The Effects of Peer Feedback and Self-Regulated Learning on Thai EFL Students' Writing Ability and Self-Regulation

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ABSTRACT

Conceptualized in formative assessment and sociocognitive theory, peer feedback and self-regulated learning (SRL) instruction were used in this mixed-method study to investigate their effects on Thai EFL university students' essay writing ability and their self-regulation. During the 12-week online instruction period, 35 third-year students majoring in Business English at a public university were taught essay writing using the integration of peer feedback activities and SRL. An essay writing test, a self-regulation questionnaire, and semi-structured interviews were used to collect data. Findings revealed that students' essay writing ability and self-regulation had significantly improved after the intervention. Our findings shed light on the feasibility and necessity incorporating the interdisciplinary dimensions of education such as instruction, assessment, and social-cognitive theory, in enhancing learners' academic performance and their lifelong learning strategies. Our findings also suggest that students can be trained in peer

feedback and SRL strategies via online platforms, which has implications for the continuing tendency towards online instruction in the post-pandemic era. Pedagogical implications are also provided to help teachers improve their students' writing performance and self-regulation.

Keywords: peer feedback, self-regulated learning (SRL), self-regulation, essay writing ability, EFL undergraduate students

Introduction

Writing is considered to be one of the most challenging and intricate skills for second language (L2) writers, especially in the realm of academic writing. Various studies (Dan et al., 2017; Tillema, 2012) have highlighted the difficulty of mastering writing compared to other skills. This difficulty arises from the complexity of academic writing, which involves intricate components, organizational structure, and the need for accurate and advanced language use. This phenomenon is also observed in the Thai context, where English is taught as a foreign language. Thai learners face difficulties in composing academic texts, such as essays, primarily due to insufficient linguistic proficiency in areas such as grammar, syntactic structures, and vocabulary. Additionally, challenges are encountered in maintaining cohesion in writing, establishing effective rhetorical organization, and managing interference from their first language (L1). Multiple studies (Khongrod, 2017; Khumphee & Yodkamlue, 2017; Rodsawang, 2017) have supported these observations in the Thai context.

To help ESL/ EFL writing students overcome these difficulties, instructional approaches in composition classes have been developed, with the process approach being widely accepted and applied. The process approach emphasizes the cyclical nature of writing and the importance of feedback and revision. Traditionally, a teacher plays a significant role in providing feedback to students' writing. Teacher feedback not only helps students improve their writing skills but also fosters a supportive and collaborative writing community (Paulus, 1999). Additionally, the feedback provided by teachers can guide students towards identifying and rectifying their writing errors, thereby facilitating their learning process (Hyland, 2003). It also provides students with valuable insights into their writing strengths and weaknesses, motivates them to continue working on their writing skills, and helps them learn from their mistakes (Lin & Yang, 2011). However,

providing feedback can be time-consuming for teachers, who may rely heavily on correction and potentially misinterpret student writing. As the process tends to be teacher-centered, it may lack student engagement (Truscott, 1996). Peer feedback has, therefore, gained popularity as an alternative form of assessment, allowing students to be more actively involved in the learning process (Simonsmeier et al., 2020).

The use of peer feedback in a writing class can be beneficial in many aspects. Firstly, it can improve students' writing ability both at global (Min, 2005) and local levels (Lin & Yang, 2011) as students learn to evaluate their own work more effectively and identify areas for improvement based on the feedback they receive from their peers (Yu & Hu, 2017). By engaging in the process of giving and receiving feedback, students become more active learners who take ownership of their writing and develop a deeper understanding of what makes good writing. This, in turn, can help them become less anxious and feel more confident and motivated in their writing (Weng et al., 2023). Peer feedback also fosters a sense of community and collaboration in the classroom as students have the opportunity to learn from one another, share their perspectives and experiences, and build stronger relationships with their peers. Additionally, by learning to analyze and evaluate the writing of their peers, students can sharpen their critical thinking skills and become more adept at giving feedback in a constructive and meaningful way (Kuyyogsuy, 2019).

However, teachers need to pay attention to the quality of peer feedback and provide sufficient explanation and well-organized training for students to assess their peers' work effectively (Min, 2005). Some studies (Lam, 2010; Topping, 2010) have found that peer feedback training significantly improves students' writing performance and quality and also increases positive attitudes towards the peer feedback technique. These research findings have also emphasized that good preparation for the training can benefit students' writing ability.

Apart from peer feedback training, the quality of peer feedback is also considered an important factor that can affect students' revised writing. For example, Min (2005) reported that her students did not understand their peers' comments, which caused ambiguity and confusion. Hence, she proposed four main procedures for students to use when providing comments on their peers' writing. Firstly, students need to ask questions to the writer in order to clarify the writer's intention. After that, they have to identify problems. Students then have to clarify the nature of the problems. Finally, they have to suggest improvements. In addition, Cheng et al. (2015)

suggested three types of effective feedback that students can provide on their peers' writing, namely cognitive feedback (feedback focusing on the content and structure of the writing), affective feedback (feedback relating to the emotional and motivational aspects of the writing), and metacognitive feedback (feedback emphasizing the writer's thinking and learning processes). Clearly, when providing feedback on their peers' writing, students need to use many learning strategies in order to provide effective feedback.

Self-regulated learning (SRL)is viewed by social cognitive theorists as a process in which individuals actively participate in their learning process by employing cognitive, metacognitive, motivational, social and behavioral strategies (Bandura, 1986). There is significant evidence to suggest that students who are self-regulated tend to be more successful in their language learning than those who lack SRL strategies (Bakry & Alsamadani, 2015; Samanian & Roohani, 2018). Therefore, teachers play a crucial role in helping students become self-regulated learners by teaching them these skills. That is, students can learn to be self-regulated, and SRL strategies can be considered a set of teachable skills. Accordingly, a significant body of research has suggested that SRL strategies should be taught to students (Teng & Zhang, 2020).

