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ENHANCING SELF-REGULATED LEARNING THROUGH PEER FEEDBACK: INSIGHTS FROM EFL AND JFL LEARNERS IN A CMC ENVIRONMENT

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ABSTRACT

This research investigates how foreign language learners enhance their self-regulated learning through peer feedback within a computer-mediated communication (CMC) environment using the Peergrade platform. The study included twelve participants: six studying English as a foreign language (EFL) and six studying Japanese as a foreign language (JFL), with each group majoring in their respective languages. Data were collected through semi-structured and stimulated recall interviews and analyzed qualitatively. Three main themes: 1. Peer scaffolding for collaborative learning through CMC: The findings underscored the collaborative dynamics of peer feedback via CMC, where learners asynchronously exchanged insights and provided constructive critiques, promoting collective knowledge construction and deeper linguistic understanding; 2. Audience-aware stance feedback: Learners demonstrated strategic decision-making in feedback provision by considering their peers' perspectives, thereby enhancing the feedback's effectiveness; and 3. Engagement in cognitive processes: Participants actively engaged in various feedback strategies, adeptly distinguishing between global and local aspects of the compositions, such as content and grammar, thereby fostering comprehensive improvement in writing skills; these results suggest that learners can effectively utilize peer feedback to advance their self-regulated learning and enhance writing competencies in foreign languages within a CMC framework.

Key words: English-as-a-foreign language (EFL), Japanese-as-a-foreign language (JFL), collaborative learning, Computer-mediated communication (CMC)

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INTRODUCTION

In recent decades, research on self-regulated learning (SRL) has emphasized its role in promoting autonomy by encouraging learners to set goals, monitor their progress, and reflect on their performance (Zimmerman, 1989). Feedback, particularly peer feedback, plays a critical role in this process, helping learners to regulate their cognitive and behavioral engagement with learning tasks, particularly in language learning contexts (Zhang, Song, Shen, & Huang, 2014).

Despite advancements in SRL and feedback practices, peer feedback, particularly in foreign language (L2/FL) contexts, often lack the necessary scaffolding to help learners overcome challenges during peer feedback processes, including difficulties in identifying errors, providing constructive suggestions, and applying feedback to their own revisions (Chang, 2015). Moreover, the process of receiving and utilizing feedback can be equally daunting. Cognitive obstacles, such as limited ability to interpret feedback, and affective barriers, including anxiety about being judged, hinder learners' ability to engage effectively in peer feedback activities. These difficulties highlight the critical need for scaffolding strategies that address both the cognitive and affective dimensions of peer feedback, particularly in asynchronous learning environments.

Previous research has shown that computer-mediated communication (CMC) tools, when combined with written feedback, can significantly improve learners' writing in the target language by promoting deeper reflection and self-regulation (Polat, Mancilla, & Mahalingappa, 2013; Sarré, Grosbois, & Brudermann, 2021). These tools enable learners to process feedback at their own pace, reducing the pressure of immediate evaluations and fostering greater engagement with peer feedback practices. Furthermore, CMC tools can integrate scaffolding features, such as structured feedback templates, language support mechanisms, and real-time guidance, to support learners in overcoming the challenges inherent in peer feedback processes. However, existing studies have yet to fully explore how these scaffolding features within CMC tools address the diverse needs of learners with varying proficiency levels. Additionally, research like Zhao (2010) has largely focused on feedback outcomes

without thoroughly examining the cognitive and affective strategies learners employed to overcome obstacles in peer feedback settings. Gaining insight into these processes is crucial for designing peer feedback platforms that effectively support self-regulation across diverse proficiency levels and cultural contexts.

Although research has explored the benefits of CMC for self-regulated learning in English as a Foreign Language (EFL) contexts, there is a notable lack of research in Japanese as a Foreign Language (JFL) contexts, where feedback practices and educational systems may differ due to cultural expectations and teacher-centered learning environments (Carless, 2022). This study addresses this gap by comparing peer feedback in both EFL and JFL contexts, exploring how CMC platforms facilitate SRL in culturally distinct settings.

LITERATURE REVIEW

Self-Regulated Learning (SRL)

Self-regulated learning refers to learners taking active control of their learning experiences by engaging in metacognitive reflection on how they learn, sustaining their motivation, and behaviorally taking steps to enhance their learning in educational settings, aiming for autonomous learning (Zimmerman, 1989). In social contexts where learning is shaped by interactions with others, students acquire knowledge while striving to meet goals set by instructors. This process not only develops their cognitive abilities but also helps them manage emotional resources, initially through external supports like parents, teachers, and peers, and gradually transitioning toward more self-directed strategies (Schunk & Zimmerman, 1997; Zimmerman & Kitsantas, 1999).

The current research builds upon the conceptual framework of SRL by exploring three interconnected dimensions that this research aims to explore: peer scaffolding in collaborative learning through CMC, which allows learners to provide and receive support from their peers; adopting an audience-aware stance in peer feedback, encouraging learners to critically consider their peers' perspectives and needs; and engaging in cognitive processes, such as reflection and

feedback integration, which fosters deeper learning and enhances self-regulated learning behaviors. These three dimensions, supported by previous studies, will be discussed in detail below.

Peer Scaffolding for Collaborative Learning in L2/FL Contexts

In any learning environment, students with varying levels of knowledge collaborate to offer each other support, sharing knowledge and helping one another stay focused on the task. Peer scaffolding plays a crucial role in promoting critical thinking and facilitating the co-construction of knowledge among learners. Previous empirical studies in the inter-disciplines and in face-to-face or CMC environments have explored the impact of peer scaffolding on students' learning, employing both quantitative and qualitative methodologies to enhance our understanding of the relationship between these constructs. For example, Wass, Harland, and Mercer (2011) observed the development of the students' critical thinking which was scaffolded by conversations between themselves or between themselves and their instructor through longitudinal semi-structured interviews. However, that study's focus on zoology undergraduates limited its generalizability to language learning environments. Furthermore, while the study effectively demonstrated the shift from external scaffolding to independent thought, it lacked specific contexts where different scaffolding strategy use (formal or informal settings) might be applied to scaffold students' critical thoughts.

Vuopala, Näykki, Isohätälä, and Järvelä (2019) explored knowledge co-construction among prospective teachers by looking at the different types of activities, such as sharing information, providing answers, and making summaries. By the use of scripted collaborative learning, the previous study offered valuable insights into how the question prompts fostered task-related monitoring. Such a method mirrors CMC-based peer feedback platforms, where feedback practices are often provided within a structured system (e.g., rubric questions for feedback practices). However, Vuopala et al.'s scripted environment contrasts with the spontaneous nature of peer feedback, particularly in writing contexts where learners are required to provide

detailed linguistic feedback.

In L2/FL contexts, previous research has investigated the effects of peer feedback on writing accuracy or achievement through examining two different environments of face-to-face and online or CMC. For example, the research of DiGiovanni and Nagaswami (2001) found that students participating in online peer review (OLPR) were required to complete their feedback tasks within the same limited time as those engaged in face-to-face peer review (FFPR). However, providing feedback online often required more time due to the slower nature of typing and interacting with digital platforms. Writing thoughtful, detailed feedback could take longer than engaging in a spoken conversation, where students could clarify misunderstandings immediately.

Rassaei (2019) limited the scope of corrective feedback to three modalities (text-based, audio-based, and no feedback) and specific English articles (the/a/an), while also relying on potentially oversimplified perceptual style assessments (e.g., personalities). That study did not explore whether the feedback was provided synchronously (in real-time) or asynchronously (delayed), which could impact how learners responded to corrective feedback.

