

Co-Teaching Instruction at the Tertiary Level in Thailand:
Students' Achievement Leading to Teachers' Professional Development
การจัดการเรียนการสอนแบบการสอนร่วมในระดับอุดมศึกษาไทย: ผลสัมฤทธิ์ของ
ผู้เรียนสู่การพัฒนาวิชาชีพครู

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Received: 15 September 2025

Revised: 1 May 2026

Accepted: 7 May 2026

Abstract

In the Thai context, co-teaching instruction, where two teachers are collaboratively delivering instruction in a classroom, has been implemented mostly in bilingual or international school settings. It is believed that this instruction has twofold benefits of student' learning outcomes and teacher's professional development. Despite its mutual potentials, there seems to be a lack of empirical evidence of its implementation and thorough investigation at the tertiary level. This study aimed to investigate the effectiveness of a co-teaching approach on students' English language achievement and explore how it could professionally develop teachers' teaching practice. Mixed-methods design research was employed, using a pre-test and post-test design to collect students' English proficiency and teachers' reflective accounts as evidence of their professional growth. The findings yielded positive and significant outcomes for students' English proficiency. A paired-samples t-test revealed that the post-test mean score ($\bar{x} = 44.89$, $SD = 7.55$) was significantly higher than the pre-test mean score ($\bar{x} = 38.30$, $SD = 7.04$), $t(99) = -7.509$, $p <$

.001, indicating a statistically significant improvement in students' English proficiency. Through the design of Collaborative and Coaching (CO2) Instruction, this study provides an alternative approach that possibly caters to students' different learning needs and significantly contributes to teachers' professional growth and wellbeing. Furthermore, the findings present noteworthy pedagogical insights and highlight valuable directions for future research regarding co-teaching implementation in Thai higher education.

Keywords: Co-teaching instruction, Growth mindset, Students' English language achievement, Professional development, Teachers' well-being

บทคัดย่อ

ในบริบทประเทศไทย การจัดการเรียนการสอนแบบการสอนร่วม (Co-teaching) ซึ่งเป็นรูปแบบที่ผู้สอนสองคนร่วมกันจัดการเรียนการสอนภายในห้องเรียนเดียวกัน มักถูกนำไปใช้ในโรงเรียนสองภาษาและโรงเรียนนานาชาติเป็นส่วนใหญ่ โดยเชื่อว่ารูปแบบการศึกษาดังกล่าวก่อให้เกิดประโยชน์สองด้าน ได้แก่ การพัฒนาผลสัมฤทธิ์การเรียนรู้ของผู้เรียน และการพัฒนาวิชาชีพของครู แม้ว่าการสอนร่วมจะเป็นประโยชน์ต่อทั้งผู้เรียนและผู้สอน แต่ยังคงขาดหลักฐานเชิงประจักษ์และการศึกษาวิจัยอย่างละเอียดเกี่ยวกับการนำไปใช้ในระดับอุดมศึกษา

การวิจัยครั้งนี้จึงมีวัตถุประสงค์เพื่อศึกษาประสิทธิผลของการจัดการเรียนการสอนแบบสอนร่วมต่อผลสัมฤทธิ์ทางภาษาอังกฤษของนักศึกษา และสำรวจว่ารูปแบบดังกล่าวสามารถพัฒนาวิชาชีพการสอนของครูได้อย่างไร โดยใช้ระเบียบวิธีวิจัยแบบผสมวิธี (Mixed-Methods Research) ซึ่งประกอบด้วยการวัดผลก่อนเรียนและหลังเรียน (Pre-test และ Post-test) เพื่อประเมินความสามารถทางภาษาอังกฤษของนักศึกษา รวมถึงการรวบรวมบันทึกสะท้อนความคิดของผู้สอน (Reflective Accounts) เพื่อเป็นหลักฐานแสดงการพัฒนาทางวิชาชีพ ผลการวิจัยพบว่า การสอนร่วมส่งผลเชิงบวกอย่างมีนัยสำคัญต่อความสามารถทางภาษาอังกฤษของนักศึกษา จากการวิเคราะห์ด้วยค่าสถิติ Paired-Samples t-test ซึ่งแสดงให้เห็นว่าคะแนนเฉลี่ยหลังเรียนที่ใช้การสอนแบบสอนร่วม ($\bar{x} = 44.89$, $SD = 7.55$) สูงกว่าคะแนนเฉลี่ยก่อนเรียน ($\bar{x} = 38.30$, $SD = 7.04$) อย่างมีนัยสำคัญทางสถิติที่ระดับ .001 โดยมีค่า $t(99) = -7.509$, $p < .001$ ซึ่งบ่งชี้ว่านักศึกษามีพัฒนาการด้านความสามารถทางภาษาอังกฤษเพิ่มขึ้นอย่างมีนัยสำคัญ

