge of CILL material design is 6.64 ($SD = 1.78$), and the post-test mean score is 10.07 ($SD = 1.33$). The pretest mean score of knowledge of CILL teaching is 7.93 ($SD = 1.27$), and the post-test mean score is 12.93 ($SD = 2.13$).

Still, when looking into details, the pre-service teachers' scores on CILL material design appeared to be slightly lower

($M = 6.64$) than the other two parts during the pretest and post-test phase. This was to be expected because the principles and specific characteristics of CLIL materials that focus on both content and language were unfamiliar and confusing to pre-service teachers. Hence, the pre-service teachers who only focus on subject content may be relatively unfamiliar to CLIL materials design. However, the mean score significantly improved in the posttest result.

Moreover, the overall pretest mean score is 23.50 ($SD = 2.65$), and the mean score of post-test is 35.50 ($SD = 3.01$). The post-test mean score is higher than the pretest mean score with the mean difference of 12.0. It is possible that the overall mean score was not very high could be attributed to the pre-service teachers' English skills since the pretest and post-tests were all in English. This could present a challenge for some pre-service teachers. Consequently, this clearly indicates that the pre-service teachers have improved their knowledge of CLIL approach, CLIL material design and CLIL teaching after attending the training program.

The CLIL training program offered the knowledge of CLIL with verities of teaching methods, activities and practicing which supported the pre-service teachers to gain not only English, but various concepts of CLIL. Heine (2010) confirmed that the combination of content exploration and language utilization can be an effective way to promote subject knowledge and reduce cognitive overload, thus enhancing learning motivation. Apart from that, Kolb (1984) pointed out that experiential learning enhances the transformation of experience leads to the creation of knowledge. Knowledge is an outcome of understanding and transforming experience.

The results of this research complemented those of Diezmas (2016) and Czura and Kolodunska (2015), their studies demonstrated that there was a positive impact of Content and Language Integrated Learning (CLIL) on students' language abilities. These studies indicated that CLIL students benefit from increased exposure to the target language, resulting in improved oral production, as well as enhanced writing and reading skills. Consistent with a study was conducted by Coral and Lleixa (2017), the results showed that the participants implemented the 4Cs theoretical concept, which involved designing CLIL tasks aligned with the competence-based curriculum and including the relevant language scaffolding. As a result, the teachers were able to improve the quality of their own teaching practices after training.

Research Question 2: What are the Opinions of Pre-service Teachers Toward the CLIL Training Program?

In this part, the findings from the questionnaire taken from the 5-point Likert scale used by the pre-service teachers presented the mean score and standard deviation (*SD*) of the answers for every question. The 5-point Likert scale results of the questionnaire included strongly agree, agree, uncertain, disagree, and strongly disagree. The questionnaire items were statistically analyzed and interpreted by using the standardize criteria as follows:

4.51 – 5.00	strongly agree
3.51 – 4.50	agree
2.51 – 3.50	uncertain
1.51 – 2.50	disagree
1.00 – 1.50	strongly disagree

The opinions of the pre-service teachers after attending the CLIL training program were presented as follows:

Table 6 reveals that the participants strongly agreed that the content matched the objectives of Module 1 ($M = 4.64$; $SD = 0.50$) and the objectives of Module 1 were suitable ($M = 4.57$; $SD = 0.51$). Moreover, they agreed that the content matched the objectives of Module 2 ($M = 4.50$; $SD = 0.52$), the content matched the objectives of Module 3 ($M = 4.50$; $SD = 0.50$) and the content matched the objectives of Module 4 ($M = 4.50$; $SD = 0.52$). They also agreed that the objectives of Module 2 were suitable ($M = 4.43$; $SD = 0.51$), the objective of Module 4 was suitable ($M = 4.43$; $SD = 0.51$), the objectives of Module 3 were suitable ($M = 4.36$; $SD = 0.50$), each module was suitable for the time allocated ($M = 4.21$; $SD = 0.43$) and the training program met their needs ($M = 4.07$; $SD = 0.27$).

Regarding the components of the training program, the mean score of item number 1 was about the objectives of Module 1 being suitable ($M = 4.57$) and number 5 that was about the content matching the objectives of Module 1 ($M = 4.64$), both of which were slightly higher than the others. It may suggest that the pre-service teachers have positive opinion toward Module 1, namely CLIL principles that consisted of CLIL theories and principles for teachers, the importance of CLIL, The 4 Cs framework, of CLIL teachers.

The content of Module 1 was fundamental knowledge for CLIL beginners.

Table 7 illustrates that the pre-service teachers strongly agreed with the statement there was a variety of teaching methods and activities in the training program ($M = 4.64$; $SD = 0.50$), and they had more knowledge about the CLIL approach ($M = 4.57$; $SD = 0.51$). Furthermore, they agreed that the instructor was well-prepared in terms of the content, teaching methods, and instructional materials ($M = 4.21$; $SD = 0.43$). Likewise, the content of subject was not a difficulty for them ($M = 4.21$; $SD = 0.43$), and they could identify the appropriate content to be taught in their CLIL lesson ($M = 4.07$; $SD = 0.27$). Apart from that, it was found that the pre-service teachers agreed that they could design the lesson base on the framework of CLIL ($M = 4.00$; $SD = 0.50$), they could use appropriate English language in their CLIL classes ($M = 3.86$; $SD = 0.53$), and the English language is not a difficulty for them ($M = 3.64$; $SD = 0.50$).