Building on the aforementioned studies, the present study highlights the effectiveness of peer scaffolding in CMC-based feedback environments, reinforcing the notion that structured support combined with spontaneous peer interactions enhances collaborative learning and deepens linguistic understanding. While prior research (e.g., Vuopala et al., 2019; Wass et al., 2011) emphasized the role of scripted scaffolding in promoting critical thinking, this study demonstrates that a hybrid approach integrating rubric-based guidance with open-ended peer exchanges offers a more flexible and adaptive feedback structure. Additionally, the findings extend those of DiGiovanni and Nagaswami (2001) by illustrating how asynchronous peer feedback fosters deeper cognitive engagement, allowing learners more time to reflect, revise, and refine their feedback. Unlike previous research that viewed the time-intensive nature of online feedback as a limitation, this study suggests that asynchronicity fosters deliberate, higher-quality feedback interactions. Furthermore, this study builds upon Rassaei's (2019) research by demonstrating that the

asynchronous mode of feedback allows learners sufficient time to process, reflect on, and respond to peer feedback more effectively compared to synchronous interactions. As a result, asynchronous peer scaffolding not only promotes deeper cognitive engagement but also enhances collaborative learning through iterative feedback exchanges, supporting a more student-centered and reflective feedback process.

Audience-Aware Stance in L2/FL Peer Feedback

In both L1 and L2/FL writing, audience awareness is essential. It involves not only a writer's understanding of the reader's needs (Carvalho, 2002; Cho, Kim, & Olson, 2021), but also one's evaluative judgment as the "capability to make decisions about the quality of work of self or others" (Tai, Ajjawi, Boud, Dawson, & Panadero, 2018: p.471). In this regard, evaluative judgment empowers students to enhance their learning by shifting attention from teachers to self-regulated evaluation.

Similarly, in feedback scenarios, audience awareness refers to the reviewer's comprehension of the specific feedback needed by the reviewee to enhance their drafts. It places an emphasis on the role of feedback provider, particularly peers, and has been empirically examined due to the complex cognitive processes involved in delivering feedback. For example, Chang (2015) highlights that the feedback of an audience-aware stance tends to be concrete, revision-oriented, and collaborative, while feedback lacking such awareness often appears vague and authoritative. However, that research adopted a quantitative approach to data collection that could not gain deeper insights of feedback providers and receivers. To address this, the current research employs a qualitative approach, utilizing stimulated recall and semi-structured interviews to examine feedback from an audience-aware stance within an asynchronous CMC environment. This approach encourages learners to critically consider their peers' perspectives and adapt their feedback accordingly.

Last but not least, cultural and contextual differences in feedback practices, particularly between EFL and JFL contexts, remain underexplored. According to the observation of the authors of this paper, JFL learners often prioritize teacher authority more than their

EFL counterparts, creating challenges in developing audience-aware feedback during peer collaboration. This study leverages the given platform to anonymize reviews, reducing anxiety and cultural barriers while promoting audience awareness. By addressing these challenges, the current study aims to create a more equitable and inclusive peer learning environment.

Cognitive Engagement in L2/FL Peer Feedback Processes

The concept of engagement in feedback has been applied in L2/FL contexts to explore how learners engage in cognitive processes, as demonstrated by previous studies. For example, Fan and Xu (2020) explored the multidimensional engagement of L2 students in peer feedback activities, focusing on affective, cognitive, and behavioral aspects. Their findings revealed that most students exhibited positive affective engagement, appreciating peer feedback and recognizing its potential to improve their writing. However, their study could have provided more detailed insights into how students implemented feedback in their drafts. For instance, tracking actual changes made in their writing after receiving feedback could have offered a clearer picture of their engagement with the process.

Similarly, Yu and Hu (2017) found that EFL students provided a diverse range of cognitive and affective feedback to their peers, addressing areas such as grammar, vocabulary, content, and organization while incorporating elements of praise. Those authors noted that group dynamics influenced feedback practices. However, the study did not explicitly examine whether students' feedback practices were shaped by interactions with group members or how peer feedback usage evolved over time.

In another line of research comparing peer feedback and teacher feedback in L2/FL contexts, studies have shed light on learners' engagement in feedback processes. For example, Miao, Badger, and Zhen (2006) found that peer feedback was often perceived as more critical and detailed than teacher feedback, particularly in encouraging learners to engage in self-regulation. In contrast, Zhao (2010) highlighted that while teacher feedback was viewed as more authoritative and led to more revisions, learners did not always understand its full value. Although the current study does not examine

teacher feedback, those findings provide important context for understanding the distinct role of peer feedback in fostering collaborative engagement and reflective revisions in CMC environments. By focusing exclusively on peer feedback, this research explores how peer interaction facilitates learners' decisions to revise their writing and engage in deeper cognitive processes during revisions.

While peer feedback has been shown to be effective in EFL settings (Miao et al., 2006; Yu & Hu, 2017), there is limited research on how this feedback operates in JFL contexts. Given that cultural and linguistic differences may influence how feedback is provided and received, the current study posits that both EFL and JFL learners may initially focus more on local feedback (e.g., grammar) rather than global feedback (e.g., content and organization). This tendency can be attributed to their limited exposure to the target language and the natural inclination to address surface-level errors first. However, as learners observe how their peers provide feedback and engage in iterative revisions, they may gradually shift their cognitive processes to incorporate more global concerns, moving beyond local issues. Building on the findings of these studies, the research question to be addressed in this study is as follows: How does social influence activate self-regulated learning through the utilization of peer feedback provided by EFL and JFL learners in the CMC environment?

METHODOLOGY

Contexts and Participants

This study recruited 12 participants, consisting of six English as a Foreign Language (EFL) learners and six Japanese as a Foreign Language (JFL) learners from a private university. All participants, aged between 20 and 21, were sophomores who shared Mandarin Chinese as their first language.

In Table 1, the EFL learners had been studying English for approximately nine years, starting from elementary school, and their proficiency levels, based on TOEIC (Test of English for International Communication) scores, ranged from intermediate (B1) to advanced

(C1) (Council of Europe, 2001). The JFL learners, on the other hand, had been studying Japanese for at least two years, either beginning in high school or after entering university, with proficiency levels ranging from intermediate (B1) to upper-intermediate (B2), according to the Japanese-Language Proficiency Test (JLPT).

The participants were randomly assigned to small groups of three within their respective language groups. For the EFL group, Albert, Tim, and Lina formed EG1, while Ayumi, Ichiro, and Rin comprised JG1 in the JFL group. The groups were created to reflect real-world classroom dynamics, where learners often engage with peers of varying proficiency levels. We deliberately chose to mix learners with different levels of proficiency within their language groups to simulate authentic learning environments where students must collaborate, provide feedback, and adapt their approaches based on the abilities of their peers. This design was intended to investigate how learners with diverse skill sets support each other through the peer feedback process, fostering both collaborative learning and peer scaffolding.

Table 1

Demographic Information of EFL and JFL Learners

Groups	Groups	Pseudonyms	Age	Gender	Years of learning	Proficiency Level
EFL	EG1	Albert	21	M	9	980 (C1)
	EG1	Tim	21	M	9	875 (B2)
	EG1	Lina	21	F	9	625 (B1)
	EG2	June	21	F	9	855 (B2)
	EG2	Joan	20	F	9	575 (B1)
	EG2	Ken	20	M	9	550 (B1)
JPL	JG1	Ayumi	20	F	5	N2 (B2)
	JG1	Ichiro	20	M	2	N3 (B1)
	JG1	Rin	20	F	5	N3 (B1)
	JG2	Tadashi	20	M	2	N2 (B2)
	JG2	Rika	20	F	2	N3 (B1)
	JG2	Sako	20	F	3	N2 (B2)

Note.

[1] EG1 and JG1 refer to EFL Group 1 and JPL Group 1 respectively.

[2] The proficiency level for EFL is based on TOEIC scores, while that for JFL is based on the Japanese-Language Proficiency Test (JLPT) scores.

[3] B1, B2, and C1 represent the levels of Intermediate, Upper-Intermediate, and Advanced respectively.

Given the study's focus on qualitative data collection through semi-structured and stimulated recall interviews, a small sample size was intentionally chosen to facilitate a detailed, in-depth analysis of participants' peer feedback interactions and self-regulated learning behaviors. This approach aligns with qualitative research norms, where depth of understanding is prioritized over breadth (Creswell, 2013). A smaller sample allows for rich, contextually grounded insights, enabling a fine-grained examination of interaction patterns that would be difficult to capture in a large-scale study. Additionally, qualitative research emphasizes theoretical rather than statistical generalization (Lincoln & Guba, 1985), meaning that the findings can provide transferable insights applicable to similar CMC-based peer feedback contexts, rather than being representative of all learners.

