

Enhancing Thai Undergraduates' Writing and Critical Thinking through Problem-Solving Tasks and the PIMPORN Instructional Model (PIM)

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Abstract

It is challenging to help Thai undergraduate students express their ideas clearly and effectively in English writing. Previous studies have highlighted the importance of task-based learning and critical thinking in writing instruction. However, fewer studies have looked at how structured teaching methods that combine problem-solving tasks and group work can improve both writing skills and critical thinking. This study examines the effectiveness of the PIMPORN Instructional Model (PIM). This model uses problem-solving tasks, collaborative discussions, and feedback to support learning. A research question is how the PIMPORN Instructional Model affects Thai undergraduate students' English writing performance and their critical thinking skills. The study used a quantitative method design with 9 English majors enrolled in an academic writing course at a university in northern Thailand. The researchers collected data through opinion essays given before and after the training, questionnaires, and group reflection activities. The results showed improvements in writing performance ($t(8) = 5.52$, $p < .001$, and critical thinking scores ($t(8) = 4.40$, $p = .002$, with Cohen's $d = 1.84$ and 1.47). The findings suggest that the PIMPORN Instructional Model is an effective way to integrate writing instruction with the development of critical thinking in EFL higher education.

Keywords: collaborative learning, critical thinking, EFL writing, problem-solving tasks, task-based language teaching

Introduction

Writing is one of the language skills instructed at the university level. It is required in many study sequences, from essential to academic writing courses. The students are requested to

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write from a sentence to an essay. In particular, an essay, which may be a requirement for writing activities at the university, should also test students' cognitive language-learning abilities. The students can express their feelings or ideas through the letters. As is known, written words do not mean only the letters that are connected to convey meaning; they also convey ideas or cognitive issues, as both Emig (1977) and Bean (2011) claimed that writing is a unique cognitive process that promotes higher-level learning and active critical thinking.

Thai undergraduate students encounter four main challenges while writing English essays. First, students typically have trouble organizing their ideas, keeping things consistent, and making logical arguments when organizing their information. (Laohasawad & Somphong, 2025). When students need to make their writing clear and consistent, they often struggle to organize their ideas. It is hard for many individuals to keep their ideas in order and ensure their arguments are coherent. This makes it hard for readers to understand what they are trying to say. To write convincing and coherent stories, you need to learn how to organize your thoughts well. Second, in their argumentation and reasoning, students struggle to provide clear explanations and sufficient evidence to support their views. This is particularly true when they must write essays requiring clear, well-developed reasoning (Suputra et al., 2021). Third, when it comes to linguistic correctness, kids typically have trouble with syntax, word choice, and sentence structure in their writing. These problems may make it hard for readers to understand what they are trying to say and reduce the effectiveness of their writing. As a result, their written work may not make their ideas clear, making it less valuable (Saengklaijaroen, 2013). Fourth, it relates to critical thinking and the educational context. It relates to the educational system in Thailand, where students have few opportunities to question, explain, or critically assess concepts due to the traditional learning system. Students need to listen to the teacher and follow the teacher's requests. Consequently, students could become accustomed to simply repeating what they have heard rather than developing their own ideas and supporting them with evidence. This kind of learning environment may make it harder for students to learn to think critically and to write down, expand on, and defend their arguments, all of which are important parts of making a good academic argument.

Thai EFL schools have implemented considerable changes to their English writing lessons in recent years. The students are taught not only basic language skills but also higher-order and critical-thinking abilities. This change shows how important it is to assist students not only in writing effectively but also in thinking critically and developing innovative concepts through their writing. Studies indicate that interactive, student-centered strategies like peer feedback, gamification, and collaborative writing could actually assist students in writing better and learning even more.

For example, Al Herz et al. (2025) found that integrating digital tools with peer feedback boosts students' engagement in learning and makes the writing process livelier and more effective. These findings emphasize the importance of combining digital technologies with innovative teaching approaches. They motivate teachers and researchers to explore these techniques while enhancing writing instruction and supporting students in developing critical thinking. Similarly, Kiasi and Rezaie (2021) and Singthong et al. (2025) found that peer evaluation and

collaborative idea-sharing consistently promote deeper cognitive processing, leading to improvements in both writing performance and critical thinking across different educational levels. Hence, these studies suggest that socially mediated, task-based learning environments are remarkably effective at improving students' analytical, evaluative, and writing skills. Although previous research has demonstrated the success of these methods in general EFL settings, there remains a lack of studies that embed these techniques within a dedicated instructional framework tailored for Thai undergraduate students. This gap emphasizes the importance of a structured strategy, such as the PIMPORN Instructional Model, that thoughtfully integrates problem-solving activities with collaborative learning to improve both writing and critical thinking skills.