Black and Wiliam (2010) suggest that implementing peer feedback activities in the classroom can help students become self-regulated learners. That is, learners become more motivated, independent, and effective in their learning process, which can lead to better performance and greater success in their academic and professional pursuits. This claim is also supported by Wiliam (2014), who argues that peer feedback, as a form of formative assessment, can enhance students' SRL strategies by providing them with the opportunity to practice these skills. Several empirical studies, including those conducted by Lee (2015) and Nicol et al. (2014), have also reported that peer feedback can promote SRL. Overall, peer feedback activities can be effective tools for teachers to facilitate SRL among their students.

Given the importance of peer feedback training in composition classes, it is notable that there have been limited studies conducted in the Thai context specifically focusing on this aspect (Kulprasit & Chiramanee, 2013; Kulsirisawad, 2012; Puegphrom & Chiramanee, 2011; Srichanyachon, 2012). Despite the potential of peer feedback to enhance SRL, there is a lack of research on teaching SRL strategies during peer feedback activities in composition classes (Lee, 2015; Liu et al., 2001; Moussaoui, 2012; Nicol et al., 2014). Consequently, the incorporation of SRL strategies in peer feedback sessions necessitates further investigation. Importantly, there is a significant

gap in the literature regarding the integration of SRL strategies in peer feedback activities within the Thai context. The current study, therefore, was conducted with an intention to investigate the effectiveness of the integration of peer feedback and SRL on Thai EFL undergraduate students' academic writing ability and their self- regulation. The results of this study should provide insight into the development of effective pedagogical practices that can improve writing instruction in EFL contexts.

Review of Literature

Peer Feedback

Definition and Theoretical Frameworks of Peer Feedback

Peer feedback is viewed as "a formative developmental process that gives writers opportunities to discuss their texts and discover others' interpretations of them" (Hyland & Hyland, 2019, p. 7). Each student has a chance to provide feedback, grades, or both, concerning the quality or success of their peers' learning products based on criteria that can be created by the instructor or the students themselves. Socializing, identifying learning progress, and assessing learning products are the key elements of peer feedback.

Peer feedback is supported by three theoretical frameworks, namely sociocultural theory, the Noticing Hypothesis, and formative assessment. From a sociocultural perspective, Vygotsky's (1978) Zone of Proximal Development (ZPD) theory suggests that learners can advance in their learning through interaction with more knowledgeable peers, as peer feedback provides opportunities for scaffolding in learning. Additionally, students need to be able to notice the gaps or mistakes in their learning products. This ability is known as the Noticing Hypothesis proposed by Schmidt (1990). The Noticing Hypothesis highlights the importance of awareness, attention, and knowledge in learning L2, and peer feedback provides opportunities for learners to detect mistakes and improve their learning outcomes. Finally, peer feedback has been referred to as a type of formative assessment-that is, assessment *for* or *as* learning (Earl, 2003); in other words, assessment that can enhance students' learning progress-and peer feedback provides opportunities for students to become active learners, take on responsibility for the learning process, and monitor and evaluate their own performance. In summary, peer feedback benefits learners by providing scaffolding in learning, improving awareness and attention to mistakes, and promoting active learning and self-evaluation.

Advantages and Considerations

Peer feedback has several benefits for students. Firstly, it promotes metacognition by encouraging students to reflect on their learning and gain a deeper understanding of the task. This is especially true when students are involved in creating the assessment criteria (Peng, 2010). Secondly, it can help students develop autonomy and independent problem-solving skills (Liu & Hansen, 2002). Peer feedback motivates students, empowers them through the assessment process, and enables them to take ownership and personal responsibility for learning and assessment. This, in turn, can improve their self-confidence and reduce stress (Topping, 2010). Thirdly, it creates opportunities for students to develop negotiation, collaboration, and interaction skills, which are important in real-world settings (Falchikov, 2005). Lastly, peer feedback has been shown to enhance academic performance across a wide range of contexts (Double et al., 2020). Overall, peer feedback is a valuable tool for promoting learning and improving academic outcomes for students.

While peer feedback has several benefits, there are also some considerations that teachers need to pay attention to when applying it in the classroom. One of the most important factors is that comments provided by peers may not be accepted as accurate, reliable, and professional due to their limited knowledge and experience related to editing. This can affect the credibility of the feedback (Kollar & Fischer, 2010). Another important consideration is that providing peer feedback can be difficult for students as they may not have sufficient linguistic knowledge to comment on grammar, vocabulary, morphology, and syntax. Moreover, students may not know how to express feedback linguistically if they are required to use only the second/foreign language in their comments (Liu & Hansen, 2002). Therefore, explicit peer feedback training can play a crucial role in mitigating these factors and ensuring that students are equipped with the necessary skills and knowledge to provide effective feedback (Kunwongse, 2013; Min, 2005).

Peer Feedback and L2 Writing Development

In the last three decades, peer feedback has been widely used in the context of L2 writing instruction (Yu & Lee, 2016), so several research studies have investigated the effectiveness of peer feedback in enhancing the writing proficiency of EFL/ESL students. A meta- analysis of 50 studies investigating the effectiveness of peer feedback on L2 writing conducted by Vuogan and Li (2022) showed that peer feedback had a moderate to large effect on L2

writing, indicating that peer feedback can be an effective tool for improving L2 writing performance. In addition, results from previous empirical studies (Shang, 2019; Yang, 2016) reported that this approach not only improved students' writing abilities in traditional classroom settings but also in online environments.

Several studies conducted in classroom environments have suggested that face-to-face peer feedback can be an effective tool for improving EFL students' writing performance (e.g., Xu et al., 2022). That is, peer feedback helped students become more aware of the writing process and the criteria for evaluating writing, as well as providing them with more opportunities to practice their writing. In addition, Yu and Lee (2016) found that peer feedback was beneficial to low proficiency writers as it enabled them to identify problems with the writing based on their own experiences as L2 writers. In terms of affective factors, students showed a higher level of engagement and motivation in the writing process when they were asked to give each other feedback (e.g., Nguyen, 2022). Additionally, peer feedback was associated with a decrease in an anxiety because of a safer and more comfortable environment (Bolourchi & Soleimani, 2021).