งานวิจัยนี้ได้นำเสนอทางเลือกในการจัดการเรียนการสอนที่สามารถตอบสนองต่อความต้องการการเรียนรู้ที่หลากหลายของผู้เรียน พร้อมทั้งมีส่วนสำคัญในการส่งเสริมพัฒนาทางวิชาชีพครูและสุขภาวะ (Well-being) ของครู นอกจากนี้ ผลการวิจัยนี้ยังนำเสนอข้อค้นพบเชิงวิชาการที่มีคุณค่าสำหรับการพัฒนาการจัดการเรียนการสอน

และชี้ให้เห็นแนวทางสำคัญสำหรับการวิจัยในอนาคตเกี่ยวกับการนำการสอนร่วมไปใช้ในบริบทการศึกษา
ระดับอุดมศึกษาของไทยอีกด้วย

คำสำคัญ การสอนร่วม กรอบความคิดแบบเติบโต ผลสัมฤทธิ์ทางภาษาอังกฤษของนักศึกษา การพัฒนาวิชาชีพ
สุขภาวะของครู

Introduction

In Thailand, English language ability remains a significant challenge for the workforce across various career sectors and educational levels. In the Eastern Economic Corridor (EEC) of Thailand, employers demand high English proficiency, with expectations ranging from A2 to B2 levels in both reception and production modes of communication, especially at the top management level (e.g., managers and supervisors) (It-ngam et al., 2023). However, various sources and studies indicated that Thai students continue to lack proficiency in English, particularly in productive language skills (Franco & Roach, 2018; Mohd Aba Sha'ar & Boonsuk, 2021; Tantiwich & Sinwongsuwat, 2021; Abhasakun, 2021; Yusoff et al., 2023). Similarly, Thai workers must enhance their English language skills to excel in the global job market. These challenges may be indicative of the state of the education system.

At the tertiary level, the traditional teaching approach in English language classes has supposedly been replaced with active learning. This active learning approach plays an essential role in English language education, enhancing student learning outcomes, and promoting teachers' professional growth. Within the active learning approach, numerous teaching strategies are employed, and the co-teaching strategy is one of many, namely, project-based learning, problem-based learning, case studies, and more, that has been broadly employed. Various modes of co-teaching strategy exist, namely: one teach-one assist, one teach-one observe, station teaching, parallel teaching, alternative teaching, and team teaching (Friend & Cook, 2016). According to Moore (2017), the team-teaching strategy is most frequently adopted in both government and private schools that offer international or bilingual programs to promote internationalization and international communicative competence. This teaching strategy has piqued the interest of universities in Japan, where collaboration and cooperation in education have been promoted (Stewart, 2018). In Indonesia, co-teaching has been employed in schools

with external parties, especially to promote students' English ability due to the high demands of English learning (Anwar et al., 2021).

In Thailand, team teaching has been employed in some public universities, where its value has been recognized in promoting active learning, co-constructed lessons, solving challenges posed by large class sizes, and fostering interdisciplinary partnerships. However, there are limited reports on the use of the team-teaching method and research studies in public universities. Moreover, dealing with large class settings and teaching students with different English proficiency levels in the same setting have been major issues. Therefore, this study on co-teaching, especially the team-teaching method, needs to be conducted as a new approach to address these issues. Additionally, exploring the professional development in team-teaching instruction can provide more insights into a fruitful means, perhaps sustainable, for teachers' professional development.

The conceptual framework of this study is grounded in Vygotsky's Social Development Theory (1978), which emphasizes learning through social interaction within the Zone of Proximal Development (ZPD). This framework underpins the assumption that collaborative instruction fosters the co-construction of knowledge, benefiting both students and teachers. From this theoretical perspective, teaching and learning are viewed as reciprocal processes in which both parties contribute to and influence each other's growth. However, research on co-teaching in Thai higher education is yet uncommon, especially studies that examine both impact on students' English language achievement and teachers' professional growth. Therefore, Collaborative and Coaching (CO2) Instruction model was implemented in a large-class setting to investigate how it could simultaneously enhance students learning outcomes and teacher professional development. The present study adopted Vygotsky's Social Development Theory (1978) as the conceptual foundation for the design the CO2 Instruction model. This means that both teachers and students co-construct knowledge.

Review of Literature

This session summarizes the key areas of co-teaching instruction, professional development, and related studies. The literature will explain how co-teaching instruction is a key element in successful active learning approaches to language teaching. Not only does it create a nurturing

environment suited to students' learning, but it also benefits teachers' professional growth in many ways.

