Peer Assessment Practice in Higher Education Academic Writing Facilitated by Artificial Intelligence Tools: A Narrative Inquiry

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Abstract

Writing in higher education is not just a collection of objective skills cut off from the social setting; Academic Writing is a literacy practice instead of a competence. The study explored undergraduate students' peer assessment practice perception and implementation in Academic Writing. The subjects of the study were five EFL undergraduate students who have joined an Article Writing class. This study applied the biographical narrative inquiry method and gathered the data through narrative stories, semi-structured interviews and artefacts. The students were assigned to write a systematic review article and then did peer assessment within and with other groups. The thematic analysis was used to analyze the data. The finding showed that there were students' difficulties in writing processes. In this circumstance, peer assessment could become the alternative method. From the peer assessment activities, the students felt that feedback from peers and AI was important in writing articles, and the role of AI could increase their self-confidence and provide new knowledge. During the peer assessment process, students also did discussion and crosscheck to consider the feedback given. Therefore, the teacher should facilitate the students and provide an excellent environment to engage the students involved in peer assessment activities during the teaching and learning process.

Keywords: Academic Writing; Peer assessment; Feedback; AI; EFL

INTRODUCTION

Assessment is an essential part of the teaching and learning process for the reflective creation of knowledge in the constructivist approach to education. Peer assessment is a critical component of formative assessment and is tied to the idea that assessment is essential for learning (Panadero & Brown, 2016). Peer assessment activities in the writing process allow writers with varying strengths to engage in good oral and

written communication, such as questioning, replying, and directing (Min, 2005). Peer assessment has many academic advantages for students, including building assessment skills, acquire of domain-particular skills (van Zundert et al., 2010), and increasing academic achievement (Dochy et al., 1999). Therefore, this concern becomes critical in the academic sector due to several issues in Academic Writing classes that obstruct students' writing processes. Furthermore, the remedies provided by peer assessment on issues in Academic Writing make this a topic worth discussing.

Topping (2009) stated that peer assessment challenges students to think critically and debate the proper score for their classmates. Ion et al. (2018) mention that after getting feedback, students are informed of an improved learning experience and a more significant commitment to their and their peers' success. Most of them mentioned that providing feedback helped enhance their learning, suggesting that students want to be involved in their education and believe participation is vital in creating teaching and learning activities. Nazari et al. (2021) mention that nowadays, new Artificial intelligence (AI)-powered writing tools are potential tools for assisting students in acquiring and improving writing abilities that are difficult to master through traditional instruction. In this regard, one of AI's most significant contributions to education is providing students with immediate feedback on students' progress.

Although many studies have examined peer assessment in writing, there are still few studies on peer assessment within the scope of undergraduate students facilitated by Artificial Intelligence. Therefore, the study looked at students' perceptions and implementation of peer assessment in the context of Academic Writing for undergraduate students. The finding had implications for the students, lecturers, and future research that may be utilized as a mirror to examine peer assessment in the writing class. In addition, it explored more in other areas or levels. Therefore, this study focused on answering the following research questions: (1) How are the students' perceptions toward scaffolding and error management in peer assessment practices in Academic Writing facilitated by artificial intelligence tools? (2) How do the implementations of scaffolding and error management in peer assessment practices in Academic Writing facilitated by artificial intelligence tools?

LITERATURE REVIEW

1. Academic Writing in Higher Education

In the academic field, Academic Writing is a particular foundation and primary route for students' future careers (Cameron et al., 2009). Writing in higher education is not just a collection of objective skills cut off from the social setting; Academic Writing is a literacy practice instead of a competence. Sağlamel & Kayaoğlu (2015) explain that academic written activities become one of the priorities the practitioners in an academic environment because many students' tasks, like essays, research reports, examination questions, and dissertation thesis, are frequently asked in courses. In a writing context, Hyland (2019) stated that writing is a product of the author's mastery of both lexical and grammatical expertise, and writing progress is seen as the outcome of mimicking and

manipulating the teacher's models. Since writing is learned rather than taught, writing instruction is indirect and personalized. Flower and Hayes (1981) developed the original planning-writing-reviewing model, which is likely the most widely accepted framework of writing processes for L2 writing teachers. Based on this concept, writing is a non-linear, investigative, and creative action in which authors reveal, also reframe thoughts to approach value (Zamel, 1983).