As new forms of educational technology have emerged in recent years, some studies have investigated the potential of combining peer feedback with online platforms to enhance learners' writing abilities. Findings have revealed that doing so can have significant benefits. One study conducted by Shang (2019) examined the effects of online peer feedback on the writing performance of 72 EFL college students in Taiwan. Results showed that the online peer feedback group significantly outperformed the face-to-face peer feedback group in terms of writing accuracy and complexity. In addition, in online learning environments, peer feedback can be particularly valuable because it can compensate for the lack of face-to-face interaction and support that students might experience in traditional classrooms. Peer feedback can help students feel more connected to their peers and can create a sense of community and collaboration. That is, peer feedback can be a valuable tool for both learning and socialization in online learning environments, and instructors should consider incorporating peer feedback into their online courses.

However, previous studies (Cho & MacArthur, 2010; Li et al., 2010; Xiao & Lucking, 2008) have also acknowledged that peer feedback can be challenging, particularly when it comes to issues of trust, power, and expertise. It has therefore been suggested that instructors should provide clear guidelines and expectations for peer feedback, and students should

receive training and support to help them provide effective and constructive feedback.

Peer Feedback Training Procedures

Peer feedback training can be conducted through four main steps: awareness raising, modeling, practice, and reflection (Lam, 2010; Min, 2005; Topping, 2010). In this model, students are first asked to share and discuss their background knowledge, their opinions regarding the purposes and benefits of peer feedback, and assessment criteria. Then, the teacher demonstrates how to do peer feedback through a thinking-aloud technique. After that, students get a chance to practice giving feedback by using papers from previous students and a peer feedback form created by the teacher. After they have finished practicing, students reflect on what problems they have faced, and then the whole class provides some solutions together. Figure 1 illustrates the peer feedback training steps.

Figure 1

Peer Feedback Training Procedures
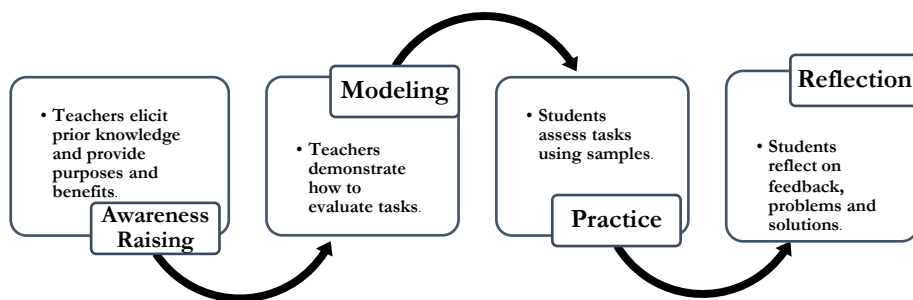
Characteristics of Effective Peer Feedback in a Writing Course

Peer feedback in a writing course is based on the idea that students evaluate their peers' writing and provide suggestions for improvement based on set criteria (Falchikov, 2005). Aspects of good peer feedback include assessment criteria, judgment based on criteria, judgment justification, suggestions, positive and negative comments, thought-provoking questions, and clearly formulated comments (Gielen et al., 2010). Additionally, three types of feedback-cognitive, affective, and metacognitive feedback (Cheng et al., 2015)-as well as two characteristics of comments provided by peers-

verification and elaboration (Gielen & De Wever, 2015)-can be considered effective feedback. Also, clarifying the writer's intention, identifying the problem, explaining the nature of the problem, and making specific suggestions are practical steps students can follow to give effective feedback (Min, 2016). Finally, clarifying or confirming questions, giving compliments, criticizing their peers' work, explaining metalinguistic terms, making corrections, and providing suggestions are essential for effective peer feedback (Beltran et al., 2018). Taken together, effective feedback can be categorized into four groups: affective, evaluative, elaborative, and suggestive feedback. Clearly, when providing feedback on their peers' writing, students need to use many learning strategies in order to provide effective feedback.

Self-Regulated Learning

Definition and Dimensions of Self-Regulated Learning

Self-regulated learning strategies are viewed by social cognitive theorists as processes in which individuals are metacognitively, motivationally, and behaviorally active participants in their learning process (Bandura, 1986). Put another way, learners manage and take control of their own learning by employing cognitive strategies, metacognitive strategies, motivational strategies, and social and behavioral strategies (Andrade & Evans, 2013; Oxford, 2011; Teng & Zhang, 2018).

The cognitive dimension of SRL refers to the learners' cognitive activities involved in the learning process, such as selecting and organizing information, rehearsing and memorizing, and elaborating and constructing new knowledge. The metacognitive dimension of SRL refers to the learners' ability to monitor, control, and regulate their own cognitive processes. This involves setting goals, planning and organizing strategies, monitoring progress, and evaluating the effectiveness of their own learning strategies. Motivational strategies involve planning and executing actions to achieve learning goals, such as time-management, goal-setting, and self-reinforcement, which help learners stay on track and maintain their motivation. Social and behavioral strategies include seeking out resources, collaborating with peers, and seeking feedback from teachers or other sources (Zimmerman & Schunk, 2011).

Self-Regulated Learning and L2 Writing Development

A substantial body of research has shown SRL to be an important factor in L2 writing development. Bakry and Alsamadani (2015) discovered that self-regulated strategy development (SRSD) improved students' writing

ability, particularly in paragraph writing, ideas development, organization, clarity of position, sentence structures, and vocabulary. Samanian and Roohani (2018) reported that SRSD improved Iranian EFL learners' descriptive writing and reflective thinking skills. Teng and Zhang (2018) found that motivational regulation strategies enhanced Chinese EFL university students' writing outcomes and correlated with the reported use of SRL strategies. Recently, Teng and Zhang (2020) reported that SRL-based instruction was effective in improving writing performance and increasing the use of SRL strategies. The researchers suggested that incorporating SRL-based instruction into the L2 classroom can empower learners by providing them with the tools to take control of their learning and improve their writing abilities. That is, SRL can be fostered in L2 writing development through a variety of activities and interventions. These may include teaching students to set specific, measurable goals for their writing, providing opportunities for reflection and self-assessment, and encouraging students to seek out and use feedback from teachers and peers.

Overall, incorporating interdisciplinary dimensions in education benefits students by promoting a more holistic and connected approach to learning. It enhances their ability to transfer knowledge, develop critical thinking skills, and engage in collaborative learning experiences. By integrating instruction, assessment, and social cognitive theory, educators can create a well-rounded educational experience that prepares students for the complex challenges of the modern world.

