การใช้แนวคิดการบูรณาการเนื้อหาและภาษาร่วมกับการเรียนรู้โดยใช้โครงงานเป็นฐานเพื่อส่งเสริมผลสัมฤทธิ์ทางการอ่านภาษาอังกฤษของนักเรียนชั้นประถมศึกษาปีที่ 6

Integrating CLIL and Project-Based Learning to Enhance Sixth Graders' English Reading Achievement

พรรณผกา บุญเผย[1*] และประหยัด ภูมิโคกรักษ์[1]

Panpaka Boonphoie [1*] and Prayad Bhoomkhokrak[1]

บทคัดย่อ

　　　　การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาผลของการสอนภาษาอังกฤษตามแนวคิดการบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐานเพื่อส่งเสริมผลสัมฤทธิ์ทางการอ่านภาษาอังกฤษของนักเรียนชั้นประถมศึกษาปีที่ 6 2) เพื่อสำรวจความคิดเห็นของผู้เรียนที่มีต่อการเรียนโดยการบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐานเพื่อส่งเสริมผลสัมฤทธิ์ทางการอ่านภาษาอังกฤษ กลุ่มตัวอย่างคือ นักเรียนชั้นประถมศึกษาปีที่ 6 จำนวน 21 คน จากโรงเรียนประชาสามัคคี ศูนย์พัฒนาคุณภาพการศึกษาบัวบูรพา สำนักงานเขตพื้นที่การศึกษาประถมศึกษานครราชสีมา เขต 1 โดยใช้วิธีการสุ่มแบบแบ่งกลุ่ม เครื่องมือที่ใช้ในการวิจัยได้แก่ แผนการสอนแบบการบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐาน แบบทดสอบวัดผลสัมฤทธิ์การอ่านภาษาอังกฤษ และแบบสอบถามความคิดเห็นของผู้เรียนที่มีต่อการเรียนภาษาอังกฤษแบบการบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐาน สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติที่แบบไม่อิสระ (t - Test for Dependent) ผลการวิจัยพบว่า คะแนนเฉลี่ยผลสัมฤทธิ์ การอ่านภาษาอังกฤษของผู้เรียนหลังจากเรียนแบบบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐานสูงกว่าก่อนเรียนอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 และผู้เรียนมีความคิดเห็นที่ดีต่อการเรียนภาษาอังกฤษแบบบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐาน แสดงให้เห็นว่าการเรียนภาษาอังกฤษแบบบูรณาการเนื้อหาและภาษาโดยใช้โครงงานเป็นฐาน สามารถส่งเสริมผลสัมฤทธิ์การอ่านภาษาอังกฤษของผู้เรียนได้

คำสำคัญ: การบูรณาการเนื้อหาและภาษาร่วมกับการเรียนรู้โดยใช้โครงงานเป็นฐาน ผลสัมฤทธิ์การอ่านภาษาอังกฤษ

---

[1] คณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยราชภัฏนครราชสีมา, Faculty of Humanities and Social Science Nakhon Ratchasima Rajabhat University

Corresponding author e-mail: panpaka.bnp@gmail.com

Abstract

This study aimed to: (1) evaluate the impact of integrating Content and Language Integrated Learning (CLIL) with Project-Based Learning (PBL) on the English reading proficiency of sixth-grade students, and (2) explore student perceptions regarding the effectiveness of these educational methodologies. The study involved 21 sixth-grade students from Prachasamakkee Primary School within the Buaburapa Group, overseen by the Nakhonratchasima Primary Educational Service Area Office, Region 1, who were selected through cluster random sampling. Instruments employed in the study included CLIL and PBL-designed lesson plans, an English reading achievement test, and a questionnaire assessing student opinions. The data were analyzed using mean ($\bar{x}$), standard deviations (S.D.), and t-test for a dependent sample. The findings indicated a significant increase in the post-test reading achievement scores of the students compared to the pre-test scores ($p < .05$). Student feedback was predominantly positive towards the combined CLIL and PBL instructional strategies. The study concludes that the synergistic application of CLIL and PBL methodologies substantially improves English reading skills among learners.

Keywords: The Integrating Content and Language Integrated Learning (CLIL) with Project-Based Learning (PBL), English Reading Achievement

Introduction

In the 21st century, the role of English as the primary lingua franca in international discourse has solidified, serving as the main channel of communication among multilingual speakers across both local and global spectrums (Chen, 2012; Lai, 2014). Recognized for its key role in sectors including politics, business, and education, English forms a foundation in the international level. Primary education plays an important role in providing children with the skills necessary to succeed as adults, with language education being a crucial component for social inclusion, self-expression, and personal development, ultimately facilitating a wide array of practical purposes (UNESCO, 2012).