The Definition of Co-Teaching

Co-teaching instruction refers to two or more professional teachers who work collaboratively throughout the entire academic cycle, starting from planning and developing course content and materials, to delivering instruction, evaluating, grading, and managing a diverse group of students in the same classroom setting for successful learning outcomes (Salend, 2008; Friend & Cook, 2016; Moore, 2017). This innovative pedagogical method is considered a potential tool that promotes reciprocal learning between two experts, in which both sides benefit from one another. (Zach, 2020). This instruction aligns with the Social Development Theory by Lev Vygotsky, which plays an essential role in the learning process of English language teaching. It is one of the teaching approaches that promotes engagement and socially mediated learning (Bell, 2010; Thomas, 2000; Knight, 2007). It improves students' performance and enhances teachers' professional development. In co-teaching instruction, similar to students in social development settings, teachers learn best from one another. By having the opportunities to share their skills, and abilities in the same teaching environment, they improve their overall teaching performance (Deming, 1986; Little, 1987; Schmoker, 2005).

Effective collaborative teaching instruction is obtained from the mutual focus of student continual improvement and learning achievement. Each teacher shares their students' results, analyzes their performance, and maintains ongoing dialogues with one another regarding student improvement. In this way, teachers focus on learning rather than teaching. This, in turn, enhances teacher professional development (Friend, 2000; Dufour, 2004; Talbert, 2010). Therefore, for this process to be achieved, team teaching needs to possess certain qualities, which will be explained in the next section.

Co-Teaching as Professional Development

Professional development has played a crucial role in education reform in Thailand. According to Srichom et al. (2019), Thai English teachers have been provided with a budget by

the Ministry of Education, Thailand, to participate in teacher professional development (TPD) programs. However, after participation, they were not necessarily able to transfer the acquired knowledge and skills to the classroom, resulting in the failure of many PD programs (Srichom et al., 2019). Hoa (2022) suggests team teaching as a tool for professional development as it increases the competence of the stakeholders in a learning community and promotes lifelong learning. He also concludes that professional development is an ongoing process through which teachers can gain professional competence, and understand themselves, their roles, and their careers.

According to earlier research, co-teaching may be utilized in higher education to improve teachers' professional development and students' English language proficiency. This can be seen as follows:

Musanti and Pence (2010) concluded, in their qualitative study on collaboration and teacher development, that teachers were cultivating their own teaching methods and identity. As a result, they experienced stress when asked to team teach, demonstrate their techniques, or mentor others. Team teaching requires a careful approach to convey to teachers that it is a collaborative practice for mutual learning through exchange, dialogue, and continuous challenge. Ongoing collaborative professional development is crucial as a powerful element for teachers.

While most research focuses on student collaboration, Anwar et al. (2021) decided to investigate teacher collaboration. Their survey research involved 50 high school students in a remote area to measure their perceptions of the traditional instruction versus team-teaching model and their learning motivation. The research findings revealed a significant and strong positive correlation. In addition, students suggested that team-teaching instruction helped them activate their self-image and future self-image, which significantly increased their motivation.

In their study, Narmashiri et al. (2021) found significant differences in students' learning performance between the control group using traditional teaching methods and the experimental group using team teaching instruction. Furthermore, their results indicated a strong relationship between integrated team teaching and counseling practices and students' intrinsic motivation.

Haag et al. (2022) suggested that co-teaching has an influence on pedagogical changes in undergraduate STEM education. One piece of potential evidence they found was that Cognitive Apprenticeship model, focusing on active coaching or mentoring, could support instructional

changes. Their findings based on various studies concerning co-teaching revealed possible positive outcomes of co-teaching for pedagogical change. Those positive outcomes reflect on teachers' pedagogical growth, critical reflection and expanding instructional knowledge. Their study suggested that co-teaching could potentially leverage the pedagogical change when there were high levels of interpersonal interaction, frequent communication, and the cultivation of strong professional relationships.

Co-Teaching Instruction in Higher Education

Co-teaching has been present in education for nearly 60 years, originally supporting special education and inclusion in K-12 with the objective of integrating students with disabilities into the classroom. It has since evolved within higher education to support diverse groups of students and their differing learning styles, with the goal of promoting critical thinking and workforce readiness (Zach & Avugos, 2024). In the study conducted by Richter et al. (2025), co-teaching has been employed in various educational settings, including higher education. Its effectiveness has been demonstrated in various fields of study, such as design, nursing, English, sports sciences, and teacher education. They also note that it is an effective approach that supports a wide range of students and diverse viewpoints. While the specific motivations for offering a co-teaching university course vary, they commonly include providing students access to diverse perspectives and enhancing the wide range of course content. According to their study, co-teaching is a model for professional growth when instructors interact and question each other, which demonstrates that instructors or experts do not possess all the knowledge. They do not know everything and can learn new things from each other. It is suggested that students develop a growth mindset when witnessing the instructors' interactions and behaviors. The growth mindset students develop is obtained from co-teaching's collaborative dynamic. Besides, co-teaching offers multifaceted benefits, including enhanced learning and pedagogical variety, student engagement, individualized support, and sustainability and wellbeing (Zach & Avugos, 2024).