Based on the previously mentioned research, it is evident that students have the ability to develop SRL skills, which are seen as a group of abilities that can be taught. Additionally, certain studies have proposed that it is important to educate students on SRL strategies. Given the importance of peer feedback training, writing teachers need to emphasize such training in composition classes, and explicitly teach SRL strategies when doing so. This integration of peer feedback and SRL strategy training should be expected to yield positive results for students, both in terms of their writing ability and their self-regulation. Therefore, the present study aims to answer the following two research questions:

1. What are the effects of the integration of peer feedback and self-regulated learning instruction on Thai EFL university students' essay writing ability?
2. What are the effects of the integration of peer feedback and self-regulated learning instruction on Thai EFL university students' self-regulation?

Methodology

Research Design

Based on the frameworks of peer feedback and SRL, the present study examined how peer feedback instruction combined with SRL strategy training impacted Thai EFL university students' essay writing ability and their self-regulation. A pre-experimental research design using a mixed-method approach with an intact group was used. The instruction lasted 12 weeks during a period of emergency online instruction caused by the COVID-19 pandemic crisis. Quantitative data was collected in the pre- and post- tests using an opinion essay writing prompt adapted from TOEIC Writing Task 2, asking students to choose their preferred method of finding a job, and a self-regulation questionnaire adapted from Habok and Magyar (2018), Köksal and Dündar (2017), and Teng and Zhang (2016). These were used before and after the instruction to explore whether there was any improvement in students' writing scores and self-regulation, respectively. Qualitative data were collected from semi-structured interviews conducted at the end of the instruction to get a deeper understanding of how students deployed SRL strategies.

Participants

Participants consisted of the entire population of third-year students (N = 35; Female = 29; Male = 6; M_{age} = 21) majoring in Business English at a public university in the western part of Thailand. The participants were considered an intact group since there was only one group of students. Their participation was voluntary, and they were informed of their rights to participate and withdraw at any time without affecting their grades or future career paths. The participants were taking an online academic writing course, Essay Writing in Business, due to the pandemic crisis, and had previously taken and passed the prerequisite course of Paragraph Writing in Business. The participants had never been explicitly taught how to do peer feedback or use SRL strategies, and their reported English proficiency by the Language Institute of the university was between A2 and B1 levels.

Research Instruments

Three main instruments were used in the study, namely the essay writing test, the self-regulation questionnaire, and the semi-structured interview questions. More detail is provided as follows:

Essay Writing Test Used for the Pre- and Post- Tests

The essay writing test used in this study was adapted from one sample of TOEIC Writing Task 2, which requires test takers to write an opinion essay. Opinion essays were chosen purposefully because they are an important type of essay that university students are typically required to perform in both educational and standardized test-taking contexts. The task required students to write a five-paragraph opinion essay of at least 300 words within 90 minutes, and the essay question was written both in English and Thai. Three experts in the field of L2 writing evaluated the content and construct validity. The test was revised according to the experts' suggestions. Subsequently, a pilot test was conducted with 32 English major students who shared similar characteristics with the study participants, primarily to verify the test's reliability. Based on the pilot test results, adjustments were made to the writing test, including extending the time limit to 90 minutes from the initial 60 minutes, and incorporating a Thai translation of the question that was initially absent. The essay scoring rubric proposed by Paulus (1999) was used in the present study to measure students' essay writing ability. It is an analytic rating scale that assesses six main components, namely organization/unity, development, cohesion/coherence, structure, vocabulary, and mechanics. The rubric is a 10-point scale on which the rater has to choose a score from 1 (the lowest) to 10 (the highest) for each of the six aspects of essay writing. Therefore, the total score for the essay writing test was 60 points.

This rubric was selected for use in this study for several reasons. Firstly, it has been used by experts in the field of writing research, indicating that it is a reliable rubric (Lundstrom & Baker, 2009; Sotoudehnama & Pilehvari, 2016). Secondly, the analytic rubric is appropriate for classroom assessment and can be used for more fine-grained decisions, such as diagnostic assessment (Barkaoui, 2011). Finally, the analytic rubric can assess both global and local aspects of writing, including organization, development, cohesion/coherence, structure, vocabulary, and mechanics (Coe et al., 2011).

In terms of validation, three experts in the field of L2 writing evaluated the rubric. Suggestions from experts were used to revise the rubric. In addition, two inter-raters who were experienced L2 writing instructors were trained to assess the essays. The training session lasted 4 hours to ensure that they were consistent in marking participants' essays. For the main study, they had to assess the participants' essays both from the pre- and post-tests. To avoid bias, essay owners' identities were not shown on the papers. Inter-rater reliability was tested using the Pearson Correlation Coefficient. For the pre- and post- tests, the inter-rater reliability between the two raters was $r =$

.93 and r = .91, respectively. In other words, the scores obtained from the two raters were reliable and consistent.

Self-Regulation Questionnaire

A self-regulation questionnaire adapted from Habok and Magyar (2018), Köksal and Dündar (2017), and Teng and Zhang (2016) was used in this study. The initial questionnaire consisted of 28 items, categorized into four main dimensions: Cognitive Strategies, Metacognitive Strategies, Social Interactive Strategies, and Affective Strategies. Three experts in the field of English instruction evaluated the questionnaire. Out of the 28 items, 23 were deemed acceptable. However, there were five items that were considered unacceptable. Among these, three items were relevant to self-regulation but required revisions based on expert recommendations. The remaining two items were deemed irrelevant to self-regulation and were recommended for removal. The revised version of the three items, along with other accepted items, underwent wording revisions according to the suggestions provided by the experts.

Therefore, the questionnaire consisted of 26 items, which were divided into four main dimensions: Cognitive Strategies (Items 1-6), Metacognitive Strategies (Items 7-15), Social Interactive Strategies (Items 16-19), and Affective Strategies (Items 20-26). It was translated into Thai to avoid misunderstandings. Participants were asked to respond by choosing one of the four choices: 1 = Never, 2 = Sometimes, 3 = Usually, and 4 = Always. The questionnaire was then pilot tested with 32 students majoring in English for the purpose of validation. Cronbach's alpha internal consistency was used to find the questionnaire's reliability. The pilot study results showed that the questionnaire was reliable (α =.75).