Additionally, problem-solving pedagogy and critical-thinking instruction related to writing ability are concerned. A genre-based approach obviously encouraged Thai EFL students to work with some writing formats and rhetorical contexts, while their critical thinking skills improved during the writing activities (Insuwan & Thongrin, 2025). The studies suggested that the lessons should focus on challenging tasks that support and develop the students' thinking abilities, rather than working on routine language assignments.

Furthermore, because argumentation is a learning strategy that supports step-by-step thinking, an argumentative approach should be employed in essay writing and English proficiency tests for university students, as it promotes deep thinking and problem-solving abilities. Moreover, the writing assignment's requirements aim to assess students' consideration and provide reasons that demonstrate their smart thinking.

Although more research shows that peer feedback, collaborative writing, and task-based activities can improve writing skills and critical thinking, most studies examine these methods separately. There is little research on combining problem-solving activities, such as dilemma questions, within a structured instructional framework designed to develop both writing and critical thinking simultaneously, especially in the Thai EFL undergraduate context. Therefore, it remains unclear how effective it is to organize these components into a single teaching model to enhance learning. To address this gap, this study investigates whether Thai EFL students can improve their English writing and critical thinking skills through problem-solving tasks with dilemma questions and collaborative learning within the PIMPORN Instructional Model. This model is created by integrating key principles from task-based language teaching frameworks (Ellis, 2003; Nunan, 2006; Skehan, 1998; Willis, 1996). It is an instructional model that combines the ideas of all four TBLT frameworks and adapts them to 21st-century teaching and learning. It emphasizes problem-solving through a dilemma question that lacks a right-or-wrong answer, promoting students' critical thinking, collaboration, and communication skills.

This is an important sentence, but it raises two key concerns. First, it remains unclear what is genuinely new in the PIMPORN model beyond existing task-based frameworks. Second, if the main evidence comes from opinion essays, please make it clearer how these essays can validly show both writing development and critical thinking development.

Literature Review

1. Writing and Critical Thinking in EFL Contexts

In the EFL learning approach, students are required to write paragraphs and essays to demonstrate their ability to use language effectively in daily life and academic areas. To get better at writing, students need more than just good grammar. They also need to share their ideas clearly, make strong points, and think about different views. Therefore, effective writing pedagogy emphasizes not only the mastery of language forms but also the development of meaningful communication and the construction of ideas. In today's education, writing is considered very important because it helps students improve their thinking skills (Hyland, 2019). When learning English, writing allows students to integrate their language skills with critical thinking, such as reasoning and problem-solving. As a result, teachers now emphasize the importance of critical thinking in writing lessons. Analyzing information, presenting their ideas with evidence, and, obviously, linking their thoughts are the requirements when students learn to write in English. This approach helps them produce strong written work and improve their organizational thinking skills.

Writing is a complex language-learning activity that enables students to organize their thoughts, construct knowledge, and engage in deep thinking. The first educator to promote a unique approach to learning was Emig (1977), who argued that writing should be an active process of production rather than a passive process of reception. In a similar attitude, Bean (2011) contends that writing fosters critical thinking, as composing requires students to evaluate evidence, structure arguments, and clarify their reasoning.

This study is based on two different but related theories: writing as a way to think critically and task-based language instruction (TBLT). These frameworks together provide the foundation for integrating writing development with higher-order cognitive abilities in the EFL context.

From a cognitive point of view, writing is more than just using language. It is a way to create meaning and build knowledge. Bean (2021) emphasizes that writing is an effective tool for learning. He explains that students develop critical thinking by analyzing problems, building arguments, and explaining their reasoning. He also highlights that problem-based and inquiry-driven writing tasks help students address complex issues, consider different viewpoints, and provide thoughtful answers. This approach treats writing as an active process that helps students think more deeply rather than just repeating information.

Complementing this perspective, TBLT provides a pedagogical framework for designing meaningful language learning activities. Scholars such as Rod Ellis (2003), David Nunan (2006), Jane Willis (1996), and Peter Skehan (1998) argue that language is most effectively acquired when learners engage in tasks that require authentic communication and problem-solving. TBLT emphasizes the use of purposeful activities, interaction, and learner-centered processes, all of which create opportunities for both linguistic development and cognitive processing. Importantly, task-based approaches encourage learners to negotiate meaning,

reflect on their output, and refine their language use through iterative cycles of performance and feedback.