Despite its significant benefits, co-teaching has its limitations to be aware for implementation in higher education. In their literature review, Zach and Avugos (2024) identified

several limitations such as planning and coordinating, limited human resources, role ambiguity, and pedagogical conflicting styles.

Key Factors for Successful Co-Teaching Instruction

Co-teaching offers various teaching approaches, and team teaching is one of them. When conducting team teaching, some factors need to be considered for it to be successful. Based on the evidence provided by Cook and Friend (1995), Ken-Maduako & Oyatogun (2015), DuFour (2004), Zach & Avugos (2024), and Richter et al. (2025), the factors for successful team teaching can be summarized into the following four categories:

Table 1

Summary of Key Factors for Successful Co-Teaching Instruction (Ken-Maduako & Oyatogun, 2015; DuFour, 2004; Zach & Avugos, 2024; and Richter et al.,2025)

Category	Key Requirements
Interpersonal Dynamics and Professional Trust	- Teachers must trust, respect, and remain open to one another in terms of skills and abilities, and be willing to learn from their partner. - Teachers should commit and be persistent to working together for student outcomes.
Communication and Collaborative Planning	- Teachers need to communicate constantly to discuss goals and expectations for every lesson. - Teaching methods must be discussed and agreed upon to avoid clashes and confusion during class. - Teachers should work together to analyze classroom practice and co-design clear assessments and evaluations.
Role Clarity and Systematic Processes	- It is vital to clarify each person's roles and develop specific team norms or protocols to manage expectations. - Success requires a systematic process where teachers work together to improve practice, often requiring specific training. - Using collaborative conversations to ask crucial questions regarding student outcomes.

Administrative and Logistical Support	• Successful implementation requires strong support from administrators, proper resource allocation, and time allowance. • Time constraints and heavy workloads are significant hurdles that co-teachers must navigate.
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According the key successful factors above, it requires a great deal of commitment and understanding of pedagogical and technical components for co-teaching to be a success. Most importantly, the teachers need to possess growth mindset and concerns for the wellbeing of their partner and students.

For the successful implementation of co-teaching, Friend and Cook (2016) identified six distinct models in their later editions, as outlined in Table 2.

Table 2

Six Approaches to Co-teaching (Friend & Cook, 2016)

Type	Description
1) One Teach, One Observe	One teacher teaches the class while one observes students' engagement in the learning process. During observation, the teacher gathers information and analyzes it for students' learning development.
2) One Teach, One Assist	One teacher teaches the class while the other provides unobtrusive assistance to students as needed.
3) Parallel Teaching	Both teachers cover the same information but divide the class into two groups and teach simultaneously.
4) Station Teaching	Teachers divide content and students with each teacher, teach content to one group and subsequently repeat the instruction to another group. A third station could be added to give students an opportunity to work independently.
5) Alternative Teaching	One teacher takes responsibility for the large group while the other works with a smaller group that needs specialized attention.
6) Team Teaching	Both teachers are delivering the same instruction at the same time.

With these six co-teaching approaches, team teaching is the most complex but satisfying way, which is dependent on teachers' styles (Science Education Resource Center (SERC), 2023). Building on the understanding of co-teaching and its practical approaches, the present study adopted this collaborative instruction because of its capacity for continuous student improvement and mutual professional development.

Co-Teaching in Language Teaching in Thailand Higher Education

In Thailand, co-teaching is predominantly implemented within English, bilingual, and international school programs. This approach is most common in basic education—spanning from pre-primary to upper secondary levels—where a foreign teacher and a Thai teacher co-instruct a class. However, within higher education settings, there remains limited documented or research-based evidence regarding the use of such instructional strategies.

Ample research evidence demonstrates the utility and effectiveness of co-teaching within the Thai educational context. Recent studies by Sukkasem (2023) and Maghfiroh et al. (2024) underscore how this instructional approach significantly improves student learning outcomes while fostering professional identity, pedagogical growth, and academic excellence. Both studies identify a three-stage approach to collaboration: co-planning, co-instruction, and co-assessment/reflection. They suggest that while cultural and pedagogical differences may present challenges, these can be effectively managed through professional development and open communication. Ultimately, this collaboration creates a more nurturing and holistic environment for students.