Instruments

In this study, five writing tasks were selected and adapted from the book *Beginning Composition through Pictures* by Heaton (1975). These writing assignments were titled "the Winner," "the Landslide," "the Clever Dog," "Wet Paint," and "the Table that got smaller." Each assignment presented a series of sequential pictures, and participants were required to compose a minimum of 300 words for each topic.

The picture-based prompts provided a flexible and creative way that encouraged a broader range of responses, thus stimulating cognitive engagement in different aspects of writing (Raimes, 1983). This type of task encouraged learners to develop their descriptive, narrative, and organizational skills, which are essential foundations for more complex forms of writing, such as argumentative or analytical essays. By using a less structured format, learners had the freedom to express their ideas while still developing critical writing skills.

The instruments used in this study to elicit the learners' understanding and reflection on self-regulated peer feedback consisted of two types of interviews: Stimulated Recall Interview (SRI) and Semi-Structured Interviews (SSI). The SRI aimed to capture an individual's cognitive processes related to task performance by prompting them to recall using a stimulus, such as a

video recording of performing tasks (Ryan & Gass, 2012). This approach helped to gain insights into the participants' actions and decision-making (Zhao, 2010). In this study, the SRI was conducted using paper-based means, wherein students were asked whether they revised or did not revise their compositions when receiving peer feedback.

On the other hand, the SSI interview was carried out to explore whether the participants noticed errors in their own or others' compositions and whether they understood the content of peer feedback provided by their group members. The SSI contained questions regarding the learners' perception of self-regulated feedback and their experience of using Peergrade to provide peer feedback in writing. The questions, such as "Do you notice any errors in your writing? Please specify what the errors are" and "Do you notice errors in others' writing? Please describe the errors."

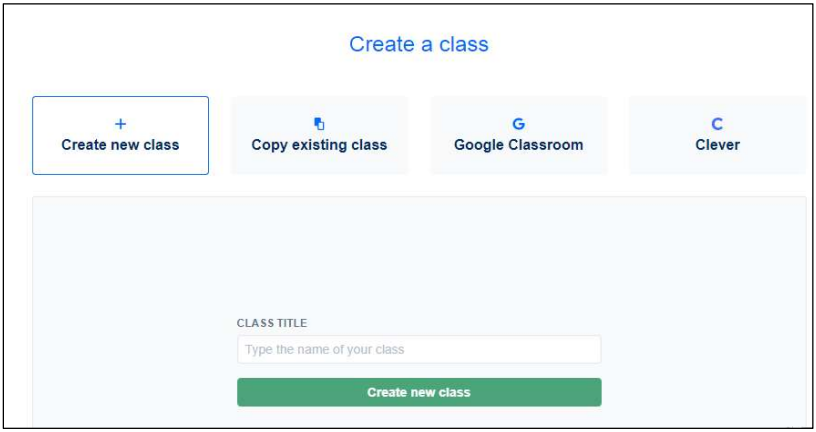
Both the SRI and SSI interviews were conducted in the participants' first language, Mandarin Chinese, to ensure clarity and avoid any potential confusion or ambiguity in expressing their ideas.

Peergrade

Peergrade is an online platform developed by the research team of Wind, Jensen, Jørgensen, Hansen, and Winther (2017), which enables learners to compose their writing and subsequently provide feedback on their peers' work. The platform allows teachers to create classes, group students, and establish deadlines for submissions and feedback rubric questions. For the purpose of this study, the researchers created separate classes for students studying two different languages, English and Japanese, as illustrated in Figure 1.

Figure 1

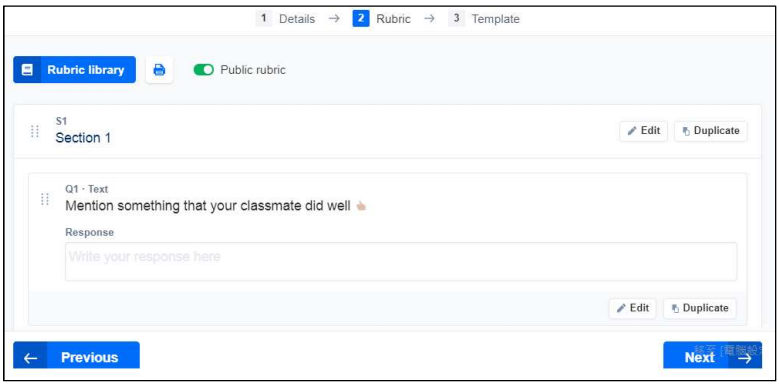
A Screenshot of Peergrade – Creating a Class



In Figure 2, a three-step training procedure was implemented to guide the participants in providing feedback to their peers. This training involved the following steps: identifying errors in their peers' compositions, describing these errors, and offering suggestions for improvement.

Figure 2

Creating Rubrics in Peergrade



Procedure of Data Collection

Two researchers approached students who expressed interest in participating in this study during their scheduled classes. The purpose and details of the research were explained to the students, and they were informed that they would receive compensation for their participation. Those who wished to participate were asked to attend a one-hour introductory session. In the JPL group, six students were introduced to the research objectives and given instructions on how to use Peergrade. Importantly, they were asked to carefully read and sign a consent letter, granting their permission for participation in the research. Afterwards, the six students were divided into two small groups of three. Similarly, six EFL students underwent a one-hour introductory session to familiarize themselves with the system. After the session, each student was assigned to complete five tasks over a span of seven weeks. Each task was completed in approximately 1.5 weeks, with composing a writing task taking four days, providing feedback taking three days, and revising requiring three days.

Upon the completion of the online tasks, semi-structured and stimulated recall interviews were scheduled for the 12 students, with six from the JPL group and six from the EFL group. Each learner was interviewed individually. The semi-structured interview was conducted first, followed by the stimulated recall interviews, with each interview session lasting approximately one hour.

Data Analysis

In this study, data from the semi-structured and stimulated recall interviews were transcribed verbatim and analyzed. The transcripts were reviewed by the researchers as inter-raters, and they discussed how to categorize the data. Three key categories were identified and are presented in Table 2. This category refers to whether feedback providers were conscious of their peers' understanding of the feedback they provided. Drawing from the work of Novakovich and Long (2013), this concept views the awareness of the audience as a social and engaging aspect of writing, where writers consider the interests and needs of their readers. In the context of peer feedback, the feedback providers engage in communication with their peers,

taking into consideration their peers' interests and needs (Chang, 2015). The focus of the feedback providers is to understand their peers' written texts and offer revisable suggestions that can assist their peers in revising their work.

Table 2

Coding of Semi-Structured and Stimulated Recall Interview Data

Categories	Definitions of the roles
Audience-aware stance	• Focusing on the understanding of peers' written work. • Focusing on whether comments or feedback can help reviewees to revise their written work. • Friendly commenting on peers' compositions
Engagement in cognitive processes	Global aspects • Relating to content/organization of an essay • Regarding coherent ideas of a text Local issues • Dealing with grammatical features, e.g., tenses and prepositions. • Focusing on writing conventions, e.g., punctuations.
Peer scaffolding for collaborative learning through CMC	Knowledge co-construction • Sharing one's opinions or ideas that help improve one's writing Affective scaffolds • Encouraging and supporting group members

Secondly, engagement in the cognitive processes in relation to feedback content was categorized into global and local aspects. The former encompassed the development of ideas and the overall organization of the text (Min, 2005). For instance, a comment like "the first paragraph is lacking supporting sentences or some examples that you mentioned in the topic sentence" addressed a global issue by providing suggestions to improve the development of the first paragraph and enhance the text's overall coherence. On the other hand, local issues pertained to grammatical, lexical errors, and punctuation.