Drawing on these two theoretical strands, the present study adopts the PIMPORN Instructional Model as an integrative framework that combines problem-solving tasks with collaborative and task-based learning principles. The use of dilemma-based questions reflects Bean's (2021) emphasis on inquiry-driven writing, as such tasks require learners to evaluate alternatives and construct arguments in response to real-world-like situations. At the same time, the structure of the PIMPORN model aligns with TBLT principles by incorporating stages of task engagement, interaction, and reflection, thereby facilitating both language use and cognitive development.

This study's theoretical framework emphasizes engaging learners as active participants in meaning-making through the integration of writing and critical thinking. It also provides a clear rationale for the instructional approach, suggesting that blending problem-solving activities with structured, task-based methods can enhance both English writing skills and critical thinking in Thai EFL undergraduate students.

2. Difficulties Faced by Thai EFL Students in Writing and Critical Thinking

In academic writing classes, many students struggle to express their ideas clearly. Additionally, their grammar and essay structures are also difficult to communicate effectively. Research shows that students struggle to express logical thinking and to flow well in their paragraphs, with strong supporting ideas, in academic writing (De Vleeschauwer, 2023; Laohasawad & Somphong, 2025). The frequent pauses in their writing development include insufficient evidence with clear explanations, a lack of ideas for argument and support, a lack of clear reasons and mechanics, and a lack of essay structure (Suputra et al., 2021). Moreover, Saengklaijaroen (2013) claimed that grammar. Sentence structure and word choice that help make explanations and ideas clear in writing are frequently struggles for Thai students. Consequently, weaknesses in language skills and organizational ability often result in essays that lack clarity, coherence, and persuasiveness.

Beyond language challenges, another limitation that makes students struggle with writing and critical thinking is a lack of experience engaging in critical thinking in academic writing. Many English students struggle to write essays. They often do not question their ideas, consider other opinions, or create clear arguments (Samanhudi & Linse, 2019). This deficiency may partly originate from pedagogical traditions that prioritize teacher-centered instruction and accuracy-focused language learning over analytical discourse and independent reasoning (Insuwan & Thongrin, 2025).

Usually, the challenges discussed above show that Thai EFL students struggle with writing not only because of language skills but also because their critical-thinking abilities are underdeveloped (Chala et al., 2025). Peer feedback, collaborative writing, and problem-

solving tasks can enhance writing skills and cognitive engagement, potentially addressing concerns identified in previous research.

It is still unclear how these teaching methods can be combined to address both writing and critical thinking simultaneously, especially for Thai undergraduate EFL students. There is also little research on instructional models that integrate problem-solving, structured writing, and collaborative learning. This gap shows that more study is needed in this area.

Therefore, this study investigates the effectiveness of the PIMPORN Instructional Model (PIM). The model combines dilemma-based problem-solving tasks and collaborative writing activities in a structured way. The research explores whether the PIMPORN model can help Thai EFL undergraduate students improve their English writing skills and critical thinking, as demonstrated in their opinion essays.

3. Task-Based and Problem-Solving Approaches in EFL Writing

Task-based language teaching (TBLT) is one approach that helps students improve their language skills. Many tasks support language learning. In this study, students encounter real assignments that require language use to achieve specific aims in problem-solving and thinking, as well as working on group and individual projects. Unlike traditional form-focused instruction, TBLT encourages students to focus on meaning construction, discourse organization, and idea development, which are essential elements of academic writing. According to previous studies, task-based activities can significantly support students' writing skills by encouraging them to express their ideas, present appropriate reasons, and clearly explain their thoughts, thereby improving their language proficiency (Ellis et al., 2020; Sheppard, 2022; Fadlilaturrohman, 2025). Moreover, TBLT has been found to support cognitive engagement in writing tasks by encouraging students to integrate linguistic knowledge with analytical thinking processes (Zhang & Hyland, 2023).