These findings could possibly address the current research gap and further enhance the quality of English language learning and instruction in Thai higher education. Hence, this study attempts to utilize team teaching mode of co-teaching instruction, where both teachers deliver the same instruction at the same time to the whole group. Project-Based Learning (PBL) and Coaching were integrated as compatible companions to co-teaching. While PBL gives students a framework for authentic teamwork and knowledge construction, coaching provides instructors with a system for reflection and professional growth. By combining these two instructional methods, this study proposed the Collaborative and Coaching (CO2) model, aiming to investigate

if it could improve student results in English language learning and serve as a powerful engine for teacher development in higher education.

Research Objectives

In this study, there are two main objectives as follows:

- (1) To investigate the effectiveness of a team-teaching approach on students' English language achievement.
- (2) To explore the team teachers' experiences with the CO2 instructional approach and their professional development.

Methodology

The present study was experimental research employing a mixed-methods design, specifically a one-group pre-test and post-test design, and a thematic analysis was used for qualitative data. Its aim was to investigate the implementation of co-teaching instruction to enhance students' achievement in the English language and teachers' professional development. The teaching approach was employed over three semesters. The students' English ability test was assessed for content validity by three experts in the field of English instruction and assessment. Then, it was revised and administered to measure the effects of the treatment. The post-test was administered once at the end of the third semester to measure the cumulative effect of the Collaborative and Coaching (CO2) Instruction across the three semesters. Although both quantitative and qualitative data were used, the study was not explicitly aligned with a specific Mixed Methods design; instead, the qualitative data functioned as supportive evidence to enrich the quantitative results. Additionally, the teachers' reflective accounts were obtained and analyzed to provide insight into their teaching experiences and professional growth.

Participants

In this study, the participants were 100 third-year English Business Communication students from the Faculty of Liberal Arts at Sripatum University in Thailand. They were purposely selected

for this implementation. The purpose of this selection was to enable the team teachers to better prepare them for their final year of study, during which they would have to work in a real workplace as part of the Cooperative Education program. Additionally, the third-year curriculum mandated that the students complete a few business courses instructed by faculty from the School of Business Administration. Therefore, via the use of project-based instruction, the English teachers built the project around the business subject which made the learning meaningful to the learners. There were 21 males and 79 females participating in the team-teaching approach which had been designed and implemented as a pioneer of a new teaching approach.

Table 3

Methods and Instruments Employed to Answer the Research Questions

Research questions	Purposes	Instruments	Data sources	Data analyses
1. To what extent does co-teaching enhance the English proficiency of students majoring in English for Business Communication?	To investigate the effectiveness of a team-teaching approach on students' English language achievement.	An English test	Pre-post test scores	Descriptive statistics (μ , σ , t-test)
2. What are the opinions on teaching experience employing the co-teaching approach leading to professional development?	To explore the team teachers' experience with the co-teaching approach and their professional development.	Open-ended questions in the engagement questionnaire	Analysis of the data from the open-ended questions	Content analysis, coding, and categorization

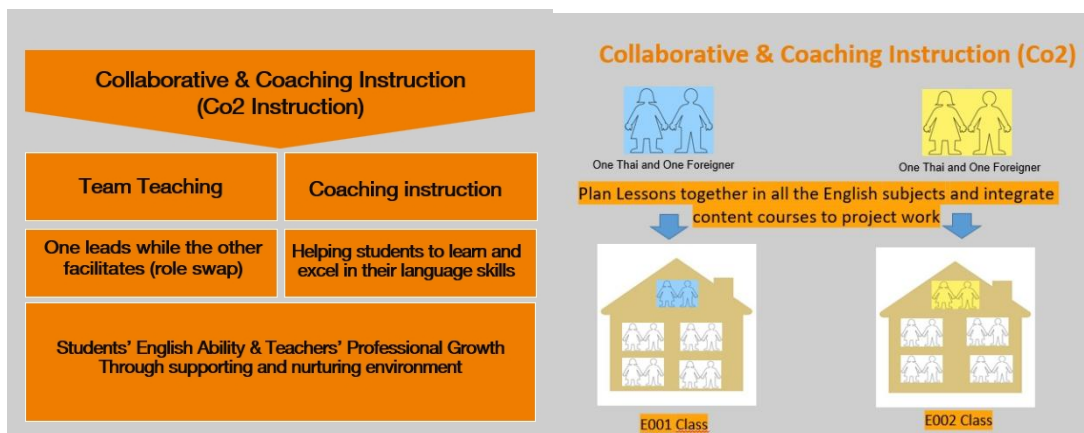
Co-Teaching Instruction Design

The team-teaching approach of this study was initiated with the researchers' belief that teachers should not feel isolated as the sole agents in their own classrooms. In the Thai context, teachers at the tertiary level are often perceived as being the "sage on the stage," meaning they take on the dominant role in a large classroom.