Figure 2.1

The Process Model of Writing Instruction by Ken Hyland (2003)

Selection of topic: by teacher and/or students
Prewriting: brainstorming, collecting data, note taking, outlining, etc.
Composing: getting ideas down on paper
Response to draft: teacher/peers respond to ideas, organization, and style
Revising: reorganizing, style, adjusting to readers, refining ideas
Response to revisions: teacher/peers respond to ideas, organization, and style
Proofreading and editing: checking and correcting form, layout, evidence, etc.
Evaluation: teacher evaluates progress over the process
Publishing: by class circulation or presentation, noticeboards, Website, etc.
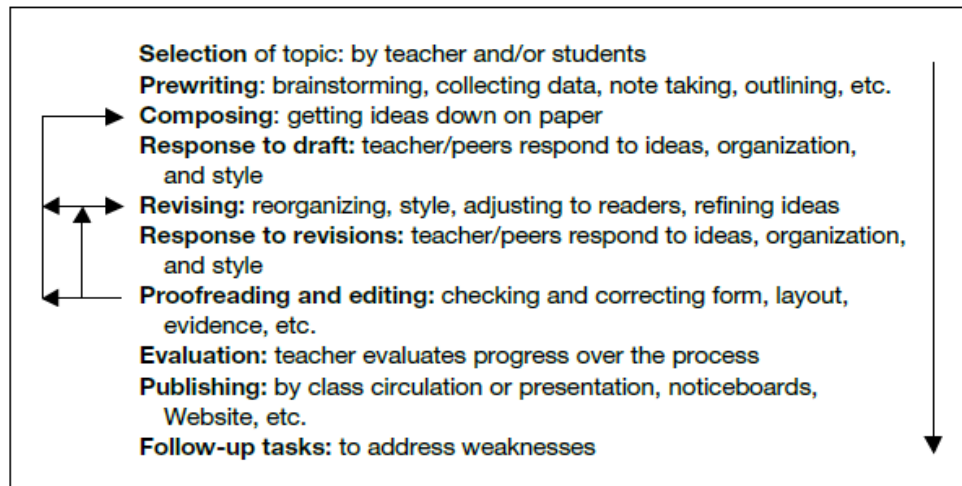**Follow-up tasks**: to address weaknesses

Figure 2.1 indicates that the planning, drafting, revising, and editing process is recursive, interactive, and possibly coinciding, and all tasks can be assessed, graded, and altered before text is written. Furthermore, the writers can switch between these activities, such as visiting the library for extra data, modifying the plan to accommodate innovative thoughts, or revising for readability in response to peer feedback. This primary writing model has been developed to properly clarify the occurrence at each process step and incorporate cognitive and social components (Flower, 1994).