Finally, the concept of peer scaffolding was observed, wherein group members assisted each other in achieving a common goal, and their collaborative efforts facilitated the co-construction of knowledge. Through collaborative work on Peergrade, learners shared their

knowledge and opinions, enhancing their understanding by explaining and clarifying complex concepts (Vuopala et al., 2019). In this study, two types of scaffolding were identified: knowledge scaffolds involved sharing opinions or ideas among learners to help improve each other's writing, while affective scaffolds comprised learners encouraging and supporting each other to achieve their writing goals.

The authors coded the data independently, achieving an inter-rater agreement of 92%. To ensure consistency, a coding manual was developed with the criteria for each category (e.g., audience-aware stance feedback and peer scaffolding). The coders engaged in extensive discussions to refine the coding process and ensure accuracy, resolving any discrepancies through consensus.

RESULTS

In this section, we will present and discuss the results obtained from the semi-structured and stimulated recall interviews. The aim is to explore how social feedback activated self-regulatory resources among EFL and JFL learners using the platform. Overall, this research revealed a progressive development in peer feedback and scaffolding behaviors among EFL and JFL learners across three stages. In the early stage, feedback was primarily surface-level and directive, with minimal engagement in audience-awareness, cognitive processes, or interactive peer scaffolding. By the mid-stage, learners began addressing content and organizational concerns, showing a shift toward justifications, questioning peer feedback, and engaging in collaborative dialogue, though JFL learners remained more hesitant than their EFL counterparts. In the late stage, peer feedback became revision-oriented and interactive, demonstrating increased metacognitive awareness, stronger analytical engagement, and more reciprocal peer scaffolding, though JFL learners were still less confident in making large-scale content changes (please refer to Appendix I). The following discussions are divided into three sections, namely, audience-aware stance feedback, peer scaffolding for collaborative learning through CMC, and engagement in cognitive processes.

Audience-Aware Stance Feedback

The theme of audience-aware stance feedback emerged from the data collected in this study. Audience awareness refers to the role of peer reviewers who consider the interests and needs of their peers (Chang, 2015) and possess critical attributes, including reasoning and evaluation (Wass et al., 2011). In the current context, audience-aware stance feedback involves reviewers providing explanations to help peers improve their writing or better understand the feedback. Initially, feedback from both the EFL and JFL groups lacked audience awareness. For example, in Excerpt 1, Lina from the EFL group expressed frustration over the lack of explanation in early peer feedback, which made it difficult for her to revise her draft. This highlights the importance of audience awareness in providing effective feedback. In contrast, by the fourth or fifth task (Excerpt 2), Lina described how her peer offered a more detailed explanation about the contextual meaning of "worried" versus "scared," which helped her make more informed revisions. This shift demonstrated participants' growing awareness of their peers' needs and the effectiveness of their feedback.

<Excerpt 1> (SRI data / EG1)
00:01:34~00:01:47 Lina: One of my group members says I have errors in my writing, but I just don't understand why... incorrect grammar... he really needs to specify what types of incorrect grammar that I use is incorrect.

In Excerpt 2, when asked whether she knew how to revise her work in the fourth or fifth task, Lina explained that she had indeed corrected most of her errors based on her peers' comments. In the following transcript, she mentioned that my group member provided an explanation of the contextual meaning of the word "worried" (*"... 'worried' is better than 'scared' because John and his father are discussing completing painting the room...") in relation to the incorrect usage of the lexical item "scared."* The exploration of this theme sheds light on the feedback provision and its impact on enhancing the quality of peer interactions during the writing process.

<Excerpt 2> (SRI data / EG1)
00:22:04~00:24:58 Lina: I agree him regarding the misused vocabulary... because two words "scared" and "worried" look so similar... my peer explains that in that context "worried" is better than "scared" because John and his father are discussing completing painting the room... his father was worried that it would be *to [too] hard to complete... when using "scared," you're afraid of doing something.

The findings of this study indicate that audience awareness could be enhanced through interactive exchanges between reviewers and reviewees. In the context of EFL, Ken's awareness of his peer's needs during the revising stages had shown improvement in the later tasks compared to the earlier ones. In the semi-structured interview (SSI), Ken expressed the following observations:

<Excerpt 3> (SSI data / EG2)
00:02:19-00:03:45 Ken: ... my group member asked me the reasons about the comments that I gave to her... asking me why... she wanted me to give her the explanations about the errors in my sentences. In the beginning, I thought I had already explained my comments in which she should be able to understand why I did so... because I assumed that she understood the grammatical feature so I didn't explain it.

<Excerpt 4> (SSI data / EG2)
00:04:25-00:04:53 Ken: ... she often asks me the same question regarding whether a comma needs while using a conjunction "and" to connect two sentences.

In the two mentioned excerpts, Ken said that his group member inquired about whether a conjunction "and" required a comma between two independent clauses. Initially, Ken assumed that his group member already understood this grammatical point, so he did not provide an explanation while commenting on the group member's first assignment. However, as Ken continued to interact with the group member through posting questions on the platform, he realized the value of offering detailed explanations. In the fourth assignment, Ken demonstrated improvement in his commenting technique by providing clearer guidance, stating, *"A comma is needed before the conjunction 'and' because they are two independent clauses."* This shows how Ken's interactions with his peer facilitated his own learning and development, leading to more effective and helpful feedback during the review process.

Similarly, JFL learners such as Ayumi, Ichiro, Rin, and Sako initially expressed confusion over the feedback they received from their peers regarding incorrect grammar and word usage. However, while some tended to stick to their original ideas because peer comments were not sufficient explanations, others were inclined to seek clarification from their Japanese friends rather than their group members regarding problematic word usage or grammar. For example, in Excerpt 5 during the SRI interview with Researcher 2, when asked why she did not revise her work in Task 1 according to comments given by her group member, Sako explained that she intended to use "but" instead of "in."). Consequently, she retained her idea using "でも" ("but") by consulting with native Japanese speakers.

<Excerpt 5> (SRI data / JG2)
00:13:50-00:13:56 Researcher 2: yes, can you tell me why その中で doesn't work in that situation?
00:13:56-00:13:57 Sako: その中で? (「その中で」?)
00:13:57-00:14:01 Researcher 2: yes, why でも is okay, その中で is not okay.
00:14:01-00:14:04 Sako: because I'd like to say "but" rather than "in"
...
00:15:24-00:15:29 Sako: Yeah! It's because they're Japanese, so they'll know where to use what.

In Excerpt 6, Rika seemed to have a clear idea of what she wanted to convey in her writing. When her group member suggested adding the idea "she [the dog] just messed with the shoes a bit" in the middle of a sentence, Rika expressed hesitation and ultimately did not accept this suggestion. Her hesitation likely stemmed from the belief that adding this idea would not accurately represent her intended message or meaning. Rika's decision not to accept the suggestion indicated that she prioritized clarity and coherence in her writing. She wanted to ensure that her sentences conveyed exactly what she meant without introducing unnecessary or conflicting ideas. This suggests that her group member did not give sufficient explanation about the suggestion.

<Excerpt 6> (SRI data / JG2)
00:22:55-00:23:00 Rika: Yeah... she added something in the middle of a sentence "she [the dog] just messed with the shoes a bit"
00:23:00-00:23:01 Researcher 2: Oh~

00:23:01-00:23:02 Rika: じっとしています
00:23:02-00:23:05 Researcher 2: Oh... was she staring at the shoes the whole time? 00:23:05-00:23:06 Rika: Yeah
00:23:06-00:23:10 Researchers 2: And then threw the shoes into the bushes.
...
00:23:10-00:23:21 Rika: In the bushes. And... but at that time, I asked her, isn't it generally about wanting to play with the dog, and then just picking it up? It's just ... really just throwing it out for it to fetch.
00:23:21-00:23:22 Researcher 2: Hmm
00:23:22-00:23:24 Rika: Yes, so in the end, I didn't change this
00:23:24-00:23:25 Researcher 2: Oh... you didn't accept it?
00:23:25-00:23:28 Rika: Right, I didn't accept this...