Despite its recognized importance, proficiency in English remains a challenge for many learners who struggle to read and speak with fluency and accuracy. Addressing the communication barriers faced by numerous students is imperative. Effective language acquisition is profoundly dependent on the communicative dynamics within the classroom; the discourse between students and teachers, as well as peer-to-peer interactions, is fundamental to contextualizing learning experiences and fostering active engagement (Domalewska, 2015). This issue is particularly addressed in rural schools, where student motivation to learn English is often lacking. The difficulties faced by these students include passive learning environments, challenges in understanding the language, feelings of shyness or anxiety, a tendency towards passivity due to limited language comprehension, and deficits in vocabulary, grammatical structure, and pronunciation.

According to Pang et al.'s (2003) study, promoting reading skills is considered a crucial approach to enhance students' motivation for learning the English language. This statement is based on the belief that reading goes beyond simply understanding texts, but rather serves as a way to equip learners with the necessary skills to effectively engage with the English-speaking environment. Proficiency in reading is considered a crucial academic goal, vital for expanding one's knowledge.

Moreover, Coyle et al. (2011) provide a comprehensive explanation of Project-Based Learning (PBL) as an educational approach that fully engages students in a deep exploration of essential knowledge and skills relevant to the modern era. Soparat et al. (2015) define PBL as a paradigm rooted in cognitive constructivism, with the goal of assisting students in developing complex mental models.

Content and Language Integrated Learning (CLIL) is a pedagogical approach that employs a foreign language as the medium of instruction for various school subjects. The objectives of CLIL are not confined to the enhancement of language proficiency; it also seeks to cultivate advanced cognitive abilities and foster intercultural understanding. This method is distinctive in its dual focus on both content delivery and language use, thereby enriching the language learning experience and diverging from traditional language teaching methodologies (Coyle et al., 2010). Anchored in the principles of constructivism, CLIL emphasizes content-driven instruction. In parallel, Project-Based Learning (PBL) echoes this constructivist foundation by challenging the passive reception of information, instead promoting knowledge acquisition through diverse, learner-centered experiences. The pedagogical consensus among numerous educators and scholars is that PBL encapsulates the essential principles of constructivist learning.

The combination of Project-Based Learning (PBL) and Content and Language Integrated Learning (CLIL) results in a pedagogically effective method that aligns with the constructivist theory of learning. Both methods aim to enhance intercultural communicative competence and improve language abilities within the context of foreign or second language instruction. These approaches, characterized by an emphasis on language development, cultural literacy, and practical content application, guide learners towards the attainment of competencies. Both strategies aim to enhance intercultural communicative competence and discreetly enhance language skills in the context of teaching a foreign or second language. These techniques, which prioritize language development, cultural literacy, and practical subject application, direct learners towards acquiring capabilities.

The concept of reciprocal enhancement suggests that PBL can be leveraged by focusing on the foundational elements of content knowledge, cognitive skills, effective communication, and cultural insights during the active phases of project-based learning. Similarly, the '4Cs' framework of CLIL—comprising Content, Cognition, Communication, and Culture—can be strengthened by the incorporation of project-based elements into the instructional process. It is posited that the theoretical frameworks of both CLIL and PBL should be carefully applied, taking into account the unique requisites of the teaching environment, curriculum design, student demographics, and educational objectives.

Considering the challenges outlined earlier, this study aimed to investigate the impact of employing the CLIL approach in conjunction with Project-Based Learning on enhancing English reading proficiency. It will also explore student perceptions of this combined instructional strategy. The premise of this research is that the integration of the '4Cs' framework of CLIL into language instruction, when paired with Project-Based Learning, may constitute an optimal methodology for improving English reading outcomes among primary learners.

Objectives of the Study
The objectives of the study are as follows:
1. To investigate the impact of the Content and Language Integrated Learning (CLIL) approach combined with Project-Based Learning (PBL) on the English reading proficiency of sixth-grade students.
2. To explore students' perceptions and attitudes regarding the acquisition of English through the integrated CLIL and PBL methodologies.

Literature Review
Content and Language Integrated Learning (CLIL)
Definition of CLIL
CLIL is defined as, "an approach to bilingual education in which both curriculum content, and English are taught together. It differs from simple English-medium education in that the learner is not necessarily expected to have the English proficiency required to cope with the subject before beginning study. Hence, it is a means of teaching curriculum subjects through the medium of a language still being learned, providing the necessary language support alongside the subject specialism. CLIL can also be regarded as a means of teaching English through study of specialist content," (Graddol, 2006). While Dalton-Puffer and Smit (2007) define CLIL as, "educational settings where a language other than the student's mother tongue is used as medium of instruction and using a language other than the L1 as a medium of instruction."

Content and Language Integrated Learning (CLIL) is characterized as a bilingual educational approach where curriculum content and English are simultaneously instructed. Distinct from standard English-medium education, CLIL does not presuppose prior proficiency in English for learners to engage with subject matter. This approach facilitates the teaching of academic subjects through the medium of English, which students are concurrently learning, thus integrating language support with subject specialization. CLIL is also perceived as a method for teaching English via the exploration of specialized content (Graddol, 2006). Dalton-Puffer and Smit (2007) further delineate CLIL as an educational setting in which a language, different from the students' first language, is utilized as the medium of instruction."