Among the various task types used in TBLT, problem-solving tasks are particularly effective in fostering both writing development and critical thinking. These tasks require students to analyze complex situations, evaluate possible solutions, and justify their decisions through logical reasoning, thereby encouraging deeper cognitive engagement. A problem-solving activity needs students' expressions and viewpoints to support their arguments and show their ideas for solving the problems; therefore, students should express their views and use them to support their writing, employing language and critical-thinking skills (Liang & Fung, 2021; Chala et al., 2025). Interestingly, integrating task-based learning into problem-solving tasks with the writing assignments reveals to students how to combine their compositional skills and reasoning to clarify their written arguments. To examine if writing and critical thinking skills among Thai undergraduate students have improved, this study applies the PIMPORN Instructional Model (PIM) to enhance these skills through task-based learning, dilemma-based problem-solving, and collaborative writing.

4. Expressing Viewpoints and Critical Thinking Development in Writing

Writing that integrates opinion sharing is essential for helping students enhance their thinking abilities because before offering an opinion to convince others, they must think critically and analyze the problems. The supporting study by Jimola and Olaniyan (2021) claimed that it is very important to allow students to engage in argumentative activities, as they help students improve their reasoning abilities and academic engagement.

In the Thai context, recent studies have explored the integration of critical pedagogy and genre-based instruction to engage with language composition and cognitive learning. The study proved that the problem analysis designed to identify appropriate reasons was intended to foster discussion, reflection, and problem exploration (Insuwan & Thongrin, 2025). Consequently, writing instructions should focus less on traditional grammar-focused approaches and provide tasks that support reason-giving and critical thinking.

5. The PIMPORN Instructional Model (PIM)

The PIMPORN Instructional Model (PIM) is founded on Task-Based Language Teaching (TBLT) and collaborative learning. Both methods emphasize meaningful interaction, problem-solving, and learner engagement in developing language skills (Ellis, 2003; Nunan, 2006; Skehan, 1998; Willis, 1996). TBLT suggests that the most effective language learning occurs when students engage in tasks that involve using the language to achieve real communication goals. Usually, TBLT consists of three phases: pre-task, task cycle, and post-task. These phases guide learners from preparing for the task to reflecting on their performance.

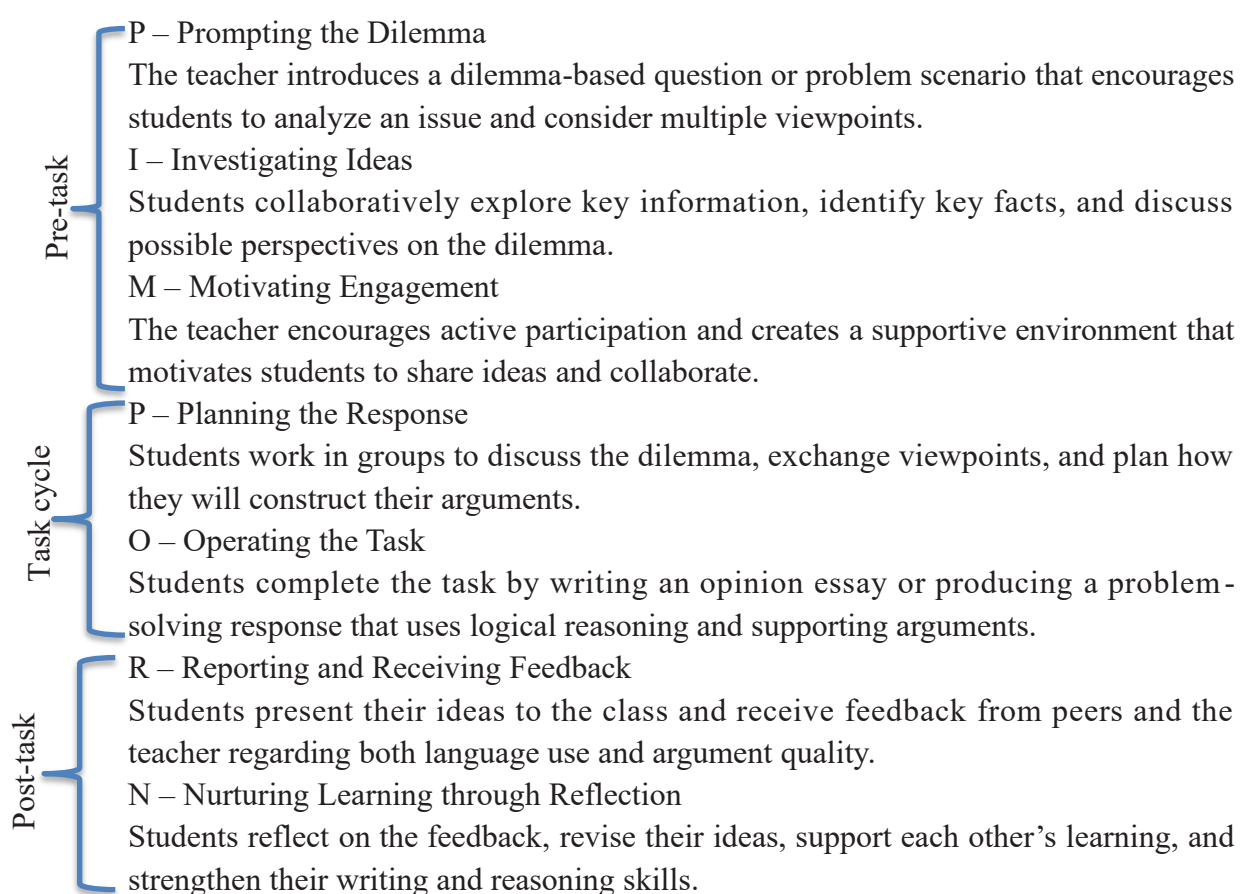
Generally, TBLT does not clearly demonstrate how to design exercises that simultaneously enhance both writing skills and higher-order thinking, especially in EFL academic writing settings. It provides a strong foundation for teaching in many implementations, tasks emphasize communication or fluency, yet the incorporation of structured reasoning, argumentation, and textual expression remains insufficiently developed.