Semi-Structured Interview

A set of interview questions adapted from Teng and Zhang's (2016) Guided Interview Questions was used in this study. The decision to utilize these particular questions was based on their validation and their prior usage with Chinese EFL students, who share similarities with Thai EFL students. There were seven questions focusing on students' cognitive strategies, metacognitive strategies, social interactive strategies, and affective strategies (see Appendix). The interview questions were translated into Thai to avoid any possible confusion or misunderstanding. Three experts in the field of English instruction evaluated the questions, and revision was made based on the experts' recommendations.

The Instructional Model of Peer Feedback and SRL

The instructional model of peer feedback and SRL was developed based on the frameworks of peer feedback and SRL strategies.

Figure 2

The Framework of Peer Feedback and Self-Regulated Learning
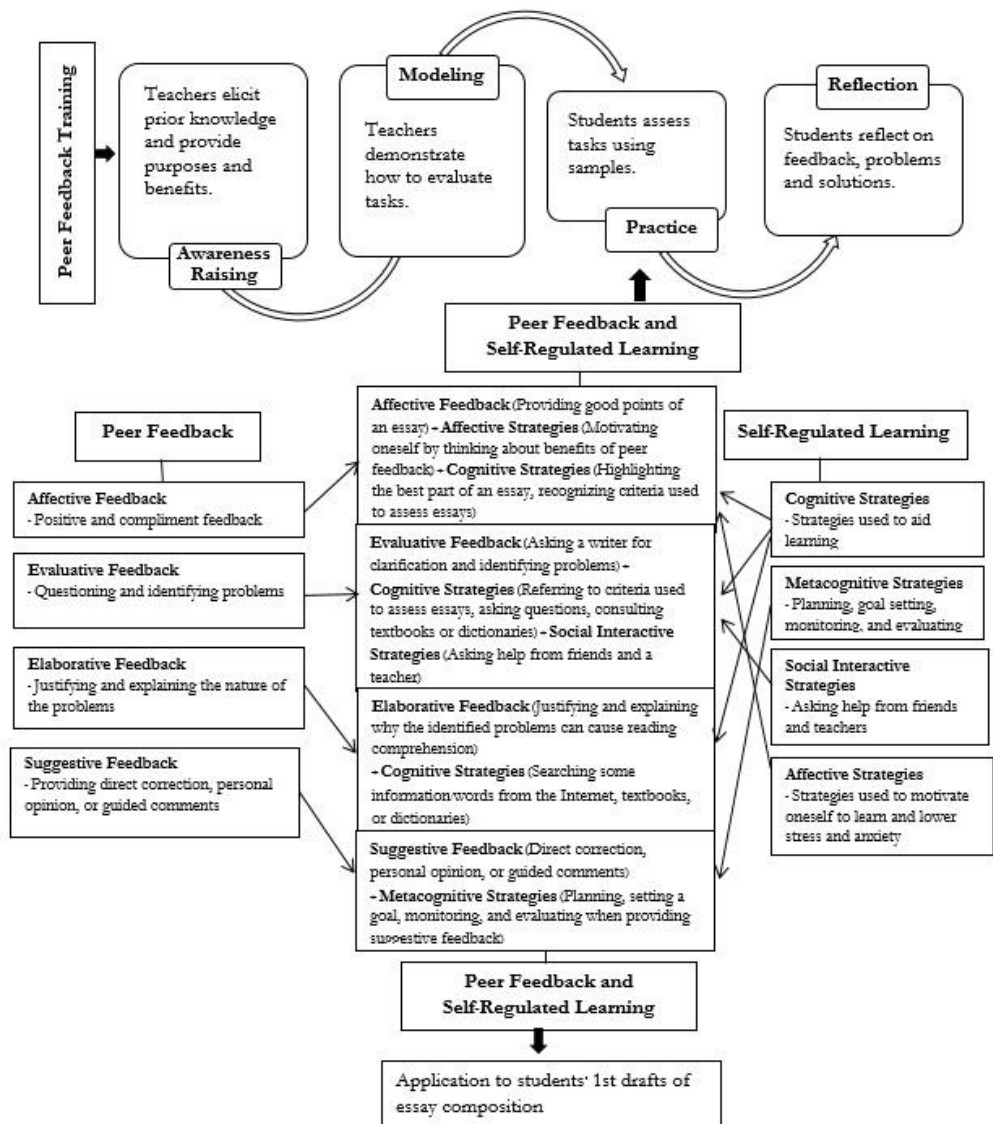
As presented in Figure 2, the instructional model consisted of two main parts: the peer feedback training part and the integration of peer feedback and SRL part.

Past studies (e.g., Min, 2005) suggested that students needed explicit training on how to do peer feedback activities to ensure that they could assess their peers' essays accurately and confidently. Drawing on related theories and previous studies (Lam, 2010; Min, 2005; Topping, 2010), the peer feedback training part in our study consisted of four steps: awareness raising, modeling, practice, and reflection. In the 'awareness raising' step, the teacher elicited the learners' prior knowledge about peer feedback and provided the purposes and benefits of peer feedback. For the 'modeling' step, the teacher demonstrated how to evaluate an essay using a sample essay and a peer feedback form. With regard to the peer feedback form, it encompassed all aspects of the essay, including the introduction (hook, connecting information, and thesis statement), body (topic sentence and supporting sentences), conclusion (restating the thesis statement and providing suggestions), and language usage. In the 'practice' step, students assessed an essay using a sample essay and a peer feedback form. The form was translated into Thai, and students could give feedback in Thai if they wanted to. At this step, they had a chance to implement peer feedback and SRL strategies with the sample essay. That is, students used affective feedback (e.g., providing good points of an essay), evaluative feedback (e.g., asking a writer for clarification and identifying problems), elaborative feedback (e.g., justifying and explaining why the identified problems can hinder reading comprehension), and suggestive feedback (e.g., providing direct correction, personal opinion, or guided comments) in conjunction with cognitive strategies (e.g., consulting teaching materials or dictionaries, searching for information), metacognitive strategies (e.g., setting a goal, planning, monitoring, and evaluating when providing suggestive feedback), social interactive strategies (e.g., asking help from friends and a teacher), and affective strategies (e.g., positive self-talk). In the last step, 'reflection', students reflected on effective feedback, problems that occurred, and solutions.