To delve into the quest of how co-teaching enhances the English proficiency of students majoring in English for Business Communication, the researchers designed the Collaborative and Coaching (CO2) Instruction. This co-teaching, adopting a lead and support teaching approach, was employed along with coaching instruction and project-based learning to foster a collaborative learning environment and provide scaffolding for students in the classroom. The team-teaching instruction designed in this study can be demonstrated below (as in Figure 1).

Figure 1

The Design of Collaborative and Coaching (CO2) Instruction



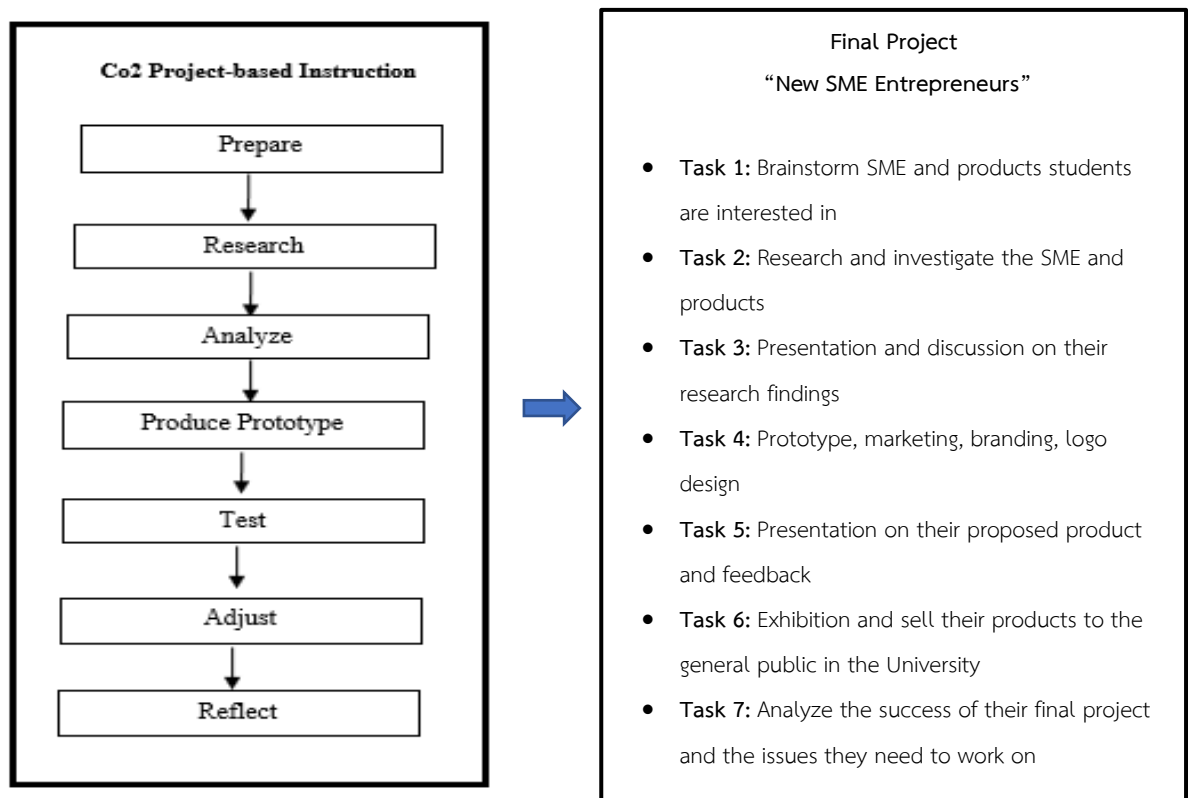
Course Content

All the English courses offered in each semester were integrated and designed in coordination with other discipline courses, taught by content teachers in Thai (such as marketing and related business courses), with a focus on project work. In the English courses, students were required to demonstrate their English language proficiency through project work, showcasing the English language skills acquired from the English courses and the content knowledge gained from

the business courses, as their final product. The teaching steps can be seen below (as in Figure 2).

Figure 2

The Steps of (CO2) Instruction



In the teaching process, the team consisted of two Thai instructors with at least 10 years of teaching experience and two Filipino instructors with less than 5 years of teaching experience at the higher education level. They were paired up into two classes, with one Thai and one Filipino instructors in each class. However, in some lessons, the two groups gathered as one class to share their ideas and learn the business content taught by the instructors from the School of Business Administration.