The PIMPORN Instructional Model extends TBLT by introducing three key innovations: First, it makes dilemma-based problem-solving the main focus of each task, rather than using tasks primarily for practicing communication. According to Skehan (1998), problem-solving tasks in PIMPORN are designed to require learners to weigh different options, explain their choices, and build arguments. This approach directly links language use with critical thinking. Second, this approach clarifies how to transition from generating ideas to writing an argument, showing how interaction drives the writing process. In typical TBLT, speaking does not necessarily result in writing. However, in PIMPORN, students are guided step by step from group conversations (Investigating, Planning) to writing projects (Operating). In this way, students' thoughts and interests are reflected in their writing. Third, PIMPORN treats feedback and reflection as ongoing and collaborative, not just something done at the end. According to Ellis (2003), feedback in the PIMPORN model happens during both the reporting and

nurturing stages. This helps learners improve their language and reasoning skills through interaction with peers and teachers.

These innovations are implemented through seven stages: (Pre-task) Prompting the Dilemma, Investigating Ideas, Motivating Engagement; (Task cycle) Planning the Response, Operating the Task, (Post-task) Reporting and Receiving Feedback; and Nurturing Learning through Reflection. Although these stages generally align with the pre-task, task cycle, and post-task phases of TBLT, they offer a more detailed, writing-focused instructional sequence that clearly includes problem-solving, collaboration, and reflective learning.

Here is a developed version that clearly shows collaboration, problem-solving, and feedback.



It is interesting that the PIMPORN Instructional Model goes beyond simply following existing TBLT principles. It provides a well-structured, context-specific approach that helps Thai EFL learners develop both English writing and critical thinking skills simultaneously.

Research Objectives

Because this study explores how problem-solving tasks and the PIMPORN Instructional Model (PIM) can enhance undergraduate students' writing and critical-thinking skills, the objective aims to investigate if problem-solving tasks and the PIMPORN Instructional Model (PIM) affect Thai students' English writing and critical thinking skills.

Methodology

1. Research Design

The study used a one-group pre-test and post-test design to see how the PIMPORN Instructional Model affected students' writing and critical thinking. Researchers measured students' performance before and after the intervention to find out if the approach was effective.

2. Participants

There were nine Thai students majoring in English who were taking the 1006273 English Reading and Writing Three course at a university in northern Thailand who participated in the study. Gender and age were not restricted. Students must take 1006273 English Reading and Writing 3 because this subject teaches how to analyze, critique, and summarize academic or semi-academic articles to compose responsive essays, as well as basic citation principles. As a result, the students are academically qualified to express their ideas and opinions and to solve the problems presented to them.

3. Research Instruments

In this study, the researcher used a pre-test and a post-test to collect numerical data. Participants were asked to write a three-paragraph opinion essay responding to the dilemma question within 1.5 hours. The pre-test not only provided a score to evaluate each participant's writing skills by assessing the complexity and accuracy of their English grammar and the structure of their three-paragraph opinion essay before the experiment, but it also served to group participants into three categories: high (16-20 points), medium (11-15 points), and low (1-10 points). Three foreign lecturers who teach English scored the essays and provided feedback, whereas the researcher trained the participants. Each student's essay-writing and critical-thinking scores from the three lecturers are combined, then divided by 3 to obtain the total score. The rubrics for essay correction and critical thinking are provided. After the training, the same participants completed the post-test by writing another three-paragraph opinion essay on the same topic as the pre-test.