Regarding the learning experiences from the training program, the mean score of item number 11, which was about there being a variety of teaching methods and activities ($M = 4.64$), was clearly higher than the others. These pre-service teachers had a positive opinion about the teaching methods and activities in the training period. This was expected because the pre-service teachers could involve themselves in the training. There was not only the lecture-based learning, but also group, individual, active and experiential learning. This is consistent with experiential learning is viewed as a progressive method of instruction since it allows students to gain a more comprehensive understanding of lecture topics by practicing (Williams et al., 2016). Teaching methods are ways that educators can employ engagement among the students and get them interested in the subject while also facilitating the teaching process. Moreover, the pre-service teachers were active in taking part in different activities such as snowballing, brainstorming, discussions and presentations. Learning through activity should be considered to increase creative and critical thinking. This technique, however, will fail if learners are not adequately motivated to realize their maximum potential (Anwer, 2019).

Table 6. The pre-service teachers' opinion toward the components of training program

Items	Agreement Level (n=14)		
	<i>M</i>	<i>SD</i>	Interpretation
1. The objectives of module 1 are suitable.	4.57	0.51	strongly agree
2. The objectives of module 2 are suitable.	4.43	0.51	agree
3. The objectives of module 3 are suitable.	4.36	0.50	agree
4. The objective of module 4 is suitable	4.43	0.51	agree
5. The content matches the objectives of module 1.	4.64	0.50	strongly agree
6. The content matches the objectives of module 2.	4.50	0.52	agree
7. The content matches the objectives of module 3	4.50	0.52	agree
8. The content matches the objectives of module 4.	4.50	0.52	agree
9. Each module is suitable for the time allocated.	4.21	0.43	agree
10. The training program meets my needs.	4.07	0.27	agree
Total	4.42	0.32	agree

According to Table 8, as for CLIL material design, the participants agreed that CLIL materials motivate students to learn in class ($M = 4.36$; $SD = 0.50$), and CLIL materials are suited for the students' context ($M = 4.21$; $SD = 0.43$). In addition, they agreed that it takes more time to prepare a CLIL materials and lesson plan ($M = 4.14$; $SD = 0.36$), and they can design CLIL materials for the CLIL class ($M = 3.69$; $SD = 0.48$).

Regarding the CLIL Material Design, the mean score of item number 22 that was about CLIL materials motivate students to learn in class ($M = 4.64$) was slightly higher than the others. It may infer that the developed material that was used in the class was suitable within the students' context. When it comes to the CLIL classroom, the main characteristics of CLIL materials which include multiple functions, authenticity, enhancing active learning and scaffolding should be considered (Mehisto, 2008). Materials are critical in the learning process since they help to motivate students to learn.

Table 9 indicates that the participants strongly agreed that, the training program was beneficial overall for the pre-service teachers ($M = 4.71$; $SD = 0.47$), and the use of CLIL in content class could be advantageous for their students ($M = 4.21$; $SD = 0.43$). Apart from that, Table 9 revealed that the pre-service teachers agreed that subject matter teaching through English has been positive experience ($M = 4.14$; $SD = 0.36$), and they will implement CLIL in their class when they are an in-service teacher ($M = 3.79$; $SD = 0.58$).

Regarding the CLIL teaching implementation, the mean score of item number 26 which was about the training program being beneficial overall for the pre-service teachers ($M = 4.71$) was clearly higher than the others. Therefore, it may suggest that the pre-service teachers could be equipped

with various concepts, principles, methods and content to design CLIL lesson, plan, develop materials and deliver lessons into class with the CLIL training program.

In order to gather more insight and depth of information, a semi-structured interview was also done. According to the data, pre-service teachers were satisfied with the training in terms of the simple to complex sequencing. CLIL is new for the pre-service teachers, so the simple to complex sequencing of the training module supports their learning as evident in the following two excerpts:

To be honest, I had never heard about CLIL before. This was my first experience using the CLIL approach. I gained a lot of knowledge about CLIL. It was not easy for me, but I could get the points from the training because the training started with the basic and moved to the complex content. Moreover, I could practice through the activities. (Pre-Service Teacher 3)

I had no idea about CLIL, but I can imagine what CLIL is after learning the module 1. Then, in the next module, I progressed to the more advanced. Finally the most exciting for me is teaching. (Pre-Service Teacher 4)

The aforementioned excerpts indicated that the training program has contributed to participants' participation, which is represented in the following viewpoint.