According the above excerpt, it involved one common feature observed in both EFL and JFL comments was that peer feedback, particularly language-related comments, played a crucial role in engaging learners in the cognitive processes of evaluative judgment (Tai et al., 2018). For example, in the context of EFL, during the composing phase, a learner named June was unaware that she had used the incorrect phrase "all the way" instead of "on the way" until a group member provided a language-related comment. Upon receiving the feedback using "on the way" which seemed more appropriate than "all the way," June evaluated her original sentence, *"I walked back to the downtown from the beach, and I wanted to find a shop selling clothes, but I didn't see it all the way."* Subsequently, she accepted the suggestion to change it to "on the way," which better conveyed her intended meaning that implied that during the journey back to downtown from the beach, she did not come across the shop selling clothes. During the stimulated recalls, June reflected, *"...I don't know why I used 'all the way,' it may be that I thought in Chinese and then literally translated to English... so I think 'on the way' is better than 'all the way'"* (0:13:41-0:14:00, SRI data / EG2).

On the other hand, Ayumi, a JFL learner, evaluated a comment from her group member related to a determiner "その" ("that") and decided to revise her sentence based on the feedback. The determiner helped her convey her intended meaning more accurately than what she expected. As indicated in her statement, *"Yes, the determiner 'その'[that] looks better because... what I really want to say is THAT marathon rather than just a marathon..."* (00:11:10-00:11:27, SRI data / JG1).

To summarize, the asynchronous nature of the Peergrade platform played a crucial role in facilitating learners' progression from surface-level to more detailed feedback. Unlike real-time feedback in face-to-face interactions, the CMC environment provided learners with extended time to exchange ideas, reflect on their implications, and formulate thoughtful responses. For example, Ken's improvement in providing detailed explanations, such as his comment about the use of a comma before "and," illustrates how the asynchronous setting enabled him to reflect on his peer's questions and revisit grammatical rules before responding. Moreover, the platform encouraged learners to refine their feedback through iterative exchanges, fostering a gradual transition from less audience-aware feedback to more comprehensive, audience-focused contributions. This self-paced engagement allowed learners to revisit feedback multiple times, facilitating self-regulated learning and deeper cognitive processing. However, beyond the affordances of asynchronicity, two additional cognitive mechanisms, the role of scaffolding tools and learners' language proficiency, contributed to this progression.

First, structured rubrics (e.g., "Please identify the problematic areas in your peers' writing and explain the problematic issues") embedded in Peergrade acted as cognitive scaffolds, directing learners' attention to multiple feedback dimensions. Initially, lower-level students focused primarily on local aspects of writing (e.g., grammar and spelling) as prompted by rubric categories. However, over time, students observed their peers providing feedback on content and organization, which modeled deeper evaluative thinking and encouraged them to engage with global aspects of writing, leading to a broader evaluative scope.

Second, learners' proficiency levels influenced their ability to provide audience-aware stance feedback. Higher-proficiency learners (e.g., Albert and Ayumi) demonstrated greater cognitive flexibility, allowing them to adopt a reader-oriented perspective earlier in the study. They were more likely to provide comments on how the writing would be perceived by an audience, addressing issues such as coherence, rhetorical effectiveness, and clarity. In contrast, lower-proficiency learners (e.g., Joan and Sako) initially focused on grammatical accuracy, limiting their ability to consider the audience's

perspective. However, as they engaged in iterative feedback cycles and observed their peers modeling global feedback strategies, they gradually expanded their feedback to include audience-aware concerns such as logical flow and clarity.

Peer Scaffolding for Collaborative Learning through CMC

The theme of peer scaffolding for collaborative learning involved two types of knowledge co-construction and affective scaffolds. In the former, participants actively engaged in sharing and built upon each other's ideas to enhance their understanding or performance in a given task. In the current context of asynchronous interaction on Peergrade, co-construction might manifest as peers providing their thoughts on their peers' writing and collaboratively finding ways to improve it. This process not only helped in refining their writing but also in deepening the learners' understanding of writing principles and practices. During composing stages, the participants, irrelevant of their proficiency levels, tended to focus on the ideas of a story, describing characters, places, and so on, but overlooked the linguistic aspects of grammar, word usage, and sentence structures in the target language. They would not know what linguistic errors they committed until they received their feedback from their group members. Or, their group members would provide some insights by reflecting on how they composed a story to make it more interesting. Through ideas exchange, they learned from each other to achieve knowledge co-construction.

In the following excerpts, peer scaffolds tended to be local issues (e.g., tenses and word usage) and global ones (e.g., content and the organization of an essay) in their writing. However, it is interesting to observe that the EFL advanced and intermediate learners (Albert and Joan) approached this process with different purposes. For instance, in Excerpt 7 Albert mentioned that he paid close attention to specific details in his writing, such as distinguishing between "there pencils" and "their pencils," due to contextual cues, and as a result, confusion between them was unlikely to occur. However, in written language, using "there pencils" instead of "their pencils" is considered an error since "there" and "their" refer to different entities and have distinct

meanings. On the other hand, in Excerpt 8 the learner with lower proficiency, Joan, admitted that she was not initially aware of her errors concerning verb tenses until her group members provided feedback. Moreover, she tended to forget to check for such errors after completing her writing.

<Excerpt 7> (SSI data / EG1)
00:00:36~ 00:00:50 Albert: ... when writing, I often overlook small details such as grammar and spelling errors until I receive feedback from my group members. These errors are related to spoken language, overlooking the spelling "there" and "their" and so on.

<Excerpt 8> (SSI data / EG2)
00:00:10~00:00:40 Joan: I often feel I am right about what I write, but after I receive feedback from my peers, I just realize that I am wrong using incorrect tenses. From the feedback contents, I found I overlooked the tenses... when I notice some sentences which require past tenses, I often overlook most of them in my writing.

In Excerpt 9, the constructive feedback and support were provided by Ken's peers. The peers played a crucial role in assisting Ken by identifying and pointing out mistakes that he had overlooked in his work. The term "peer scaffolds" implied a collaborative process where his peers not only corrected specific errors but also offered detailed explanations about grammar aspects, specifying the areas where Ken went wrong. The mention of "bridging the gap between my understanding and theirs" emphasized how this peer support aided in aligning Ken's comprehension with that of his peers. Overall, Ken's statement represented the valuable assistance and guidance from peers, contributing to Ken's learning and improvement in a collaborative setting.

<Excerpt 9> (SSI data / EG2)
00:01:36-0:02:09 Ken: the feedback they gave me, um... there were several points that I found quite helpful. For example, they pointed out mistakes that I didn't pay much attention to. They would correct my usage of certain words and explain in detail the grammar aspects, specifying where I went wrong. It was helpful in bridging the gap between my understanding and theirs. When I checked it again, I discovered that my errors were indeed like that.

Similarly, the JFL learners with higher and lower proficiency levels demonstrated a focus on different aspects of the language. For

instance, the high proficiency learner, Ayumi, exhibited awareness not only of local aspects such as grammar and word usage but also of global dimensions, including the content of her compositions. She often realized that her writing contained grammatical errors due to direct translations from her first language. Additionally, she acknowledged when her story writing lacked excitement and proactively sought to incorporate more engaging elements. In the third part of Excerpt 10, Ayumi's group member provided her with an additional verb "叫ぶ" ("exclaim") to complement the verb "走ってくる" ("run"), using the continuation particle "ながら" ("while"), which enriched the overall meaning of the sentence. This demonstrated Ayumi's ability to be receptive to constructive feedback and make meaningful improvements to her writing.

<Excerpt 10> (SSI data / JG1)
00:00:58-00:01:12 Ayumi: It seems like ... yes, [it's being] influenced by Chinese grammar and then directly compose sentences in Japanese.
...
00:01:21-00:01:29 Ayumi: some of my sentences are too plain... they help me add something more interesting or make the sentences more interesting.
...
00:05:00-00:05:07 Ayumi: that's it... it's like what to be said... it makes the plain text more interesting.

In Excerpt 11, peer scaffolds identified through the assistance in spotting overlooked mistakes (00:03:58-00:04:01), the term expanded to encompass the broader idea of offering diverse perspectives and suggestions for improvement (00:04:02-00:04:19). The term "scaffolding" implied a temporary but crucial support system where peers contributed insights and guidance, not only helping Rika rectify errors but also prompting her to consider alternative viewpoints and refine her writing with additional details or processes. It reflected a collaborative learning environment where peers contributed to the gradual development of Rika's writing skills.