Using the same topic for both the pre-test and post-test makes it easier to compare students' progress in argumentation, organization, and critical thinking by reducing external influences and highlighting improvements in writing quality. However, repeated testing can create a "testing effect," where participants become more familiar with the task format and expectations over time. This approach was implemented to control task variability and ensure comparability across assessments. Maintaining a consistent prompt allowed for more reliable

attribution of observed performance differences to the instructional intervention, rather than to variations in topic difficulty or students' background knowledge.

The study used an integrated analytic scoring framework based on CEFR B1+ writing descriptors (Council of Europe, 2016), along with extra rubrics for critical thinking. The CEFR framework provided the primary basis for assessing students' writing skills, particularly organization, coherence, and language use. The criteria included introduction, thesis clarity, supporting evidence, conclusion, and grammatical accuracy. CEFR descriptors are usually focused on language skills, but in this study, they were also used to assess cognitive aspects of writing. Another rubric measured critical thinking by assessing how well students understood the issue, considered different viewpoints, used reasoning, demonstrated creativity, and made their arguments clear. To analyze the results, the researcher split the rubrics into two primary groups. There were two key parts of the rubric used for analysis. A rubric assessing organization, structure, and language use was used to evaluate writing skills. We used problem-solving and critical thinking rubrics to test critical thinking. These looked at assessment, reasoning, and conclusions. Each rubric got its own score. The results showed how students' writing and critical thinking changed from the pre-test to the post-test. This approach supports the view that writing is a cognitive activity (Bean, 2021). It shows that critical thinking means building, supporting, and improving arguments in writing. By using CEFR-based language evaluation along with tools for reasoning and problem-solving, the research provides a more comprehensive view of students' progress.

The problem-solving tasks assigned participants to write a 250-300-word, three-paragraph opinion essay. The opinion essay is adapted for this study because it involves giving reasons, discussing, and finding solutions, although the focus was not on correctness. It is an open-minded activity that is good for working in a group or individually, as the participants can express and share their points of view. It included dilemma or difficulty-situation questions that simulated problematic scenarios to prompt participants to find appropriate solutions. The tasks are assigned both in group work and in individual work. The group aimed to observe participants' collaborative learning, while the individual work aimed to study participants' differences. Nevertheless, accuracy and complexity, the writing process and writing products, attitudes, and improvement in writing proficiency were studied in both group and individual work.

The approach that the researchers use is PIMPORN Instructional Model (PIM) – The PIMPORN Instructional Model (PIM) is a created model that integrates and collaborates with task-based learning frameworks from Nunan (2006), Willis (1996), Ellis (2006), and Skehan (1996), and is focused on developing critical thinking and writing skills through problem-solving dilemma questions. The dilemma questions do not ask for a correct or incorrect answer. It is provided to develop argument skills through essay writing. The answer will be from the writer's ideas and their thoughtfulness. Interestingly, the answer can express their deep thought. Although many topics are employed in the writing class, it is rare to see a writing class that uses dilemma questions to compose academic writing.

4. Data Collection

Data gathering was carried out in an orderly sequence of teaching and testing steps. The research recruited a total of nine individuals. Everyone who took part in the study had to take a pre-test that asked them to write an opinion essay. Based on their pre-test scores, participants were assigned to three groups: high, medium, and low. Three students were at each level.

After the pre-test, participants completed a pre-questionnaire to share their initial thoughts. After that, they were put into groups depending on their skill levels. Each group then worked together to finish the first writing assignment by discussing a dilemma-based prompt and writing an opinion essay. After completing the group exercise, each person wrote an essay on the same subject so their performance could be compared with the group's. In all circumstances, three professors used the same grading criteria to provide comments.

In the next step, the participants were placed into groups of students with varying skill levels. Each group included one student with a high level of skill, one with a medium level, and one with a low level. These groups completed a second collaborative writing assignment on a new dilemma-based topic, and then each person wrote individually about the same issue. After each assignment, feedback was given again.