It should be noted that the integration of peer feedback and SRL occurred at the practice step in the peer feedback training session and the implementation part when students assessed their peers' first drafts.

Procedures

Due to the COVID-19 pandemic crisis, all procedures and activities in this study were completed through online platforms, including Google Docs for the pre- and the post- tests, Google Forms for questionnaires, and

the videoconferencing application Zoom for instructions and interviews. All procedures can be summarized as follows:

1) The students in the course were instructed to write a 300-word, five-paragraph opinion essay within 90 minutes using Google Docs in the first week. The students were instructed to avoid using online translation and other tools. They were also informed that their work would not be graded. After completing the essay, the students were given a 30-minute self-regulation questionnaire to complete via Google Form.

2) The course consisted of three types of essays, namely a comparison/contrast essay, a cause/effect essay, and an opinion essay, each lasting three weeks with one lesson per week. In the first lesson, students were taught about the components, language use, and structures of the essays. In the second lesson, they were trained to do peer feedback sessions with sample essays. The final lesson involved students composing their first drafts and assessing their peers' essays, which was the main implementation of peer feedback and SRL strategies. The instructional process took place via Zoom from weeks 2-10.

3) In week 11, the students were asked to write an opinion essay on the same topic as the pretest. After completing the essay, they were then asked to complete the self-regulation questionnaire via Google Form.

4) In week 12, nine students were selected based on their availability and willingness to participate in an interview. The interview was done via Zoom, with each student being interviewed individually. Each interview lasted 15-20 minutes. All questions and answers were in Thai and were recorded and transcribed for analysis.

All research procedures are presented in the following table.

Table 1

The Research Procedures

Weeks	Activities
1	Composing an essay (pretest)
	Distributing the self-regulation questionnaire (before)
2-10	Conducting the main study when all lessons were taught.
	Week 2-Overview of a comparison/contrast essay
	Week 3-Peer feedback training for a comparison/contrast essay
	Week 4-Peer feedback implementation with students' first drafts of a comparison/contrast essay
	Week 5-Overview of a cause/effect essay
	Week 6-Peer feedback training for a cause/effect essay
	Week 7-Peer feedback implementation with students' first drafts of a cause/effect essay

	Week 8-Overview of an opinion essay
	Week 9-Peer feedback training for an opinion essay
	Week 10-Peer feedback implementation with students' first drafts of an opinion essay
11	Composing an essay (posttest)
	Distributing the self-regulation questionnaire (after)
12	Conducting the semi-structured interview

Data Analysis

The study employed both quantitative and qualitative analysis methods to assess whether there was an improvement in students' essay writing and self-regulation scores following the intervention. Quantitative data were analyzed using descriptive statistics, including mean and standard deviation, while inferential statistics, specifically a paired samples t-test, were utilized to examine significant differences. Qualitative analysis involved content analysis of the students' interview responses. To ensure consistency in the analysis, two teachers independently coded the interview answers.

Results

The purpose of the current study was to investigate the effectiveness of an instructional model that incorporated peer feedback and SRL in improving the essay writing ability and self-regulation of Thai EFL university students. This section presents the findings based on the analysis of the data.

Improvement in the Essay Writing Pre- and Post- Test Scores

Table 2

Findings of Essay Writing Pre-Test and Post-Test Scores

Tests	*N*	*M* (60)	*SD*	Mean difference	*t*	df	Sig. (2-tailed)
Pretest	35	16.65	5.90	17.39	-16.11	34	.000*
Posttest	35	34.04	8.80				

*$p < .01$

As presented in Table 2, a paired samples t-test was conducted to compare students' pre-test and post-test scores of their essay writing ability. There was a significant difference between the pre-test scores ($M = 16.65$, $SD = 5.90$) and the post-test scores ($M = 34.04$, $SD = 8.80$); $t(34) = -16.11$, $p < .01$. These results indicated that students' writing ability improved after the

instruction using peer feedback and SRL was implemented in the essay writing class.

Self-Regulation Before and After the Intervention

Table 3

Findings of Students' Self-Regulation

Self-regulation	N	M (104)	SD	Mean difference	t	df	Sig.
Before	35	55.48	7.69	20.08	10.18	34	.000*
After	35	75.28	11.33				

* *p* < .01

As shown in Table 3, a paired samples t-test was performed to compare students' self-regulation scores before and after the implementation of peer feedback and SRL in the writing class. Findings revealed that there was a significant difference between the pre-test scores (M = 55.48, SD = 7.69) and the post-test scores (M = 75.28, SD = 11.33); $t(34)$ = 10.18, p < .01. These results suggest that the instruction using peer-feedback and SRL improved students' self-regulation.

Students' Uses of SRL Strategies

This part presents the qualitative data from a semi- structured interview conducted with nine participants. Results from content analysis revealed the use of SRL strategies as follows:

Cognitive Strategies

Cognitive strategies are methods students use to understand and remember information in completing the task (Andrade & Evans, 2013; Oxford, 2011; Teng & Zhang, 2018). In this study, they were techniques students used in order to solve the problems when they provided feedback to their peers' essays. Those strategies were, for example, consulting dictionaries,

searching for more information from the Internet, and reviewing the teaching materials.

The analysis shows that students faced three main problems, namely vocabulary or words, grammar or sentence structures, and content or ideas. Students tended to use similar cognitive strategies for solving the problems. Six students searched or checked information from the Internet. Five students consulted dictionaries both from hard copies and online. Four students asked the essay's writer for clarification. Three students used Google Translate and/or reviewed teaching materials. One interesting observation is that the majority of the students (eight students) tended to use two to three cognitive strategies when they had problems. For example, one student reported utilizing Internet research, consulting hard-copy dictionaries, and utilizing Google Translate when encountering vocabulary difficulties. Additionally, two students mentioned that they conducted Internet research and reviewed teaching materials when confronted with grammar-related issues. The following examples can illustrate the findings.

> Excerpt 1: I searched the meaning from an online dictionary. I also reviewed the teaching materials I studied in the past for the problem about grammar.