<Excerpt 11> (SSI data / JG2)
00:03:58-00:04:01 Rika: Yeah, exactly! Those are the errors I didn't catch.
...
00:04:02-00:04:04 Rika: And then there's... or it's a different idea altogether
00:04:04-00:04:06 Researcher 2: Yeah, they would offer you different

perspectives, huh?
00:04:06-00:04:07 Rika: yes
00:04:07-00:04:09 Researcher 2: what kind of different perspectives are they suggesting?
00:04:09-00:04:19 Rika: Oh, like before when I found the shoes next to the trash can! They thought just picking them up and tossing them out right away would be weird. So, maybe there needs to be a bit in the middle, like explaining some process or something.

The affective scaffolds helped maintain a positive and supportive atmosphere, encouraging participants to take risks in their writing and be open to feedback. However, affective scaffolds were scarce in both SSI and SRI and in the English and Japanese groups. A few instances were found in the SSI, for example, Ken in EG 2 reflected that one of his group members praised him *"I think there are hardly any grammar mistakes in your writing this time. Well done! High-five!*"

Engagement in Cognitive Processes

An intriguing insight emerged from the data obtained through semi-structured and stimulated recall interviews regarding the cognitive engagement associated with decision-making in peer feedback practices. Across both EFL and JFL learners, irrespective of their proficiency levels and target languages, participants initially focused on local issues, such as grammar, verb tenses, and word usage. For example, EFL learners like Tim and Joan addressed tense-related errors (e.g., have + pp), while JFL learners such as Ayumi and Sako commented on adverbs modifying verbs.

A notable shift occurred during the revision process, where learners critically evaluated the feedback they received to determine whether it was contextually suitable for their writing. This process revealed two primary conditions influencing learners' decision-making: first, whether the comments were accompanied by reasons, and second, whether the comments fit into the context of the text.

As the tasks progressed, participants, such as Ken, Lina, Tadash, Rika, and Ayumi began to move beyond surface-level corrections and provide feedback on content and ideas. For instance, in Excerpt 12, the transcript provides clear evidence of a shift from local to global focus in peer feedback. Ken's critique of the article's conclusion and

the effectiveness of its examples demonstrated a progression toward evaluating higher-order aspects of writing, such as coherence, alignment, and audience awareness. Furthermore, his reflection on how feedback should be structured indicated an advanced level of metacognitive engagement. Ken's response reinforced this global focus, emphasizing the value of specific and contextually relevant feedback to improve the overall quality of the text. This shift reflects a developmental trajectory in peer feedback practices, where learners moved from surface-level corrections (e.g., Excerpts 3 & 4) to addressing the broader communicative and structural elements of writing.

<Excerpt 12> (SRI data / EG2)
00:05:10-00:05:47 Ken: umm... like how the article describes that dogs are also our good friends and can be trained to become intelligent companions, but the examples aren't very effective. The conclusion seems insufficiently developed and doesn't fully align with the central idea of the article.
....
00:05:52-00:06:30 Ken: Ahem... I feel like, um... yeah, that's right. It's like she could briefly mention something, like she could give an example. For instance, (ok) where I didn't connect or how I strayed off-topic or something like that... there's no need to go on and on saying it wasn't in-depth enough or didn't fully align, or things like 'commendable' and 'great job, hahaha.' It's fine; I can understand that (hmm...).

It also found an interesting phenomenon in the JFL group, although Tadashi's feedback initially addressed a local issue in his peer's writing, such as the incorrect use of the adverb "そして" ("moreover"), he demonstrated a cognitive shift by expanding his analysis to encompass a global issue to ensure narrative coherence. This process illustrated Tadashi's engagement in cognitive processes, specifically his selective attention to linguistic nuances and critical analysis of their impact on the overall coherence and effectiveness of the writing. For instance, in Excerpt 13, Tadashi identified the misuse of "そして" as an example of how incorrect language elements could disrupt narrative flow and coherence, highlighting his feedback integration skills in providing specific examples and suggestions for improvement.

<Excerpt 13> (SRI data / JG2)
00:03:54-00:04:07 Tadashi: ... my group member's paragraphs... having

> some problems... like "そして" an adverb that is not quite right in that situation"
> ...
> 00:04:26-0:04:30 Tadashi: Um, the entire sentence's meaning becomes completely unrelated to the article.

In the JFL group, Ayumi's transcript in Excerpt 14 revealed her active engagement in cognitive processes during the interview. She acknowledged the shared ability of her group members to seamlessly integrate diverse ideas into their dialogue, indicating a cognitive process of addressing global issues such as synthesizing and organizing information. Furthermore, Ayumi demonstrated a keen attention to detail by highlighting the lack of specificity in attributing dialogue to characters, showing her awareness of the importance of clarity and attribution in communication. Her ability to identify this issue reflected her cognitive process of problem identification and critical thinking, as she sought ways to enhance the coherence and effectiveness of their dialogue. Additionally, Ayumi's statement exemplified her thoughtful approach to collaborative writing, involving cognitive processes such as synthesis, attention to detail, problem identification, and critical thinking to improve the quality of their dialogue and narrative construction.

> <Excerpt 14> (SSI data / JG)
> 00:02:45-00:02:52 Ayumi: ... both of them [Ayumi's group members] having something in common put all things together in a dialogue...
> ...
> 00:02:53-0:02:56 Ayumi: ... they don't specify the characters who say what and when ...

The cognitive engagement delved into decision-making and peer feedback among EFL and JFL learners. Participants focused on local issues in peer feedback but critically assessed revisions based on feedback for contextual suitability. It also pointed out that transparent and informative feedback was crucial for understanding and incorporating corrections effectively. A notable cognitive shift was observed in Tadashi's feedback, where he addressed global narrative coherence issues. Ayumi demonstrated active cognitive processes in dialogue construction, emphasizing clarity and attribution while engaging in problem identification and critical thinking.

The findings suggest that focusing on local issues, such as grammar and vocabulary, was a natural process for EFL and JFL learners, as these aspects were more immediate, observable, and familiar. However, addressing global issues, such as content coherence and argument structure, required a more nuanced understanding that learners often developed through social and reflective learning processes. Observing and reflecting on peer feedback, particularly when accompanied by reasoning and contextual relevance, provided learners with opportunities to understand and apply strategies for improving higher-order aspects of writing. This process highlighted the importance of collaborative learning in helping learners progress from surface-level corrections to more holistic revisions that enhanced the overall quality of their work.

DISCUSSION AND CONCLUSION

This research explored how social influence activated self-regulatory learning through peer feedback strategies among EFL and JFL learners in a CMC environment. This current research emphasized the importance of self-regulated learning in L2/FL writing, drawing on Zimmerman's model where learners actively engaged in metacognitive, motivational, and behavioral processes to optimize learning. This aligns with the non-language learning studies by Schunk and Zimmerman (1997) and Zimmerman and Kitsantas (1999) on the gradual shift from external reliance to self-directed strategies. That is, the collaborative efforts leading to peer scaffolding and critical thinking resonated with studies by Wass et al. (2011) and Vuopala et al. (2019), emphasizing the role of interaction in promoting deeper cognitive engagement and autonomous learning.

Specifically, the results of this study revealed several key findings related to audience-aware stance feedback, peer scaffolding for collaborative learning through CMC, and engagement in cognitive processes. First, audience-aware stance feedback emerged as a crucial theme, highlighting the importance of peer feedback provides considering the interests and needs of their peers. This study revealed that initial peer comments often lacked audience awareness but

improved as participants became more conscious of what their peers needed. For example, Ken demonstrated increased audience awareness when he progressed from not providing explanations in early tasks to later clarifying, *"A comma is needed before the conjunction 'and' because they are two independent clauses."* This progression highlights his development in offering more audience-aware stance feedback (Excerpt 4) which was facilitated through interactive exchanges and peer scaffolding, leading to more effective feedback provision and comprehension. Such the findings of audience awareness in feedback practices aligned with concepts from Carvalho (2002) and Chang (2015), emphasizing the importance of reviewers understanding the needs of the reviewee and providing specific, revision-oriented feedback. This ties into the findings of the current study about evaluative judgments and decision-making processes during peer feedback, which were crucial aspects of self-regulated learning.