CLIL Framework
The CLIL methodology requires learners to not only use language correctly but also efficiently utilize it for the purpose of learning (Coyle et al., 2010). In order to properly comprehend the fundamental structure of the CLIL

approach, it is crucial to analyze its foundational framework, referred to as the 4Cs Framework. This framework is the fundamental basis of CLIL's instructional approach and is explained in Figure 1.
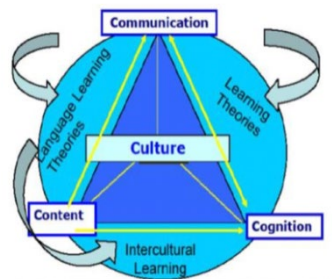

Figure 1 : The 4Cs Framework of CLIL Approach
Source : Coyle, 2011

Figure 1 illustrates the four interrelated components of the 4Cs Framework in the CLIL approach : Content, Communication, Cognition, and Culture (Coyle et al., 2010; Coyle, 2007; Coyle, 2011; Marsh, 2012; Mehisto et al., 2008). Firstly, content is central to the framework, emphasizing active knowledge construction by students. This encompasses a comprehensive understanding of concepts, procedures, and attitudes related to specific subjects such as Science, History, and Art, or themes like global citizenship. It focuses on engaging students in the learning process, allowing them to develop skills and knowledge through subject interaction. Secondly, cognition involves the development of new knowledge and skills through a second language. This process is guided by Bloom's Taxonomy (Anderson & Krathwohl, 2001), which categorizes thinking skills from Lower Order Thinking Skills (LOTS) like remembering and understanding to Higher Order Thinking Skills (HOTS) such as analyzing and creating. This progression challenges students cognitively and aids in the deeper internalization of knowledge.

The third component, communication, is another pivotal element in the 4Cs Framework. In the CLIL context, language must be clear and comprehensible to facilitate student engagement with the content and enable the reinterpretation and reconstruction of new knowledge. Coyle et al. (2010) propose a language triptych in CLIL, dividing the language learning process into three categories :

1. Language of Learning : The language necessary for acquiring new concepts and skills directly related to the content.

2. Language for Learning : Language skills needed for students to engage effectively with content and collaborate.

3. Language through Learning : The language students develop to enhance comprehension, applicable in diverse scenarios.

Finally, culture, as an integral part of the 4Cs Framework, intertwines with identity and promotes awareness of both 'self' and 'other,' fostering intercultural understanding (Coyle et al., 2010). In CLIL, interaction is fundamental, with cultural awareness serving as a cornerstone of the learning process.

Project - Based Learning :

Project - Based Learning (PBL) is suggested as one of the effective instructional tools which enhance both content knowledge and language skills that CLIL is the dual-focused approach in which a foreign language is used as a language of instruction and a language of learning content subject. In the present study integrated CLIL framework and PBL instruction to promote reading achievement.

Definition of Project-Based Learning (PBL)

Project-based learning (PBL) was first introduced in the early 1900s by David Samuel Snedden and has since been utilized in many academic fields and level of study. In second language education, PBL was established about two decades ago. This section describes its types, steps, assessment, benefits, and drawbacks. PBL had been widely defined by a number of experts in the field of education. Most definitions seem to reflect a similar view that engages students in accomplishing an outcome which involves problem solving through meaningful and authentic tasks. It promotes student-centeredness, learner autonomy, collaborative learning, critical thinking, and creativity. However,

the definition of PBL which seems to capture many important characteristics is given by Mergendoller et al. (2006), as described "A systemic teaching method that engages students in learning essential knowledge and life-enhancing skills through an extended, student-influenced inquiry process that is structured around complex, authentic questions and carefully designed products and tasks"

Theoretical Foundations for Project-Based Learning

It is believed that PBL is one of the language teaching pedagogies supported by the theory of social constructivism. It emphasizes the importance of learning through social interactions with other people. This instructional pedagogy involves other theories which are essential to 21st century learning, namely social constructivism, cooperative learning, collaborative learning, autonomy in language learning, and learner-centeredness.

Steps in developing a project

The present study considered adapting two frameworks by Stoller (2010) and Nekrasova-Becker (2012) because they were designed for use in reading instruction and culture learning in global communication. In her framework, Stoller (2010) proposed seven steps which were modified from her previous 10-step framework. She collapsed two steps in each cyclical step in which the teacher played an important role in scaffolding and helping students to compile information, analyze data, and present the data. The seven-step process can be explained as follows :

Step 1 : Agree on a theme for the project--the teacher and students agree on the theme for the project work.

Step 2 : Determine the final outcome--the teacher and the students determine the final outcome of the project.

Step 3 : Structure the project--the teacher and the students structure the project.

Step 4 : Information gathering cycle--the teacher prepares students for the language and strategy demands of information gathering.

Step 5 : Information compilation and analysis cycle-the teacher students for the language and strategy demands of compiling and analyzing information

Step 6 : Information reporting cycle--the teacher prepares students for the language demands of finalizing the project repeatedly until they can produce a written or spoken report.