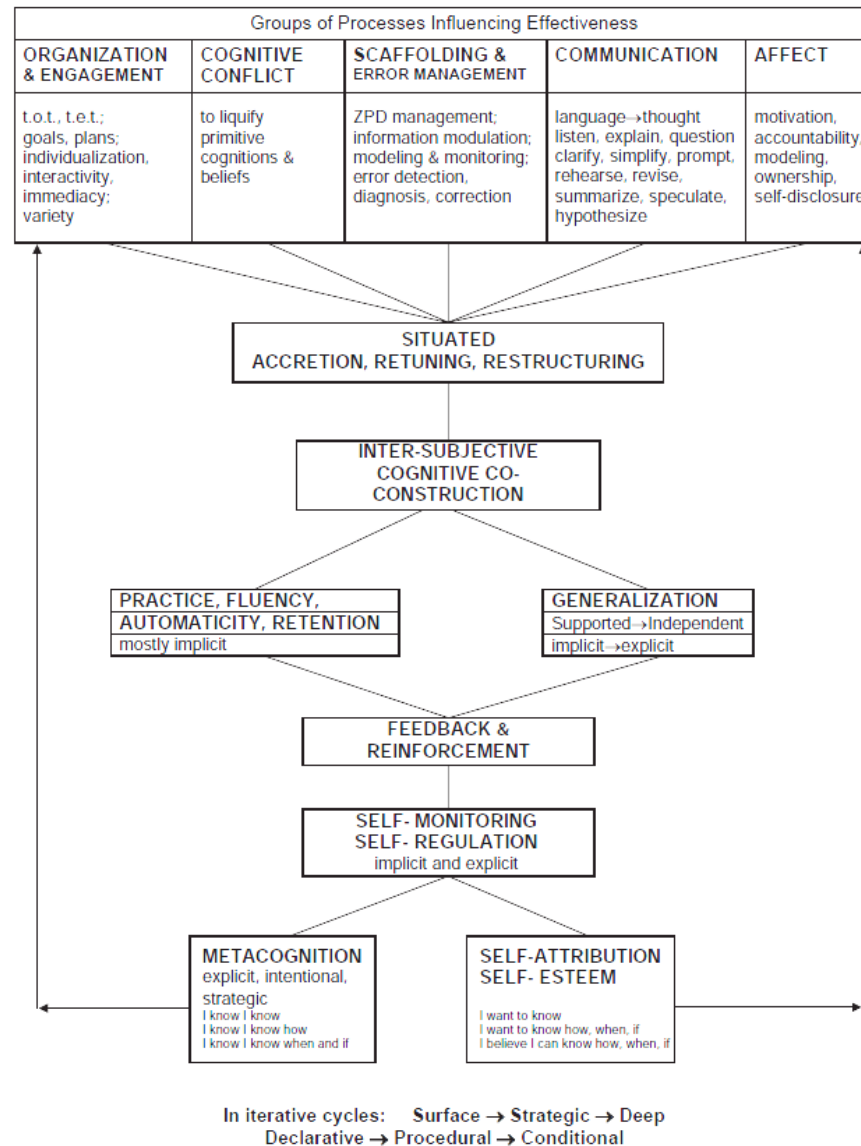2. **Peer Assessment in Academic Writing**

Topping (2018) has created a peer assessment model incorporating various theoretical perspectives (Figure 2.2). Actual peer assessment performance necessitates practice, which leads to consolidation and performance improvement. The formative assessment of peer assessment is highlighted here. From the theoretical model of peer assessment (Figure 2.2) by Topping (2018), the study focuses on the scaffolding and error management process in peer assessment. On the other hand, Vygotskian's (1978) theory argues for assistance and scaffolding from the other a more competent.

A knowledgeable learner can establish encouraging settings where the beginner could contribute and enhance their current knowledge and skills to more excellent proficiency in the scaffolding. The scaffolding process necessitates the [error] management of tasks inside both learners' proximal development zones to

avoid excessive difficulty. In this part, error management emphasizes minimizing adverse error effects while enhancing possibly positive outcomes.

Figure 2.2

Theoretical Model of Peer Assessment by Topping (2018)

Groups of Processes Influencing Effectiveness				
ORGANIZATION & ENGAGEMENT	**COGNITIVE CONFLICT**	**SCAFFOLDING & ERROR MANAGEMENT**	**COMMUNICATION**	**AFFECT**
t.o.t., t.e.t.; goals, plans; individualization, interactivity, immediacy; variety	to liquify primitive cognitions & beliefs	ZPD management; information modulation; modeling & monitoring; error detection, diagnosis, correction	language→thought listen, explain, question clarify, simplify, prompt, rehearse, revise, summarize, speculate, hypothesize	motivation, accountability, modeling, ownership, self-disclosure

SITUATED
ACCRETION, RETUNING, RESTRUCTURING

INTER-SUBJECTIVE COGNITIVE CO-CONSTRUCTION

PRACTICE, FLUENCY, AUTOMATICITY, RETENTION
mostly implicit

GENERALIZATION
Supported→Independent
implicit→explicit

FEEDBACK & REINFORCEMENT

SELF- MONITORING
SELF- REGULATION
implicit and explicit

METACOGNITION
explicit, intentional, strategic
I know I know
I know I know how
I know I know when and if

SELF-ATTRIBUTION
SELF- ESTEEM
I want to know
I want to know how, when, if
I believe I can know how, when, if

In iterative cycles: Surface → Strategic → Deep
Declarative → Procedural → Conditional

(Figure 2.2) by Topping (2018), the learners will experience the four components of the scaffolding and error management process. There are Zones of Proximal Development management; information modulation; modelling & monitoring; and error detection, diagnosis, and correction.