I enjoyed this training because it provided me the opportunity that I can use English in terms of writing, speaking, listening and speaking. Moreover, I had an idea to apply English with my content teaching. (Pre-Service Teacher 10)

The pre-service teachers were generally pleased with the training program. They liked the teaching style and

Table 7. The pre-service teachers' opinion toward the learning experiences

Items	Agreement Level (n=14)		
	M	SD	Interpretation
11. There is a variety of teaching method and activities.	4.64	0.50	strongly agree
12. The instructor is well-prepared in term of the content, the teaching methods, and the instructional materials.	4.21	0.43	agree
13. I can identify the appropriate content to be taught in my CLIL lesson.	4.07	0.27	agree
14. I can use appropriate English language in my CLIL class.	3.86	0.53	agree
15. I have more knowledge about CLIL approach.	4.57	0.51	strongly agree
16. I can design the lesson base on the framework of CLIL.	4.00	0.50	agree
17. The content of subject is not a difficulty for me.	4.21	0.43	agree
18. The English language is not a difficulty for me.	3.64	0.50	agree
Total	4.15	0.24	agree

Table 8. The pre-service teachers' opinion toward the CLIL material design

Items	Agreement Level (n=14)		
	M	SD	Interpretation
19. I can design CLIL materials for CLIL class.	3.69	0.48	agree
20. It takes more time to prepare a CLIL materials and lesson plan.	4.14	0.36	agree
21. CLIL materials are suited for the students' context.	4.21	0.43	agree
22. CLIL materials motivate students to learn in class.	4.36	0.50	agree
Total	4.10	0.44	agree

Table 9. The Pre-Service Teachers' Opinion Toward the CLIL Teaching Implementation

Items	Agreement Level (n=14)		
	M	SD	Interpretation
23. The use of CLIL in content class could be advantageous for my students.	4.21	0.43	agree
24. Subject matter teaching through English has been positive experience.	4.14	0.36	agree
25. I will implement CLIL in my class when I am an in-service teacher.	3.79	0.58	agree
26. Overall, the training program is beneficial for the pre-service teachers.	4.71	0.47	strongly agree
Total	4.00	0.46	agree

activities. Furthermore, they agreed that pair work and group work benefit their individual work. One student stated that they preferred class discussions because they could learn from classmates.

Group discussion and teacher explanation encouraged me to get what I was expected to do. (Pre-Service Teacher 1)

However, while the majority of pre-service teachers believed that the training program was appropriate for them, some of them may find the content differently as evident in the following excerpt:

I am not good at English, and I thought I cannot teach in English. I could not express the lesson in English and do not know how to use English in the classroom at first. However, I learned from this training, and I was fine with my progression level. (Pre-Service Teacher 7)

All in all, the findings suggested an effective CLIL training program increased pre-service teachers' CLIL knowledge, CLIL materials design and CLIL teaching competency. They also found this training program has broadened their worldviews.

CONCLUSION AND RECOMMENDATIONS

The CLIL training program had a beneficial impact on pre-service subject teachers. The training program provided opportunity to comprehend the CLIL approach, CLIL material design and CLIL teaching through a combination of CLIL theoretical frameworks, activities and practice. The achievement tests demonstrated a statistically significant difference between the results of the pretest and the post-test, thus indicating the pre-service subject teachers' improvement in knowledge of CLIL approach, CLIL material design and CLIL teaching. The results of the study were consistent with Bundy and Porc (2020). They investigated how four primary school teachers in Sweden perceived the use of CLIL and identify the fundamental factors that contribute to its success, and they found that teachers had good outcomes, including improved oral communication and cognitive skills, as well as increased intercultural awareness. Similarly, Modehiran (2016) investigated the English teaching training program with ASEAN content. The findings revealed that in-service teachers participating in the training program had significantly different knowledge of the CLIL method in the pre- and post-test.

The findings from the questionnaire indicated that most of them found the experience positive and their understanding

of CLIL increased. Likewise, Jitpaiboon and Sripicharn (2022) examine the opinions of participants toward collaborative CLIL teaching, and found that participants' motivation and engagement were considerably improved. They appreciated the authentic content and were pleased with the course. As can be seen, the use of CLIL in many circumstances shows the approach's success in foreign language teaching and learning.

The current study yielded several recommendations. Firstly, the further research may be conducted with the bigger sample size, and with pre-service teachers in other fields of study. The study's results may not be generalizable, but they can still be used as a guideline for researchers and educators working in related fields. Secondly, the further research might be undertaken by incorporating additional interesting components of the training, such as technological literacy, which is a 21st century skills.

The teacher who is inexperienced with CLIL methodology has difficulty applying it effectively. As a result, future in-service CLIL teachers should be aware of the significance of the CLIL approach. Indeed, preparation and training can assist both pre-service and in-service teachers in successfully planning and carrying out their classes. Using an appropriate CLIL technique and modifying it to the student's context could be a fantastic combination that provides students with authentic and successful learning.

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APPENDIX

Appendix A. The Pretest and Post-test scores of 14 pre-service teachers

Pre-service teachers	Total score=50		Difference
	Pretest	Post-test	
1	25	36	11
2	25	38	13
3	25	35	10
4	24	38	14
5	27	41	14
6	28	39	11
7	19	32	13
8	23	38	15
9	22	35	13
10	19	34	15
11	22	30	8
12	24	34	10
13	26	33	7
14	23	34	11
<i>Mean</i>	23.5	35.5	12