Step 7 : Evaluate the project--the students' self-evaluation, peer evaluation through constructive feedback, and reflection are used as a crucial feature. The evaluation involves language, strategies, content, and experience gained during the project.

Project-Based Learning :

Project-Based Learning (PBL) has been widely accepted as an effective instructional tool that enhances both content knowledge and language skills. PBL complements the dual-focus approach of Content and Language Integrated Learning (CLIL), where a foreign language is used both as the language of instruction and for learning content subjects. This study integrates the CLIL framework with PBL instruction to bolster reading achievement.

Definition of Project-Based Learning (PBL)

First introduced in the early 1900s by David Samuel Snedden, Project-Based Learning (PBL) has been implemented across various academic fields and educational levels. In the area of second language education, PBL was established approximately two decades ago. This section discusses its types, steps, assessment, benefits, and drawbacks. PBL is broadly defined by numerous educational experts, with most definitions highlighting student engagement in problem-solving through meaningful and authentic tasks. It fosters student-centered learning, learner autonomy, collaborative learning, critical thinking, and creativity. PBL as defined by Mergendoller et al. (2006) is a method of teaching that involves students in a structured process of inquiry, centered around complex and authentic questions. This method aims to help students acquire essential knowledge and develop life-enhancing skills through the completion of carefully designed products and tasks.

Theoretical Foundations for Project-Based Learning

PBL is underpinned by the theory of social constructivism, emphasizing the significance of learning through social interactions. This pedagogical approach incorporates other theories crucial to 21st-century learning, including cooperative learning, collaborative learning, autonomy in language learning, and learner-centeredness.

Steps in Developing a Project

This study adapts frameworks by Stoller (2010) and Nekrasova-Becker (2012), tailored for reading instruction and cultural learning in global communication. Stoller (2010) revised her previous 10-step framework to a condensed seven-step process, emphasizing the teacher's role in scaffolding and assisting students in compiling, analyzing, and presenting information. The seven-step process is as follows:

1. Agree on a theme for the project : The teacher and students decide on the project theme.

2. Determine the final outcome : The teacher and students establish the project's final objectives.

3. Structure the project : The project is organized collaboratively.

4. Information gathering cycle : The teacher prepares students for the language and strategy requirements of information gathering.

5. Information compilation and analysis cycle : The teacher guides students through the language and strategy demands of compiling and analyzing information.

6. Information reporting cycle : The teacher aids students in meeting the language requirements for finalizing the project, culminating in a written or spoken report.

7. Evaluate the project : Evaluation includes student self-assessment, peer feedback, and reflective practices, focusing on language, strategies, content, and experiences gained.

Research Hypothesis

The hypothesis of this study suggests that the implementation of a Content and Language Integrated Learning (CLIL) approach, in conjunction with Project-Based Learning (PBL), will significantly enhance the reading achievement of sixth-grade students. It is anticipated that the mean score of the English reading achievement post-test for students engaged in this combined instructional methodology will be significantly higher than their scores in the pre-test.

Conceptual Framework

The objective of this research was to investigate the impact of teaching English through the integration of the CLIL approach and PBL on the reading proficiency of sixth-grade students. Since 1990, the CLIL methodology has gained prominence as an innovative pedagogical practice in Europe. It represents a paradigm shift in language education, where foreign languages are not only the medium for language instruction but also for teaching content across various disciplines (Eurydice, 2006). This approach establishes a symbiotic relationship between language and content (Coyle, 2007; Marsh, 2002). The study employs a pre-experimental design, incorporating a one-group pre-test and post-test format. The independent variable in this study is the instruction of English via the combined CLIL and PBL approaches. The dependent variables are the students' achievements in English reading and their attitudes towards learning English through the CLIL and PBL methodologies.

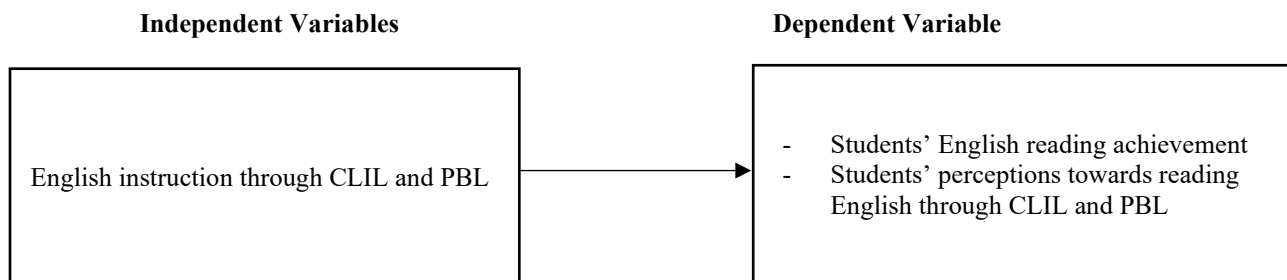| Independent Variables	Dependent Variable
English instruction through CLIL and PBL	- Students' English reading achievement - Students' perceptions towards reading English through CLIL and PBL

Figure 2 : Conceptual Framework of the study
Source : Literature Review

Methodology

1. Population and Participants

The population in this study comprised 152 sixth-grade students enrolled in English courses during the second semester of the 2022 academic year from 10 schools within the Buaburapa Group under the Center of Educational Networks of Nakhon Ratchasima Primary Educational Service Area Office 1. A number of 21 students from Prachasamakkee School, selected from the population using a cluster random sampling method, were the participants of the study.