After completing all instructional activities, participants took a post-test that required them to write an opinion essay on the same topic as the pre-test. Finally, they engaged in a reflection activity to discuss their learning experiences, followed by a post-questionnaire administered through Google Forms to gather their perceptions of the PIMPORN Instructional Model and problem-solving tasks.

It is also important to note that the instructional intervention included several components, including group work, writing alone, planned feedback, and regrouping. The PIMPORN Instructional Model was carefully designed to include these parts. They are not simply a list of alternative methods for teaching; they are a comprehensive set of rules for educating. The goal of this research was not to examine how well each part worked on its own, but to assess how well the model improved writing and critical thinking abilities.

Therefore, the purpose of this study was not to examine the individual effects of each component but to evaluate the model's combined effect as an integrated approach to developing writing and critical thinking skills. As a result, caution should be exercised in attributing improvements to any single factor. Future research may explore the relative contribution of individual components through more controlled experimental designs.

Results

Table 1

Descriptive Statistics for Pre-test and Post-test Writing Scores (N = 9)

Test	<i>M</i>	<i>SD</i>
Pre-test	12.12	2.23
Post-test	16.20	1.26

Note. Scores are based on a 20-point rubric.

Table 2

Paired-Samples t-test Results for Writing Scores

Measure	Pre-test <i>M</i>	Post-test <i>M</i>	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Writing Score	12.12	16.20	4.08	5.05	8	< .001	1.68

Table 3

Descriptive Statistics for Critical Thinking Scores (N = 9)

Test	<i>M</i>	<i>SD</i>
Pre-test	14.75	2.51
Post-test	19.02	1.21

Note. Scores are based on a 25-point critical thinking rubric.

Table 4

Paired-Samples t-test Results for Critical Thinking Scores

Measure	Pre-test <i>M</i>	Post-test <i>M</i>	Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Critical Thinking	14.75	19.02	4.27	5.87	8	< .001	1.96

The effectiveness of the PIM was evaluated using paired-samples t-tests to compare students' pre-test and post-test writing proficiency and critical thinking.

As shown in Table 1, students' mean writing scores increased by 4.08 points, from 12.12 (SD = 2.23) on the pre-test to 16.20 (SD = 1.26) on the post-test. Similarly, Table 3 indicates that critical thinking scores improved by 4.27 points, rising from 14.75 (SD = 2.51) to 19.02 (SD = 1.21). These findings demonstrate substantial gains in both linguistic (writing) and cognitive (critical thinking) performance following the instructional intervention.

The paired-samples t-tests confirmed significant improvements in both writing performance and critical-thinking scores from pre-test to post-test. Writing performance increased, $t(8) =$

5.05, $p < .001$, with a large effect size (Cohen's $d = 1.68$; see Table 2). Critical thinking also demonstrated a significant gain, $t(8) = 5.87$, $p < .001$, with a large effect size (Cohen's $d = 1.96$; see Table 4).

Together, these findings indicate that participation in the PIMPORN Instructional Model led to significant improvements in students' writing proficiency and critical thinking. The strong effect sizes further suggest that the intervention produced substantial gains in both skills.

In this study, critical thinking was assessed through students' written responses using a rubric that emphasized cognitive processes such as analysis, reasoning, and justification. Therefore, improvements in critical thinking reflect an enhanced ability to construct and support arguments in writing, rather than merely increased language accuracy.

These results provide direct evidence that the PIM is an effective integrated approach for developing writing and critical thinking skills in EFL students.

Discussion

This research evaluated the efficacy of problem-solving activities integrated into the PIMPORN Instructional Model (PIM) in enhancing English writing and critical thinking skills among Thai undergraduate students. Because only one group took the pre-test and post-test, and the sample size was small ($N = 9$), the findings should be interpreted with caution, and the results are discussed in terms of suggested trends rather than causal effects.

In terms of writing, this research evaluated the efficacy of problem-solving activities integrated into the PIMPORN Instructional Model (PIM) in enhancing English writing and critical thinking skills among Thai undergraduate students. Because only one group took the pre-test and post-test, and the sample size was small ($N = 9$), the results are discussed in terms of suggested trends rather than causal effects.

The findings reveal that the intervention improved students' writing skills, as evidenced by higher post-test scores and a large effect size. Everyone in the group improved. This means that everyone is getting better at the same time. These results suggest that the instructional approach may have supported students in organizing ideas more clearly, developing arguments, and expressing their thoughts more effectively.