> Excerpt 2: I asked the essay's writer what she wanted to convey. I sometimes searched words from the Internet about its context.

Metacognitive Strategies

Metacognitive strategies are methods students use in order to regulate the use of cognitive strategies (Oxford, 2011). Students set learning goals, plan, monitor their actions, and evaluate their outcomes against the goals set. In this study, they refer to the ways in which students set a goal to organize effective feedback, plan what strategies will be used when giving feedback, monitor themselves if the set strategies are used when giving feedback, evaluate if the strategies used can reach the set goal, and reflect if there should be some changes or additions. From the analysis of the interview data, all participants used metacognitive strategies, namely setting goals, planning, and monitoring. Regarding evaluating, five students evaluated their peer feedback results against the set goals.

To elaborate, the interview participants first established their objectives, which primarily involved providing thorough feedback and evaluating their peers' essays with the aim of improving their drafts and achieving better scores. They also sought to assess their own understanding through the evaluation process. Students then devised strategies, such as

following a structured peer feedback form and reading the entire essay before focusing on specific parts. They engaged in self-monitoring to assess their adherence to their plans. Ultimately, they compared the results of their feedback with their initial goals. The following examples serve to illustrate the findings.

Excerpt 1: I set a goal that I had to check all components stated in the peer feedback form. I had to clearly and carefully check the essay. It was beneficial to my friend. She could have a better draft and got higher scores. And at the same time I could check my understanding. I always reflected if my essays had or missed some points so that I could edit it.

Excerpt 2: I always planned. I would scan the whole essay first. After that, I looked at the forms. And then I focused on examples and details.

Excerpt 3: I often monitored myself if I had followed what I had planned.

Excerpt 4: I reviewed many times to make sure that I had checked my friend's essay as clearly as I had set a goal. If I found good things about my friend's essay, I reflected back to my essay. I thought about how I could change my essay to be better like my friend's. I always reflected back to my essay if I found some mistakes in my friend's essay.

Social Interactive Strategies

Social interactive strategies are methods used by students seeking help from someone who is more proficient or has more ability than themselves. They can be peers, seniors, teachers, or native speakers (Teng & Zhang, 2018). In this study, students asked questions and asked for help from peers, teachers, or others when they performed peer feedback activities. From the interview analysis, four students used social interactive strategies when performing peer feedback activities. All four of them asked for help from peers who were more proficient in English than them. Apart from asking for help from peers, one student mentioned that she asked for help from her senior. The following example can illustrate the findings.

Excerpt: I sometimes asked Thanyatorn. She is more careful than me. I sometimes asked ideas from seniors.

Affective Strategies

Affective strategies are methods used by learners in order to motivate themselves to complete the task. They include performance self-talk, mastery self-talk, emotional control, environment structuring, and interest enhancement (Teng & Zhang, 2018). In this study, they refer to strategies students used to motivate themselves to perform peer feedback and lower their stress while giving feedback.

From the interview analysis, six students were found to be worried and anxious when they did peer feedback activities. Three students never felt worried or anxious. This showed that the majority of them were often worried and anxious. It was also found that they used different affective strategies to lower their anxieties and increase their motivation. Most of them preferred taking a short break (four students) or using positive self-talk (four students), while some mentioned relaxing activities such as eating chocolate (two students). The following example demonstrates the findings.

> Excerpt: I ate chocolate and got some rest. I also told myself to do my best.

Discussion

Peer Feedback in Improving Students' Essay Writing Ability

The study found that students' essay writing ability significantly improved after the peer feedback intervention in their writing class. It is possible that peer feedback provided an opportunity for these students to learn from their peers' writing. By reviewing and analyzing the work of their classmates, students could gain exposure to different writing styles, techniques, and approaches. They had the opportunity to observe effective strategies employed by their peers and identify areas for improvement in their own writing. This learning from peers may have motivated students to increase their response rate and accuracy as they strived to apply what they had learned from the feedback they received. The findings are consistent with previous research that also reported positive effects of peer feedback instruction (Kuyyogsuy, 2019; Nguyen, 2022; Yu & Hu, 2017). Working together and providing feedback using the peer feedback forms allowed students to notice mistakes in their essays and make improvements in subsequent drafts. This supports the claims made by Ferris (2002) that feedback helps students become more aware of their writing gaps or flaws, leading to improvements. Additionally, the finding is consistent with the research of Qi and Lapkin (2001), which suggests that students can enhance their writing by noticing correct forms of writing.

In this study, students were explicitly trained to perform peer feedback with clear and systematic steps, which had a positive impact on the quality of their feedback and subsequently improved the quality of their peers' writing. This finding supports previous studies suggesting that peer feedback training is a prominent factor in improving the quality of peer feedback, which can ultimately affect the quality of students' writing (Kunwongse, 2013; Min, 2005). By familiarizing students with the peer feedback process and instilling confidence in their ability to assess their peers' essays, teachers can enhance the effectiveness of peer feedback, thereby improving students' writing abilities.

The peer feedback training involved three main steps: introducing the concept of peer feedback, demonstrating how to assess an essay, and allowing students to work on their own using a peer's essay. This approach provides opportunities for scaffolding, which is a teaching and learning strategy that enhances students' learning proficiency. This scaffolding is likely to have allowed students in this study to perform difficult tasks with the help of their peers and promoted the sharing of learning strategies, which enhanced their writing ability. This finding is supported by a previous study conducted by Yelland and Masters (2007), who discovered that peer work could promote the scaffolding learning technique.

Besides the training, the peer feedback forms used in the study were found to be practical and effective in improving the quality of feedback. The translation of the forms into Thai and the allowance of students to speak and write in Thai during peer feedback activities were also noteworthy as they facilitated communication and interaction among students. This finding is consistent with the research conducted by Yu and Lee (2014), which found that EFL students preferred using their L1 during peer feedback activities as it helped them communicate more effectively than using their L2. This implies that allowing the use of L1 during peer feedback activities can enhance communication and feedback quality among EFL students.