2. Research Instruments

The study utilized two categories of research instruments, designed in alignment with the 4Cs of the CLIL approach-Cognition, Communication, Culture, and Content-integrated with Project-Based Learning.The instructional plan was divided into seven stages : (1) identifying a relevant theme from the curriculum, (2) determining the final outcomes, (3) structuring the project, (4) gathering information, (5) compiling and analyzing information, (6) reporting findings, and (7) evaluating the project to enhance learning achievement. The lesson plans, developed by the researcher in English, included objectives, language content, learning activities, teaching materials, and assessment methods.

3. Instruments Used in Data Collection and Data Analysis

The primary tools for data collection in this research were the English reading achievement pre-test and post-test, and a questionnaire designed to gather students' perceptions on learning English through the integrated CLIL and PBL approach.

Data Collection

Data collection for this research was conducted during the second semester of academic year 2022. Initially, a pre-test was administered to the 21 students to assess their existing level of English reading achievement. Subsequently, a series of three lesson plans, based on CLIL and PBL was carried out. Each lesson plan entailed four hours of instruction. Upon completion of this phase, the students were required to complete an English reading achievement test (post-test) and respond to a questionnaire designed to gauge their perceptions on the instructional approach.

Data Analysis

The analysis of the data collected in this study were conducted as follows:

1. The data from the English reading achievement test will be analyzed using mean scores ($\bar{x}$), Standard Deviation (S.D.), and a t-test for dependent samples to ascertain any significant differences between the pre-test and post-test results.

2. The responses from the opinion questionnaire will be analyzed using mean scores ($\bar{x}$) and Standard Deviation (S.D.) to evaluate student attitudes and perceptions towards the instructional approach

Results and Discussion

This section addresses the first objective of the study, which is to investigate the impact of employing the Content and Language Integrated Learning (CLIL) approach in tandem with Project-Based Learning (PBL) on enhancing the English reading achievement of sixth-grade students.

Table 1 Comparison of pre-test and post-test scores in English reading achievement (maximum score = 40 points)

Student No.	Pre-test	Post-test
1	16	22
2	15	18
3	22	33
4	13	18

Table 1 Comparison of pre-test and post-test scores in English reading achievement (maximum score = 40 points)

Student No.	Pre-test	Post-test
5	14	17
6	16	20
7	12	17
8	19	24
9	21	33
10	17	24
11	18	21
12	23	38
13	9	14
14	15	18
15	16	20
16	21	28
17	18	24
18	13	20
19	14	22
20	11	17
21	10	18
$\overline{\text{x}}$	**15.86**	**22.19**

An analysis of Table 1 reveals significant variations in student performance before and after the implementation of CLIL and PBL. Initially, in the pre-test phase, student scores varied considerably, with the lowest score being 9 (achieved by one student) and the highest being 23 (also achieved by one student). Post-intervention, the scores showed remarkable improvement; the lowest score in the post-test increased to 14 (recorded by one student), while the highest score soared to 38 (achieved by one student). This pattern indicates a clear trend of improved performance among the majority of participants following the instructional intervention.

Table 2 The comparison of the mean score between the pre-test and post-test of the participants' English reading achievement.

Mode of assessment	n	$\overline{\text{x}}$	S.D.	MD	t	sig
Pre-test	21	15.86	3.91	11.95	9.21	.000
Post-test	21	22.19	6.17			

* $p < 0.05$

In addition, Table 2 illustrates that the mean score of the post-test (22.19) was significantly higher than that of the pre-test (15.86), with a statistical significance at the .05 level. The data indicate a notable improvement in the participants' English reading achievement following their engagement with CLIL and PBL.

Aligned with the second objective of this study, this section discusses the findings related to students' perceptions of learning English through CLIL and PBL. To gain insights into students' opinions towards the treatment, a questionnaire, which encompassed both closed-ended and open-ended questions, was administered.

Within the closed-ended section, participants were invited to answer ten questions pertaining to their experience with the CLIL and PBL methodologies. Responses were quantified using a 5-point Likert scale, spanning from "strongly agree" to "strongly disagree." The compiled results, reflecting students' viewpoints on their learning experiences under the combined CLIL and PBL frameworks, are presented in Table 3.