Second, peer scaffolding played a significant role in collaborative learning, as evidenced by participants actively engaging in sharing ideas and addressing errors. For example, Ayumi responded to feedback about using the determiner "そ の" ("that") and acknowledged how it helped convey her intended meaning more accurately. This demonstrates the importance of peer scaffolding in refining writing (00:11:10-00:11:27, SRI data / JG1). The participants actively engaged in sharing ideas, addressing errors, and refining their writing through peer feedback. These findings align with those of Vuopala et al. (2019), who emphasized the role of scripted collaborative learning in promoting task-related monitoring and peer scaffolding. However, the present study observed that in a CMC environment, learners engaged in more spontaneous scaffolding, with participants taking the initiative to provide feedback without the need for structured prompts. This distinction suggests that CMC tools offer greater flexibility and autonomy in peer interactions, a key contribution of this study in the context of language learning. Similarly, Wass et al. (2011) discuss the role of instructor scaffolding in guiding critical thinking. Our findings extend this by showing that peer scaffolding in CMC can also effectively foster critical thinking, as evidenced by participants' detailed feedback and reflective

revisions. This shift from instructor-led to peer-driven scaffolding highlights the collaborative potential of CMC tools in language learning.

In addition, the observed differences between EFL and JFL learners' feedback behaviors can be partially attributed to cultural norms in their respective educational systems. JFL learners initially exhibited hesitation in providing feedback, often relying on external sources such as consulting native speakers rather than engaging directly with group members. This behavior aligns with teacher-centered learning norms prevalent in Japanese educational contexts, where students tend to view teachers as the primary source of knowledge and authority. Such norms could explain the reluctance to engage actively with peer feedback in the early stages of the study.

JFL learners initially relied more heavily on structured rubrics, using them as strict evaluation criteria rather than flexible guidelines for constructive feedback. Unlike EFL learners, who incorporated more open-ended comments from the beginning, JFL learners adhered closely to scaffolded instructions and avoided deviating from rubric categories. Additionally, cultural norms around maintaining social harmony may have influenced their reluctance to provide direct criticism.

However, the CMC environment provided a more egalitarian platform, where anonymity and asynchronous interactions helped mitigate these cultural barriers. Over time, JFL learners observed their peers engaging more critically and began adjusting their feedback strategies, moving from surface-level corrections (e.g., grammar) to deeper content-focused feedback. This suggests that CMC tools, when combined with structured scaffolding, can support learners from teacher-centered cultures in developing autonomy and audience-aware feedback strategies.

Lastly, this study explored the cognitive processes involved in decision-making and the integration of peer feedback. Participants predominantly provided feedback on local issues in their peers' writing but critically evaluated how to incorporate revisions based on the contextual suitability of the feedback. The value of clear and informative feedback was evident, as participants recognized its importance for effectively understanding and applying corrections.

A noticeable cognitive shift occurred as participants began to address global concerns (see the Results Section for the discussion of Ken, Lina, Tadashi, Rika, and Ayumi). For instance, Tadashi moved beyond local issues and tackled global narrative coherence, specifically addressing the inappropriate use of "そして" ("moreover") in his peer's writing. He expanded his feedback to suggest ways to improve the narrative flow, demonstrating his critical engagement with the writing process (Excerpt 13).

The results of the current study align to some extent with Yu and Hu's (2017) findings in a similar culturally specific context, where one of their EFL learners was more likely to focus on grammatical errors rather than the organization of an essay or the development of ideas. However, Yu and Hu's study did not track changes in how students provided feedback or explicitly examined whether peer feedback practices were influenced by group members over time. Similarly, previous comparative research, such as Miao et al. (2006) and Zhao (2010), did not report changes in how students incorporated feedback. Hypothetically, if learners shifted from external reliance (e.g., peer or teacher feedback) to self-directed strategies that critically evaluated the feedback provided by peers or teachers, they could engage more deeply in cognitive processes. These findings resonate with the present study's observations, where participants demonstrated deeper cognitive engagement through audience-aware stance feedback, leading to more thoughtful revisions over time.

This study advances the theoretical understanding of self-regulated learning in CMC environments by demonstrating how asynchronous peer interactions support the development of audience-aware stance feedback, peer scaffolding, and cognitive engagement. Unlike traditional SRL models that primarily emphasize individual goal-setting, self-monitoring, and reflection, these findings highlight the socially and technologically mediated dimensions of SRL in digital learning contexts. Specifically, this study shows that peer interaction in CMC environments extends beyond self-directed regulation to include socially co-regulated learning processes, where learners refine their evaluative judgment through reciprocal feedback exchanges and scaffolded peer interactions.

Furthermore, the progression from local to global feedback

observed in learners suggests a developmental trajectory in self-regulation, facilitated by iterative engagement and the reflective nature of asynchronous feedback. This gradual shift indicates that CMC-based peer interactions provide a structured yet flexible framework that supports the internalization of evaluative criteria over time, fostering greater autonomy in feedback practices. These findings extend Zimmerman's SRL model by illustrating how self-regulation in CMC contexts is not solely an independent process but one that evolves through sustained peer engagement, scaffolded interactions, and the affordances of asynchronous digital platforms.

By emphasizing the interplay between social learning mechanisms and technological mediation, this study refines existing SRL theories by providing empirical evidence on how CMC-based feedback fosters self-regulation through peer-driven learning, rather than through isolated self-reflective practices alone. These insights contribute to the growing body of research on digital SRL, demonstrating how structured yet interactive CMC environments create new pathways for learners to develop self-regulatory strategies, enhance critical thinking, and engage in collaborative knowledge construction.

Based on the study's results, several pedagogical implications can be drawn for enhancing self-regulated learning and peer feedback practices in L2/FL writing: first, the integration of self-regulated learning into their language writing instruction. This includes teaching students how to set goals, monitor their progress, use effective strategies for revisions and editing, and reflect on their learning processes. By fostering SRL skills, students can take more ownership of their learning and improve their writing proficiency over time.

Secondly, promotion of face-to-face or online collaborative learning, encouraging collaborative learning environments where students are engaged in peer feedback activities is beneficial. This can be facilitated through group projects, peer review sessions, and online platforms that allow for constructive feedback exchanges. Collaborative learning not only enhances writing skills but also promotes critical thinking, communication, and teamwork among learners. In addition, training in audience aware feedback is pivotal.

This includes addressing both global and local aspects of writing, providing specific suggestions for improvement, and maintaining a supportive and constructive tone in their feedback. Especially, use of technology for feedback practices, integrating technology tools, such as online writing platforms and peer review systems, can effectively improve students' writing skills in the target language. These tools enable asynchronous feedback exchanges, and provide opportunities for students to engage in reflective practices based on feedback received.

More importantly, teacher guidance and modeling are needed. Teachers play a crucial role in guiding students through the peer feedback process. They can model effective feedback strategies, provide clear guidelines for giving and receiving feedback, scaffold feedback activities based on learners' proficiency levels, and offer ongoing support and feedback on students' writing revisions. Besides, teachers can emphasize metacognitive awareness. Students should learn how to reflect on their writing processes, evaluate the effectiveness of their strategies, identify areas for improvement, and make informed decisions about revising their work. Metacognitive awareness enhances self-regulation and contributes to overall writing quality.

Finally, the research design of the study on self-regulated learning and peer feedback practices in L2/FL writing may have several limitations that should be considered. One limitation of this study is the relatively small sample size, which may limit the generalizability of the findings. Additionally, the study focused on a single CMC platform, which may not reflect the broader range of tools available for fostering peer feedback in language learning.

To address these limitations, future research could include larger sample sizes to improve the generalizability of the findings. Studies comparing multiple CMC platforms, such as Padlet, or Edmodo, could offer valuable insights into how different technologies foster peer feedback and scaffolding in language learning contexts.