The four teachers collaboratively worked together into four stages— (1) Designing integrated lesson plans and material development of the five English courses (EBC341 Academic Writing, EBC411 English Proficiency Test Preparation, EBC412 Seminar in Business Communication

English, EBC431 English for Business Negotiations, and EBC441 Cross-Cultural Business Communication), (2) Implementing the CO2 instruction over a two-day period, (3) Evaluating and Assessing students, and (4) Reflecting on the overall implementation for future improvement. To accommodate the large student cohort of 100 students, the group was divided into two separate classrooms, each led by a pair of co-teachers. To ensure consistency in methodology and assessment standards, all four instructors operated as a unified team. Classroom assignments were strategically determined based on specific criteria, including prior teaching experience, educational background, and technological proficiency. To elaborate, in one classroom, there was a teacher with more experience, and the other teacher had acquired technology skills (e.g., a basic understanding of Google Forms, the Excel program, and language applications required for teaching) to improve professional development, a more dynamic classroom environment, and successful teaching and learning outcomes.

During implementation, the teachers frequently swapped roles; while one instructor led the lesson, the other monitored and facilitated student progress. These roles were alternated throughout the two-day period to allow both instructors to provide more insightful feedback to one another. This shift in responsibilities also enabled each instructor to leverage their specific expertise in certain topics. Reflection was regularly utilized to ensure the effective delivery of the co-teaching framework. After each session and at the end of the week, the team teachers analyzed successful classroom activities, identified pedagogical obstacles, and evaluated student engagement and emotional responses alongside their own teaching experiences. Consequently, instructional adjustments were made iteratively, informed directly by student reactions and feedback. The team teachers consolidated their agreements and disagreements on various aspects of the co-teaching approach. After a year of two consecutive semesters, all the data were analyzed and summarized, as described in the next section.

Results

After the implementation of the team-teaching instruction (named as CO2 instruction model), data were gathered and analyzed to thoroughly examine the effectiveness of the team-teaching approach on students' English language achievement. Additionally, the study aimed to

provide a comprehensive description of team teachers' experiences with the co-teaching approach and their professional development.

To investigate the effectiveness of a team-teaching approach on students' English language achievement, the researchers analyzed the pre-test and post-test scores of the students. The results are shown below (as in Table 4).

Table 4

The Results of the Comparison of the Mean Scores of the English Test Before and After the Implementation of the CO2 Instruction (N=100)

Mean scores of English tests	N	μ	σ	t	Sig.
Pre-test	100	38.30	7.04	-7.509*	.000
Post-test	100	44.89	7.55		

*p < .05

As shown in Table 2, after the implementation of the Collaborative and Coaching (CO2) Instruction, the mean scores ($\mu = 44.89$) of the post-test of English proficiency were significantly higher than the pre-test scores ($\mu = 38.30$), with statistical significance at the 0.05 level. The comparison of the pre-test and post-test scores showed a statistically significant improvement in students' English proficiency after the CO2 Instruction. The pre-test scores ($\bar{x} = 38.30$, SD = 7.04) were significantly lower than the post-test scores ($\bar{x} = 44.89$, SD = 7.55). A paired-samples t-test confirmed this difference, $t(99) = -7.509$, $p < .001$, indicating a meaningful increase in achievement across the three semesters.

To explore the team teachers' experiences with the co-teaching approach and their professional development, the teachers' reflective accounts from four respondents (RA 1 Less experienced foreign instructor, RA 2 More experienced Thai instructor, RA 3 Less experienced foreign instructor, and RA 4 More experienced Thai instructor) were categorized and thoroughly analyzed the open-ended questions in the engagement questionnaire, including (1) perceived

benefits and challenges of CO2 instructional model and (2) professional knowledge and skills acquired during the implementation.

The responses of the perceived benefits and challenges of CO2 model from the four co-teachers reveal that the instructional model had several benefits to student learning and engagement. It enhanced individualized support to the class. The ‘one teach, one assist’ and constant role swapping allowed for immediate one-on-one coaching. RA 1 and RA 2 noted that while one instructor led the lesson, the other could ‘monitor and facilitate,’ ensuring students stayed on track. Furthermore, it created psychological safety and confidence to the students. Students were less ‘shy to ask questions’ when there were two instructors walking around facilitating them, resulting in students to appear ‘more forward and confident’ compared to those in regular classes (RA 1). As for challenges, team-teaching could be operational planning constraints. Finding time when allowed the four instructors to ‘sit down together and plan’ was identified as the most difficult factor due to active teaching schedules (RA 1). Moreover, the integration of the five English courses was time consuming on creating a new course outline and content, developing equitable assessments, and designing an end-of-term project that integrated all courses. ‘With more time to plan, I believe it would not have been as challenging’ (RA 1). However, the integration of course content and assessments was completely beneficial to the students because ‘they were not inundated with the content of each course and numerous quizzes, tests, and assignments, which would have occurred had the courses been taught separately’ (RA 2). Nevertheless, while some students reported ‘boredom at having the same pair of instructors for all five courses two days in a row,’ others—including the lecturer—found that the consistency allowed them to develop a deeper rapport, which was highly meaningful to her (RA 4).