Table 3 Participants' perceptions towards reading English

	Assessment issue	$\bar{x}$	S.D.	Meaning
1	The lesson is an enjoyable learning experience.	4.43	0.66	Agree
2	The contents of these lessons are appropriate for my level.	4.57	0.58	Strongly Agree
3	The learning materials are well-designed.	4.43	0.73	Agree
4	The learning steps are well-arranged.	4.67	0.56	Strongly Agree
5	Evaluation is followed by contents.	4.67	0.47	Strongly Agree
6	Learning activities can promote my learning achievement.	4.52	0.73	Strongly Agree
7	The knowledge from activities can be implied to daily life use.	4.76	0.43	Strongly Agree
8	The learning activities are interesting.	4.62	0.65	Strongly Agree
9	Activities corresponded to the content.	4.33	0.71	Agree
10	The learning steps are well-arranged.	4.57	0.66	Strongly Agree
11	Contents are interesting and encouraging my learning achievement.	4.10	0.81	Agree
12	The cognitive part can promote my reading skills.	4.67	0.56	Strongly Agree
13	The communication part supports collaborative learning.	4.24	0.87	Agree
14	The culture part included many different cultures.	4.71	0.45	Strongly Agree
15	I can create my project after finishing the lessons.	4.57	0.73	Strongly Agree
	Total	**4.52**	**0.64**	**Strongly Agree**

As shown in Table 3, the item with the highest rating indicates a significant agreement among participants that the knowledge gained from the activities was highly relevant to everyday life ($\bar{x}$ = 4.76). Conversely, the item with the lowest rating suggested a general agreement that the content was engaging and facilitated their reading progress ($\bar{x}$ = 4.10). Overall, the average score of the questionnaire was 4.52, signifying that participants predominantly reported high levels of satisfaction with enhancing their English reading skills via the Content and Language Integrated Learning (CLIL) and Project-Based Learning (PBL) methodologies.

Responses to open-ended questions were categorized into two primary categories as follows:

1. Challenges Encountered in Learning English via CLIL and PBL Participants' responses in the open-ended section of the questionnaire revealed certain difficulties:

"There are some vocabularies in the passages, I do not understand." (Participant No.7)

"It is a little bit complicated." (Participant No.13)

"I sometimes get bored when I read the passage." (Participant No.20)

"Some passages are too long." (Participant No.21)

This feedback underscores that, notwithstanding the general effectiveness of the instructional strategy, certain difficulties remained. These encompassed challenges for learners with lower proficiency, time constraints affecting completion of activities, and the need for more individualized attention from instructors.

2. Suggestions for Enhancement of English Learning through CLIL and PBL : Participants offered several recommendations for improving the learning experience:

2.1 Reducing the number of activities might lead to more effective learning, as suggested by one individual: "It would be better if there were fewer activities" (Participant No. 11).

2.2 The need for clearer instructions was voiced, with a participant requesting : "The teacher should provide more examples because sometimes I don't understand what I should do" (Participant No. 18).

2.3 Vocabulary instruction was deemed essential, as indicated by the feedback: "The teacher could teach us some vocabulary in a passage. I don't understand the meaning of some sentences" (Participant No. 20).

Participants conveyed that refining the organization of activities and providing vocabulary support would enhance the educational experience, particularly for those with lower proficiency, thereby fostering greater engagement in the learning process.

Discussion

The findings were discussed based on the objectives, as described below.

Research Objective 1: Assessing the impact of CLIL and PBL on sixth-grade students' English reading achievement

Comparative analysis of pre-test and post-test scores suggests that the Content and Language Integrated Learning (CLIL) approach, combined with Project-Based Learning (PBL), has a positive effect on English reading achievement. The data indicate that the participants achieved higher scores in the post-test, with a significant increase in the mean score for reading proficiency. The questionnaire results corroborate this improvement, revealing a strong agreement among participants regarding the efficacy of the CLIL approach in fostering both reading achievement and learning motivation.

Several aspects highlight the benefits of utilizing the CLIL approach. It is an effective pedagogy for imparting English through PBL, as it naturally integrates language learning with cognitive development (Pinto Ruiz, 2018). This method facilitates the implicit acquisition of vocabulary and grammatical structures, leading to deeper and more sustainable learning (Huang, 2020). The dual focus on language and subject content allows students to enhance their language skills in the context of learning other subjects.

The observed improvements in vocabulary and reading skills align with the content and language-focused pedagogical principles and the 4Cs framework proposed by Coyle (2007), which underlines the importance of learning outcomes. In the context of PBL, reading achievements were bolstered through consistent engagement with content-specific knowledge, allowing for meaningful application in collaborative learning scenarios. For instance, while examining nutrition, students were not only introduced to relevant terminology but also employed these terms actively in discussions, thereby solidifying their understanding and use of the language. This approach echoes the findings of Suwannoppharat (2014), who noted enhanced English communication abilities through the inclusion of cultural content in CLIL courses, enriching both cultural awareness and language proficiency.