Nowadays, the rapid growth of artificial intelligence (AI) technology in education has arisen to assist the process of writing and improve L2 users' writing abilities whilst supporting their self-directed learning (Barrot, 2020). AI is a new teaching and learning tool experienced in assessment, tutoring, material development, and feedback for teachers and students as technology advances. It can open new avenues for improving pedagogical flexibility, learning process or

output, and immediate feedback (Cheung, 2015). The current study was conducted by Nazari et al. (2021) to investigate the usefulness of a group format of an Artificial Intelligence (AI) powered writing tool. The outcome was that students in the AI intervention group demonstrated statistically significant improvement in scores, behavioural engagement of emotional engagement, cognitive engagement, self-efficacy for writing, positive emotions, and negative emotions post-intervention.

Zhu & Carless (2018) conducted a study to examine the perspectives of the giver and recipient of peer assessment on the advantages and obstacles of Academic Writing conversation. The writer of the written remarks receives feedback on their work, and the receiver can clarify or negotiate meaning with the writer of the comments. Contextual issues include students needing more advice on peer assessment and greater instructor involvement in the process. Ion et al. (2019) investigated the advantages of providing and obtaining feedback on students' cognitive, metacognitive, emotional, and professional competencies. As most participants acknowledged, giving feedback assisted them in getting better learning, indicating that students desire to take an active role in their learning and saw their participation as vital in the design of teaching and learning experiences.

RESEARCH METHOD
Research Design

This study used narrative inquiry as the research design. Based on Barkhuizen, Benson, and Chick (2014), narrative inquiry refers to narrative research using stories as data. Through students' and teachers' stories, narrative inquiry can assist us in understanding further the multiplicity of experiences in language learning and teaching. It can also be helpful to comprehend language teaching and learning from the viewpoints of instructors and students in a profession that frequently values abstract, theoretical understanding of processes above the specific, contextualized knowledge of participants (Firth & Wagner, 1997). Therefore, the data would be from participants' stories about their experience in the scaffolding and the error management processes in peer assessment.

Data Collection

Collecting data for this study was conducted through an online platform asynchronously. First, the participants were asked to write about their experience in the assessment process in writing an article. Second, the researcher followed up the detailed information to participants through an online meeting at the Zoom Meeting platform. Third, the semi-structured interview technique was chosen to obtain data from narratives or stories of participants' experiences in peer assessment activities in the Article Writing class. Fourth, the researcher followed the interview procedures to collect data from participants. The researcher designed several procedures; there are (1) designing instruments from theories and concepts related to the topic to arrange research questions, (2) Doing interviews with

participants (3) transcribing the interview results that been conducted. In the process interview, the researcher asked how students experience and perception about peer assessment in their Article Writing class and the implication of peer assessment in a writing class to themselves.

The Participants

The study used a biographical approach that analyzed or told participants' stories' potential. The study subjects were five EFL undergraduate students in one of the universities in Surakarta who have joined an Article Writing class. The total number of participants was five students because of the limited research time. Therefore, the five sample students became participants as primary data sources who would tell their experiences. The participants consisted of five female students aged 20 to 22 years old. They were assigned pseudonyms for ethical concerns to conceal the participants' identities.

Data Analysis

In the study, the researcher used thematic analysis in analyzing narrative data. Thematic analysis was used to analyze participants' stories. It includes reiterated reading of the data, coding and categorization of data extracts, and their reorganization under thematic headings (Barkhuizen et al., 2014). In analyzing narrative data, the researcher described data obtained during data collection. After collecting the data, the researcher analyzed the participants' stories. In this step, the researcher also "re-story" them into the add-up framework. As Creswell (2013) stated, re-storying is the technique of knowing the stories to be some general framework. This framework could include collecting stories, analyzing them for important story features (such as time, place, plot, and scene), and afterwards rewriting them chronologically. As a result, the data analysis describes the story and the themes that emerge from it.

FINDINGS AND DISCUSSION

The research question organized the findings. The questions were: (1) How did the students' perceptions toward scaffolding and error management in peer assessment practices in Academic Writing facilitated by artificial intelligence tools? ; (2) How did the implementations of scaffolding and error management in peer assessment practices in Academic Writing facilitated by artificial intelligence tools? The research participants were five EFL undergraduate students who joined the Article Writing class in the process of writing an article; the participants passed the five writing processes, i.e. selection of topic, prewriting, composing, response to draft, and revising. They wrote the article in groups, but each had their writing part and did it independently. In addition, they did peer assessments within and with other groups in the writing process.