Another potential limitation is the lack of teacher feedback in the study. Future research could explore how integrating teacher feedback alongside peer scaffolding may enhance the learning experience. For example, teacher feedback could be incorporated into CMC platforms

by allowing teachers to provide overarching comments on writing tasks while students focus on detailed peer feedback. This approach could balance authoritative and collaborative feedback dynamics, offering learners the benefits of both. In teacher-centered learning cultures, such as in JFL contexts, structured scaffolding tools (e.g., teacher-modeled feedback, guided rubrics) may be essential in helping learners transition from passive feedback reception to active engagement. JFL learners, initially hesitant to critique peers due to hierarchical learning norms, may benefit from teacher intervention as a bridge to more autonomous peer feedback practices.

Additionally, combining face-to-face teacher feedback with CMC-based peer feedback could further scaffold learners' transition from teacher-dependent to peer-driven learning. For example, teachers could guide students during in-person sessions on addressing global concerns (e.g., argument structure, coherence), which could then be revisited and expanded upon in the CMC peer feedback environment. This integration would not only provide a structured yet collaborative framework for learners to refine their writing but also support self-regulated learning development in culturally diverse contexts. By demonstrating how CMC platforms can mediate the shift from teacher-centered instruction to peer-driven feedback, this study contributes to the theoretical understanding of SRL in digital learning environments, highlighting the role of scaffolding in fostering autonomy and evaluative judgment in feedback practices.

Future studies could also investigate the role of face-to-face feedback sessions in complementing CMC-based peer scaffolding. By comparing feedback dynamics in both settings, researchers can gain a deeper understanding of the effectiveness of different feedback environments in fostering self-regulated learning.

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APPENDIX

Key Findings of this Research in Relation to the Themes

Stage	Group	Audience-aware stance feedback	Cognitive processes in feedback	Peer scaffolding for collaborative learning
Early stage	EFL	The peer feedback was vague and unclear (e.g., "… he really needs to specify what types of incorrect grammar…"). Some learners attempted to correct grammar but did not provide explanations. While there was some interaction, responses were brief and lacked elaboration. As a result, students were unlikely to make changes or revisions to their essays.	In the early stage, peer feedback primarily addressed local issues such as grammar, vocabulary, and verb tenses. For instance, Ken corrected verb tenses without explanation, indicating minimal engagement with global writing concerns.	Learners had minimal peer scaffolding and feedback was one-way or directive (e.g., simple error marking). Surface-level feedback resulted in less or no explanation (e.g., "Sentence 6 is incorrect"). With limited peer interaction, learners did not engage in discussions about writing improvement. Affective support was minimal, only basic praise (e.g., "Good job!").
	JFL	The feedback lacked explanations regarding incorrect grammar or word usage (e.g., in Excerpt 6) and was restricted and hesitant. JFL learners being accustomed to	Learners focused on local corrections but often avoided making changes if peer feedback seemed unclear. Some learners cross-checked with external sources (e.g., native speakers) rather	JFL learners demonstrated more restricted scaffolding compared to their EFL counterparts. They were hesitant to critique their peers and often avoided giving direct suggestions. Their strict

		teacher-led instruction or seeking clarification from native Japanese speakers, showed limited willingness to critique their peers' work directly. Consequently, they adhered to their own ideas while revising their essays.	than engaging with peers' comments. Corrections were made without deeper reasoning (e.g., Tadashi marked an error but did not elaborate on why it was incorrect).	adherence to structured guidelines made their feedback more formulaic rather than interactive. Additionally, JFL learners provided minimal encouragement, resulting in less affective scaffolding in peer interactions.
Mid Stage	EFL	Students increased attention to content and organization, although comments remained descriptive rather than revision-oriented (e.g., Excerpts 3 & 4, Ken started realizing that his peer might not understand grammar rules, so he began explaining them). More reasoning appeared in some feedback, but not all learners fully justified their suggestions. Peer interaction increased.	Learners began addressing organizational issues such as coherence and paragraph flow, though their engagement was still mostly reactive. Some learners, like Joan, initially focused on grammar and became aware of their mistakes only after receiving peer feedback (please see Excerpt 8). As revision cycles progressed, learners started questioning whether peer feedback was appropriate for their writing, reflecting an early stage of	EFL learners increased more collaborative peer interactions as feedback began to involve justifications and explanations. Some peers questioning appeared (e.g., "What do you mean by that?"), showing emerging dialogue. Learners began to acknowledge peer feedback as a valuable learning tool. Affective support became more balanced, combining with constructive suggestions. For example, in Excerpt 9, the constructive feedback and support were provided by Ken's

			metacognitive engagement.	peers. The peers played a crucial role in assisting Ken by identifying and pointing out mistakes that he had overlooked in his work.
	JFL	Gradual shift toward content awareness. For example, Tadashi stated that the entire sentence's meaning has completely changed and is now unrelated to the article (00:04:26-00:04:30, SSI). JFL learners began engaging with higher-order writing concerns but still lacked confidence in offering explicit revision strategies.	Some progression toward engaging with content issues was observed, but most learners remained cautious, preferring small surface-level revisions rather than deeper structural changes. For instance, Rika received feedback suggesting she add a transition sentence to improve flow. While she acknowledged the comment, she ultimately hesitated and did not apply the revision, as she believed it did not align with her	JFL learners had a gradual shift to interactive feedback, but were still more cautious than EFL learners. The learners started engaging peers' perspectives, but had less confidence in offering revision-oriented support. Affective scaffolding improved, but encouragement was still less explicit than in EFL groups.

			intended meaning (please see Excerpt 6). This reflects the mid-stage trend of learners beginning to engage with content but still being cautious about major structural modifications.	
Late Stage	EFL	Peer feedback became revision-oriented, with explicit suggestions that considered clarity, coherence, and audience engagement (e.g., "… that context … 'worried' is better than 'scared'"). Justifications were now included, and feedback reflected awareness of reader perspective.	Strong analytical and reflective engagement. Learners revised their work strategically, considering logical flow, argumentation, and reader perspective. In this stage, learners developed critical thinking and showed signs of metacognitive engagement. For example, Ken strategically revised his writing by evaluating coherence, argumentation, and audience needs (please see Excerpt 12).	Students appeared highly interactive. Scaffolding and peer feedback became dialogic rather than directive. They were engaged in revision-oriented discussions, providing alternative suggestions for clarity and coherence. Metacognitive awareness increased that learners evaluated whether peer feedback aligned with writing goals. Stronger affective scaffolding, with learners supporting and validating each other's efforts. Metacognitive awareness increased, with learners such as Ken evaluating the

				alignment of feedback with their writing goals (Excerpt 12). Additionally, affective scaffolding improved, as peers supported and validated each other's revisions, although explicit praise remained limited.
	JFL	Compared to the early or mid-stage, feedback became more detailed in this stage and peer interaction increased, transitioning from isolated comments to more collaborative discussions (e.g., Ayumi noted greater peer integration in later tasks; Tadashi identified coherence issues to restructure the content himself).	Learners showed more critical engagement than in earlier stages but remained less confident in making large-scale content changes. They demonstrated greater metacognitive awareness, weighing the importance of feedback suggestions before revising their work. For example, Ayumi actively worked on improving dialogue attribution and clarity, showing problem identification and critical thinking (Excerpt 14). Tadashi transitioned from focusing on	Peer scaffolding became more interactive, but some learners remained hesitant in restructuring content. Feedback became more independent and contextualized. Peer discussions became more reciprocal, in this stage. In other words, peer feedback became highly interactive and dialogic rather than directive. Rika's case (Excerpt 11) demonstrates that scaffolding expanded beyond corrections to include diverse perspectives and suggestions. Learners actively engaged in revision-oriented

			grammar to evaluating global narrative coherence, demonstrating metacognitive engagement by assessing the impact of word choice on flow and meaning (Excerpt 13).	discussions, as seen in Tadashi's shift from local grammar issues to narrative coherence (Excerpt 13). Similarly, affective scaffolding remained limited.

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