Furthermore, PBL has been identified as instrumental in promoting students' motivation, which in turn facilitates greater language achievement. Kim (2019) notes that through PBL, students acquire profound intercultural insights and develop a genuine interest in the cultures integral to their projects. Both CLIL and PBL methodologies emphasize learner agency, engagement in meaningful and authentic tasks, and the practical use of language in

real-world contexts. In PBL, learning outcomes are intimately connected to collaborative projects, which contribute to the development of social and creative skills, as well as active participation. Similarly, CLIL's success is contingent upon the level of student engagement in communicative practices, critical thinking, and active involvement across diverse learning activities.

Research objective 2: Exploring student's opinions towards learning English through CLIC approach and PBL

According to the results of the learners' opinions on learning English through content and language integrated learning, participants strongly agreed that this approach was enjoyable and helpful in promoting content comprehension and increasing opportunities to use English. Huang (2020) stated that students gained knowledge about science content and improved their English proficiency through CLIL, indicating that elementary students in this study aimed to broaden their global perspectives.

The evaluation of students' perspectives on the CLIL and PBL methodologies revealed a strong agreement regarding their enjoyment and perceived benefits of these approaches. The participants' responses indicated that the integration of content and language not only made the learning process more engaging but also facilitated their understanding and application of English. Consistent with Huang's (2020) findings, students were able to simultaneously acquire subject knowledge, particularly in the field of science, and enhance their English Language skills, thereby expanding their global perspectives.

Moreover, the experimental data highlighted a remarkable increase in students' motivation throughout various activities. The positive shift in attitudes was reflected not only in improved assessment outcomes but also in the qualitative feedback collected via the questionnaire. A significant number of participants reported that the combined approach of CLIL and PBL allowed for a more efficient and effective acquisition of vocabulary and content knowledge. The interactive and cooperative elements of these approaches, particularly brainstorming sessions with peers, were especially beneficial for those students who previously lacked the confidence to participate in discussions. The sense of accomplishment was also evident among students, with one individual expressing a sense of achievement upon obtaining a high score.

In conclusion, the integration of content and language through the CLIL and PBL approaches has proven to be an effective tool for enhancing both English reading proficiency and the overall motivation for language learning.

Conclusions and Recommendations

1. Conclusions

The synthesis of Content and Language Integrated Learning (CLIL) with Project-Based Learning (PBL) demonstrates considerable promise in fostering enriched educational experiences. PBL, for example, intrinsically facilitates community engagement, offering students the opportunity to immerse themselves in both explicit and implicit cultural narratives by employing materials imbued with the community's cultural essence, whether through tangible resources or digital mediums.

Students are, thus, challenged not merely to address challenging issues in a non-native language but also to develop and employ strategies in navigating the multifaceted communicative challenges encountered in diverse conversational contexts. This includes dialogue within their own cultural domain. It is imperative for learners to discern and adeptly navigate the subtleties of cultural nuances. CLIL, in this respect, explicitly endorses the integration of cultural diversity within the learning environment, harnessing the potential of a multicultural cohort as a dynamic educational resource. It is a fundamental goal of CLIL to facilitate the analysis, interpretation, and application of linguistic and cultural content, thereby elevating students' cultural consciousness. By engaging with a breadth of thematic content, CLIL encourages a continuous examination and reappraisal of cultural outlooks, informational perspectives, and lifestyle paradigms through project-oriented classroom tasks. Such an approach empowers students to engage comprehensively with both the linguistic elements and the cultural dimensions of their own and other cultures, with the overarching goal of cultivating effective communicative rapport. Learners are thereby equipped with the acumen to modify their cultural knowledge, competencies, attitudes, and awareness in accordance with situational demands.

This study aimed to enhance Thai EFL learners' English reading achievement through content and language integrated learning approaches and project-based learning lessons. The research objectives were : 1) to examine the effects of teaching English through content and language integrated learning approach and project based learning lessons to promote English reading achievement of sixth-grade students; 2) to study student's opinions towards learning English through content and language integrated learning approach and project based learning lessons.

The research sample comprised 21 sixth-grade students from Prachasamakkee School in Nakhonratchasima province, Thailand, who studied English during the second semester of the academic year 2022. They were chosen using cluster random sampling. The study utilized two categories of instruments: lesson plans based on CLIL and PBL, and an English reading achievement test along with a questionnaire. Data analysis involved mean ($\bar{x}$), standard deviations (S.D.), and t-tests for dependent samples.

The research results revealed that the mean score of the post-test for the English reading achievement test among participants learning English through content and language integrated learning was significantly higher than the pre-test at the 0.05 level. Additionally, the questionnaire results indicated that participants strongly agreed that learning English through content and language integrated learning approaches and project-based learning effectively improved their reading achievement and enhanced their learning motivation.

2. Recommendations

The present study's findings lead to a set of actionable recommendations for classroom instruction and for future research, as explained below:

2.1 Recommendations for Classroom Instruction :

1) Longitudinal study : Future research should consider a longitudinal design to assess the sustained impact of the CLIL approach, particularly focusing on science lessons, to track changes over a more extended period.

2) Activity arrangement : Educators are advised to meticulously plan learning activities, ensuring they align with the available time and cater to the learners' proficiency levels. This careful structuring will facilitate a more effective learning process.