Additionally, the organization and structure of peer feedback forms can greatly impact the quality of feedback provided by peers. In this study, the peer feedback forms were logically organized, starting with the introduction, following by the body parts, and ending with the conclusion. By having a well-organized feedback form as guidance, students can provide comprehensive feedback and address all necessary areas in a logical manner. This can also make it easier for the receivers of the feedback to understand and apply the feedback provided on their work. This finding supports the importance of question prompts in peer feedback activity in a writing class as suggested by Jurkowski (2018) that question prompts are necessary for lower-performing students to guide them to provide more thoughtful and comprehensive feedback.

Finally, the selection of topics for students to write about can significantly influence their writing ability. In this study, the essay topics for each type of essay were required to be business-related, aligning with the course's objective of developing students' skills in writing comparison-contrast, cause-effect, and opinion essays in business contexts. The topics chosen could have significantly influenced students' essay writing ability, especially considering their major in Business English. Students were already familiar with a range of business-related content and terminology, which could have enhanced their proficiency in expressing their ideas effectively in the given context. This analysis aligns with previous studies and established theories that have revealed the significant influence of topical knowledge or content knowledge on L2 writing ability (Gustilo & Magno, 2015; He & Shi, 2012).

SRL in Improving Students' Essay Writing Ability

During the peer feedback activities, students had a chance to use SRL strategies, namely cognitive strategies, metacognitive strategies, social interactive strategies, and affective strategies. The findings indicate that the use of SRL had a positive effect on students' writing ability, which is in line with many previous studies (e.g., Akhmedjanova & Moeyaert, 2022).

The use of cognitive strategies, such as reviewing teaching materials, consulting dictionaries and textbooks, and searching for information from the Internet, can help students solve problems they encountered during peer feedback activities and the writing process (e.g., Abas & Aziz, 2016; Xu, 2021). In the interviews, students reported using various cognitive strategies to aid them when facing problems related to grammatical structure and vocabulary. This is consistent with earlier research that found a connection between L2 writing and cognitive strategies (Sethuraman & Radhakrishnan, 2020). Furthermore, the findings support previous research on the positive impact of SRL writing intervention on the quality of students' persuasive writing abilities (Akhmedjanova & Moeyaert, 2022).

The study found that students used metacognitive strategies- goal setting, planning, monitoring, and evaluating their performance- when engaging in peer feedback activities. The students thought about their own essays while assessing their peers' essays using the peer feedback form provided. This self-monitoring helped students become aware of their mistakes and improve their drafts. The study suggests that self-monitoring can lead students to be autonomous learners and develop critical thinking skills. These findings are consistent with earlier studies that showed peer feedback can enhance students' awareness of what makes writing successful and promote student autonomy (e.g., Srichanyachon, 2012).

With reference to social interactive strategies, the study found that students who sought help from their peers were able to improve their understanding of grammatical structure, vocabulary, and ideas. This is in line with Vygotsky's theory of Zone of Proximal Development, which states that learners can improve their skills with the help of more capable peers or seniors. The finding is also supported by previous studies showing that EFL students mostly employed social strategies when they encountered writing problems regarding vocabulary and grammar (Pongsukvajchakul, 2021) and running out of ideas (Abas & Aziz, 2016).

Regarding the use of affective strategies, the study found that using these strategies, such as choosing their own partners for peer feedback activities and providing positive feedback, helped to lower students' anxieties and pressures when they revised their essays. Compliments and positive feedback were also found to be motivating factors for students to produce a better draft (Zhang & Dong, 2022).

The Instruction of SRL in Developing Students' Self-Regulation

Our findings suggest that teaching SRL strategies during peer feedback activities had a significant positive impact on students' self-regulation. The SRL instruction was given both during the training stages and implementation stages, which helped the students become more familiar with the learning strategies. The results support the idea that SRL is a set of teachable skills and students can benefit from training in SRL strategies (Akhmedjanova & Moeyaert, 2022). The study's findings are consistent with previous research suggesting that teaching SRL strategies in a writing class can improve students' writing abilities (Nopmanotham, 2016).

Conclusion and Implications

The purpose of this mixed-method experimental study was to investigate the impact of integrating peer feedback and SRL strategies on the essay writing and self-regulation of Thai EFL undergraduate students. The results indicated that the intervention had a positive effect on both writing performance and self-regulation. This study emphasizes the importance of incorporating interdisciplinary dimensions of education, including instruction, assessment, and social-cognitive theory, to improve learners' academic performance and lifelong learning strategies. The study also suggests that peer feedback and SRL strategies can be effectively taught online, which is suitable for the current trend towards online instruction during the post-pandemic era.

Overall, the findings of this study suggest that the integration of peer feedback and SRL strategies in academic writing courses can have a positive impact on students' essay writing ability and self-regulation. Curriculum and course designers, as well as L1, L2, and L3 academic writing teachers, can adapt the framework presented in this study to improve their instruction and incorporate more SRL strategies in their courses.

The present study has limitations, including the samples and the online instruction. The study's samples only included students from A2 and B1 levels, and future studies may include students from other levels, such as B2 level, to determine whether the results are similar or different. Regarding the online instruction, it is also important to consider the impact of technology on students' writing ability. The use of online translation and plagiarism can affect the validity and reliability of the data collected. Therefore, it is essential to educate students on how to use these tools properly and avoid plagiarism. Additionally, researchers may need to use plagiarism detection software to ensure the authenticity of the students' work. Despite these limitations, the study highlights the benefits of peer feedback and SRL in enhancing students' learning outcomes and strategies for lifelong learning.

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Appendix
Semi-Structured Interview Questions

1. Please tell me the whole process starting from the beginning to the end when you did peer feedback activities. (Follow-up questions: How did you do that activity? Why did you do that activity? What were you thinking when you did that activity? How did you feel when you did that activity?)
2. When doing peer feedback activities, did you set a goal? How? Please explain.
3. Did you plan before giving feedback in order to accomplish that set goal? If yes, please explain the process.
4. When doing peer feedback activities according to your plans, did you face any problems? And how did you solve those problems? Please explain.
5. Would you seek help from others when you did peer feedback activities? How? Please explain.
6. Did you feel anxious or worried when you did peer feedback activities? And how did you motivate yourself in order to complete the tasks? Please explain.
7. Did you monitor and evaluate your peer feedback process and performance? If yes, please explain the process.