1. **The Students' Perceptions toward Scaffolding and Error Management during the Peer Assessment Process in Writing Articles**
   a. **Students' Difficulty in Writing Processes**

There were five writing processes: selection of topic, prewriting, composing, response to draft, and revising. The five processes of writing have been done by the five participants in writing an article. All of them found difficulty in some writing processes. The five students found the difficulty in the first stage, which was selecting a topic. They found that navigating and comprehending the references was a new experience for them, as conveyed by Via in her interview:

> *"We were not used to looking for journals with the same topic as the most recent year that makes us dizzy. In addition, we were not used to reading journals, so we cannot understand the journal's contents."*

(17/12/2022-Vi-Interview)

Figure 4. 1

The mentor journal used by the participant

Via conveyed in the interview that she had difficulty navigating and comprehending the journal. Figure 4.1 shows that in navigating and selecting references, Via used one mentor journal because only these that best fit her topic. The first finding found that, as novice writers, all participants experienced difficulty completing some writing stages during the writing process. The difficulty was reflected in the five processes of writing that applied in this study, namely, selection of topic, prewriting, composing, response to draft, and revising. In some instances, students struggled to adopt a critical attitude; they preferred indirect and deficient critical methods in expressing opinions (Hinkel, 1997). In this circumstance, peer assessment could become the alternative method as teacher feedback to improve students' writing drafts. Gao et al. (2019) state that EFL students might assist their peers with complex written assignments; they provide scaffolding on subjects with a more challenging level of writing in their zone of proximal development.

b. **The importance of feedback from peers and AI in writing articles**

In the five stages of writing, the participants received feedback on the suggestions, examples, and error detection. All participants found that feedback
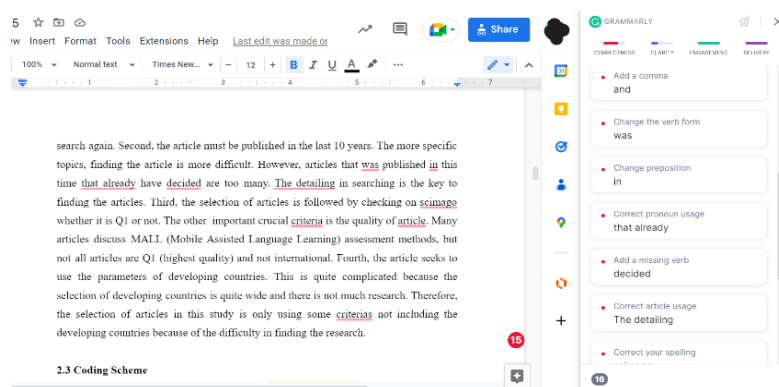
from other people was significant for them. For example, in response to the draft stage, as stated by Avisa:

> *"Feedback from AI was influential because, in writing, there may be many grammatical errors. If I did not use AI, my job would be more difficult because I would need to correct each word and sentence manually. AI made my work easier because it could automatically detect errors in my writing, making the process faster."*

(20/12/2022-Av-Story)

Figure 4. 2

The process of receiving feedback from AI

Avisa shared that the feedback given provided the best alternative that could be taken to revise in the next stage. Figure 4. 7 supported that AI gave instant feedback to the participants. The peer assessment activities found that feedback from peers (friends and lecturers) and AI were important in Academic Writing. By implementing the peer assessment method, students could focus more on improving their writing. First, they could look at the examples given by peers as a model. Then, both of them could monitor each other by providing suggestions and error detection. Through these processes, students could intensify their draft, and at the same time, they did scaffolding learning. It was agreed with a study by Huisman et al. (2018) that conveyed the function of feedback itself was that it could give information on differences between the present and desired performance, as well as ways to overcome the gap.