3) Instructional design : With seven distinct steps in the instructional framework, it is imperative for educators to ensure comprehension and mastery at each stage. Emphasizing these pivotal points can significantly enhance learning outcomes and English proficiency.

4) Constructivist alignment : Instruction should be constructivist in nature, building upon students' prior knowledge. This approach involves the utilization of culturally and contextually relevant resources to craft learning materials that resonate with learners' experiences, thereby optimizing educational results.

2.2 Recommendations for Future Research :

1) CLIL's broadened impact : Additional studies might extend beyond reading achievement to include other linguistic aspects such as communicative willingness and anxiety, providing a more comprehensive understanding of the CLIL approach's efficacy in language learning.

2) Cross-disciplinary applications : It is suggested that subsequent research could investigate the applicability and impact of CLIL in different subject areas, such as social studies or health sciences, to determine its effectiveness in enhancing English proficiency, content knowledge, and cultural understanding within various academic domains.

3) Expansion to other language Skills : Future investigations might also examine the influence of CLIL on the development of listening and speaking skills, offering a holistic view of its role in language acquisition.

4) Cognition and Critical Thinking : Considering that cognitive development was not explicitly measured in the current study, future research could focus on empirically evaluating CLIL's effectiveness in fostering cognitive skills, which are integral to the approach.

By taking these recommendations into account, teachers can improve their teaching methods to better meet the needs of their students, and researchers can expand on the fundamental knowledge this study provides to further clarify the complex effects of the CLIL approach.

References

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives: Complete edition*. Addison Wesley Longman.

Chen, Y. (2012). Symposium: The contextualization of teaching and learning English as an international language. *Language Teaching, 45*(4), 527-530. https://doi.org/10.1017/S0261444812000183

Coyle, D. (2007). Content and Language Integrated Learning: Towards a connected research agenda for CLIL pedagogies. *International Journal of Bilingual Education and Bilingualism, 10*(5), 543-562.

Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: Content and language integrated learning*. Cambridge University Press.

Coyle, D. (2011). *Teacher education and CLIL methods and tools. http://www. cremit. it/public/documenti/seminar. pdf*.

Dalton-Puffer, C. 2007. *Discourse in Content and Language Integrated Learning (CLIL) Classrooms*. John Benjamins.

Domalewska, D. (2015). Classroom discourse analysis in EFL elementary lessons. *International Journal of Languages, Literature and Linguistics,* 1(1), 6-9.

Eurydice. (2006). *Content and Language Integrated Learning (CLIL) at school in Europe*. Eurydice Unit.

Graddol, D. (2006). *English next.* http://www.britishcouncil.org/learning-research-english-next.pdf

Huang, Y. C. (2020). The effects of elementary students' science learning in CLIL. *English Language Teaching,* 13(2), 1-15.

Kim, M. K. (2019). Project-based learning experience in the construction of intercultural knowledge. *Modern English Education, 20*(2), 1-18.

Lai, H. T. (2014). Learning English as an international language: EFL learners' perceptions of cultural knowledge acquisition in the English classroom. *Asian Social Science, 10*(1), 1-11.

Marsh, D. (2002). *CLIL/EMILE-The European dimension: Actions, trends, and foresight potential. DG EAC: European Commission*. http://www.phkarlsruhe.de/cms/flieadmin/user_upload/dozenten/ schlemminger/enseignement_bilingue/Marsh-CLIL-EMILE.pdf

Mergendoller, J. R., Maxwell, N. L., & Bellisimo, Y. (2006). The effectiveness of problem-based instruction: a comparative study of instructional methods and student characteristics. *Interdisciplinary journal of problem-based learning*, *1*(2), 49-69.

Pang, E. S., Muaka, A., Bernhardt, E. B., & Kamil, M. L. (2003). *Teaching reading (Vol. 6)*. International Academy of Education.

Pinto Ruiz, A. M. (2018). *CLIL and reading strategies worksheets to foster reading comprehension* [Doctoral dissertation]. Universidad Externado de Colombia.

Soparat, S., Arnold, S. R., & Klaysom, S. (2015). The development of Thai learners' key competencies by project-based learning using ICT. *Online Submission, 1*(1), 11-22.

Suwannoppharat, K. (2014). *The development of a content and language integrated learning course to enhance cultural awareness and English communication ability of Thai undergraduates in the international program* [Doctoral dissertation]. Chulalongkorn University.

UNESCO. (2012). *Education in humanitarian emergencies and conflict situations'*. https://unesdoc.unesco .org/ark:/48223/pf0000220416?fbclid=IwZXh0bgNhZW0CMTAAAR2Qf90AuxiLHlBkvfK9CflKXVNPG M9MarHr1Qa9MBSeSIkj3qOxFvOd6B4_aem_AfOdemZ2qBrrAnvbwWxwasYqldhsz4WNqGfgnsL1s55e UXazPptDMuiVeHKXcYG2p1yPhUXDJiuKTOu46h5IanYf