The improvements observed cannot be attributed exclusively to the PIMPORN model. It is important to recognize that additional factors, such as continued writing practice, teacher feedback, and enhanced familiarity with the task, may also have contributed to these increases. Therefore, the results should be regarded as indicative progress following the intervention, rather than as definitive evidence of its effectiveness.

One possible explanation for this improvement is the task-based nature of the instructional design. The use of dilemma-based prompts required students to engage in meaningful

communication and organize their ideas into well-structured responses. This outcome aligns with the goals of task-based language training, which aims to improve learning through relevant tasks and the use of language for specific purposes (Ellis, 2003). Working on projects also generated new ideas. Before writing their arguments, students worked in small groups to refine their arguments and discuss suggestions. The interactions influenced each of their pieces, leading to better organization and clearer arguments. Although this discovery is based on classroom activities rather than individual tests, it provides early evidence that working together helps students improve their writing.

For critical thinking skills, the results also suggest that students improved, as shown by higher post-test scores. In this study, critical thinking was assessed through written responses using a rubric that focused on analysis, reasoning, and justification. Therefore, the findings reflect students' ability to demonstrate these mental skills in writing, rather than serving as an independent measure of their overall thinking ability. This interpretation aligns with the idea that writing acts as a tool for thinking, allowing learners to develop critical thinking by constructing and justifying arguments (Bean, 2021). One possible reason for this progress is the use of dilemma-based problem-solving tasks, which require students to evaluate situations, consider different perspectives, and justify their decisions—potentially encouraging deeper cognitive effort. Such engagement aligns with task-based approaches, in which challenging tasks promote both language use and higher-order thinking. However, because the intervention included multiple elements—such as problem-solving activities, collaboration, and feedback—it is not possible to determine the impact of each component individually. Consequently, the improvement seen should be viewed as the result of the combined teaching method rather than any single factor.

In summary, the results indicate that the PIMPORN Instructional Model may be a useful way to integrate writing instruction with the development of critical thinking skills in EFL classrooms. Using task-based learning and writing-as-thinking methods seems to help students develop both language and thinking abilities. Still, it is important to consider the study's limitations. The small number of participants and lack of a control group mean the findings cannot be widely applied, and because the intervention included several parts, it is hard to know which ones made the most difference. Future studies should use larger groups and more controlled methods to better understand how well the model works and which parts are most effective.

Conclusion

This study clearly showed the effectiveness of problem-solving tasks delivered through the PIMPORN Instructional Model (PIM) in significantly improving English writing and critical thinking skills in Thai undergraduate students. The results indicated notable gains in both writing performance and critical thinking abilities after the instructional intervention. The strong effect sizes in both areas highlight the PIMPORN model's substantial positive impact on education.

The findings show that problem-solving tasks, collaborative learning, and structured feedback can enhance learning experiences and support language skills and thinking abilities. Unlike traditional grammar-focused writing lessons, the PIMPORN model emphasizes developing ideas, building arguments, and reflective learning. This approach helps students engage in language and express their thoughts more clearly in writing.

The study, therefore, contributes to the growing body of research supporting task-based and problem-solving approaches to EFL writing instruction. The results show that working together and giving helpful feedback can help students improve their speaking and critical thinking. These skills are especially important in college, where students learn to read and write well while also thinking carefully about what they see and hear.

Recommendations

Based on the findings of this study, several pedagogical and research recommendations can be proposed.

First, EFL writing instructors should consider incorporating problem-solving tasks and dilemma-based discussion topics into writing instruction. These tasks encourage students to analyze issues critically, evaluate different viewpoints, and justify their arguments, thereby strengthening both writing quality and critical thinking skills.

Second, collaborative learning should be integrated into writing activities. Group discussions and peer feedback allow students to exchange ideas, reflect on alternative perspectives, and improve their reasoning processes. Teachers can design structured group activities that encourage active participation and constructive dialogue among students.

Third, feedback and reflection stages should be emphasized in writing instruction. Providing opportunities for students to revise their work based on feedback helps them develop greater awareness of language use and argument structure. Reflection activities can also encourage students to evaluate their thinking processes and improve future performance.

Fourth, the PIMPORN Instructional Model may serve as a useful framework for teaching academic writing in EFL contexts. Future studies could apply the model in larger classes or different educational settings to examine its broader applicability.

Finally, future research should involve a larger sample size and longer intervention periods to provide more comprehensive evidence of the model's effectiveness. Researchers can study things like what students say about their work or what happens in classrooms. This helps them learn how working together on problems can improve writing and thinking skills.

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