The responses of professional knowledge and skills acquired during the implementation of CO2 model highlight and confirm the growth in both pedagogical expertise and professional learning. The co-teaching model enhanced the instructors’ professional and pedagogical skills through observational learning. Less experienced teachers gained ‘invaluable knowledge and new

insights, while providing and receiving professional feedback to further develop my teaching style’ (RA 3). On the other hand, the more experienced instructors learned to ‘align teaching strategies and coordinate delivering content with their partners, ensuring a unified instructional voice’ (RA 4). One of the most essential professional learning obtained from team teaching was interpersonal and communication competencies. All the four respondents developed skilled in ‘coordinating schedules’ and ‘expressing ideas clearly.’ RA 4 specifically noted that ‘strong communication and interpersonal skills’ were the foundation of a successful team. In addition, the team gained the ability to ‘solve problems collaboratively’ and adjust strategies in real-time based on immediate student feedback (RA 4). Ultimately, team-teaching promotes teacher wellbeing. This is a significance of a positive workplace climate. RA 1 emphasized that active communication, openness, and trust fostered a genuine sense of teacher wellbeing. This state was achieved through ‘cordial and mutual support,’ where team members felt emotionally and professionally sustained by one another.

Discussion And Conclusion

The findings of this study provide convincing evidence for the effectiveness of the Collaborative and Coaching (CO2) Instruction model in enhancing both student achievement and teacher professional development. The findings can be discussed in twofold as follows:

The impact of CO2 Instructional model on student achievement

The quantitative results derived from the pre-and post-test demonstrate a statistically significant improvement in students' English proficiency. The research findings align with the research results conducted by Narmashiri et al. (2021), Sukkasem (2023), and Maghfiroh et al. (2024), who noted that collaborative practices lead to improved student learning outcomes. This significant improvement suggests that the team-teaching model can possibly be a potential instructional approach for the Thai higher education context. Team-teaching approach allows for a more dynamic classroom where students receive more immediate feedback, diversified instruction, and flexible and manageable learning content and assessment for the learners. This

can be supported by a study by Cullen et al. (2009) on *Co-teaching: why two heads are better than one*. The study reveals that having two teachers with different responsibilities in class can benefit students in terms of receiving ample time for listening, replying, and receiving feedback.

Beyond improving student achievement, according to the responses from the co-teachers, it fosters a deeper rapport between the instructors and their students, as well as among the students themselves. This rapport creates psychological safety, which emerged as a unique finding. The presence of two instructors reduced the ‘shyness’ typically found in language learners, making students ‘more forward and confident’ as noted by the first respondent.

Benefits and challenges: Professional Growth and Teacher Wellbeing

The qualitative accounts of the four respondents highlight that the primary benefit of the CO2 model is the creation of a supportive learning environment, which directly results in positive wellbeing of the instructors. The aspect of teacher well-being can also be supported by New South Wales Department of Education (2022) that co-teaching leads to “increased teacher and learner wellbeing” (p.3). Through openness, trust, and mutual support, co-teaching fosters professional friendships that reduce the sense of isolation and burnout commonly found in the teaching profession.

Conversely, the study suggests that integrating multiple courses remains the most significant hurdle. Continuous communication and reflection regarding both operational logistics and student progress are essential to prevent procedural misunderstandings and ensure that assessments and feedback are accurately documented. Successfully navigating these challenges requires a commitment of time, flexibility, and a foundation of mutual respect and trust among team teachers. Beyond the hurdles for team teachers, the student experience remains a priority. Regular communication between the co-teaching team and the students is fundamental to ensuring student success and engagement.

This study points toward the possibility that an interdisciplinary team-teaching approach might be effectively integrated into the Thai higher education settings, given the promising outcomes observed during its implementation on both students’ English outcomes and teachers’ professional development. Furthermore, future research might consider incorporating larger

sample sizes, more extensive qualitative datasets from both instructors and students, and longitudinal designs to provide a more comprehensive understanding of the model's long-term impact.

While the CO2 model yielded promising insights, certain limitations should be acknowledged. A primary constraint involves the formal validation and reliability testing of the instructional plan. It was however developed by experienced team-instructors. On another note, the English proficiency test was assessed by three external experts in the fields of English instruction and assessment without a formal Index of Item-Objective Congruence (IOC) procedure due to time constraint. The teacher-researchers incorporated expert feedback to revise and improve the test. Consequently, it is suggested that the findings should be interpreted with caution, and future studies are encouraged to employ fully validated and reliable instruments to enhance methodological rigor. ChatGPT was used for linguistic refinement and to assist in identifying relevant literature. All AI-suggested sources were manually verified and appraised by the authors to ensure accuracy, with final data synthesis and interpretation remaining the authors' sole responsibility.

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