c. **The role of AI in increasing self-confidence and providing new knowledge**
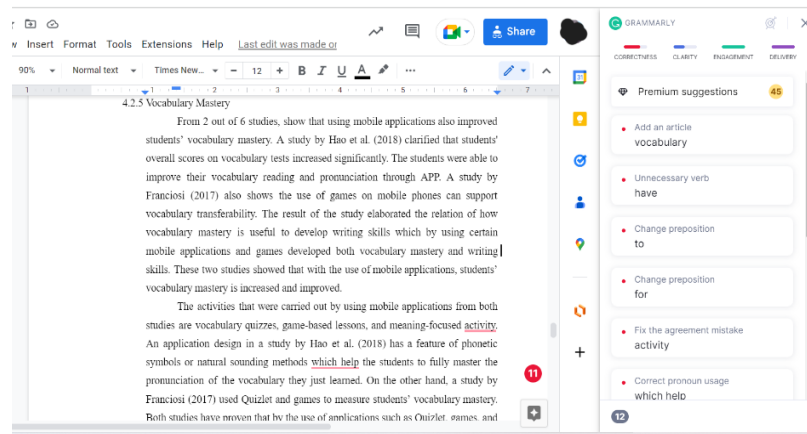
In response to the draft and revising stages, four participants found that AI had a significant impact in increasing self-confidence and providing new knowledge, as stated by Via:

> *"I revised my writing following AI's feedback because I felt that by following the feedback, my writing would be better, especially in grammatical aspects."*

(17/12/2022-Vi-Interview)

Figure 4. 3

Instant feedback from AI

Via was more confident in writing because their work had been corrected by AI, specifically in grammar. From Figure 4.8, AI gave automatic feedback by highlighting the error word and revising the recommendation. In this study, students found that AI significantly increased self-confidence in responding to and revising their drafts and provided new knowledge. It was in line with Nazari et al. (2021) study that AI technology could improve knowledge generation and the development of new knowledge.

2. **The implementations of scaffolding and error management during peer assessment process in writing articles**
   a. **Crosscheck process**

   Aside from the discussion process, all participants also did the crosscheck process in five stages of writing.

   > "*I would check again whether the suggestions are appropriate and can be implemented; if appropriate, we would accept them.*"

   (19/12/2022-El-Interview)

   Ela shared that she did crosscheck before revising her writing and paid attention to whether the feedback given could be implemented or not. Participants agreed that through crosschecking, they could confirm the suitability of the feedback with their writing. This result was consistent with Zhao (2018), that observed a different interaction pattern throughout the peer assessment process for L2 writing wherein students performed verification checks. It was to prevent misinterpreting the comments before applying them to their writing later. In addition, through cross-checking, the participants could decide what to do with the feedback given.

   b. **Discussion process**

   Before making a decision, they passed the discussion process with their group. A discussion was held to consider the revision in their writing. The participants held the discussion process in selecting topics, prewriting, composing, and revising stages, for example, as follows:

"I respond to feedback from friends in compiling writing by conducting a peer review and then discussing again how the most appropriate solution is to correct errors or deficiencies in my writing."

(17/12/2022-Vi-Interview)

Via mentioned that she discussed getting the best solution in considering the feedback. First, all participants discussed whether to accept or reject feedback in developing ideas. Then, they considered the feedback that could be taken and implemented to improve the writing quality of their group. In line with Zhu and Carless' (2018) finding, the students' discussion and debates during peer feedback were a request for clarification. The clarification process could avoid misconceptions while studying the writings of others since it was discovered that errors were occasionally made in the students' ideas and how they delivered them.

CONCLUSION

The result showed that students needed help to adopt a critical attitude; they preferred indirect and deficient critical methods in expressing opinions. They also found that feedback from peers and AI significantly assisted their writing. Their self-confidence increased, and they got new knowledge from AI feedback. Then, in implementing scaffolding and error management, students did crosscheck and discussion to ensure they fully comprehended the feedback. It is also an essential step before considering the revision that could do in their writing. Therefore, peer assessment could become the alternative to getting feedback from their peers and the lecturer to improve their writing drafts. The students might assist their peers with a complex written draft; they provide scaffolding on subjects with a more complex level of writing in their zone of proximal development. They could look at the examples given by peers as a model. Then, both of them could monitor each other by providing suggestions and error detection. It demonstrated that students considered the feedback more beneficial, made sense, and correctly addressed issues. The function of each feedback would influence students' views of the sufficiency of peer assessment and their intention to increase their quality.

The implication and suggestion: The EFL students could apply the peer assessment method to assist them in writing an academic paper to help solve difficulties and identify the finest practices to use to improve their writing. For lecturers, they would be better to facilitate the students and provide an excellent environment to engage the students involved in peer assessment activities during the teaching and learning process. Combining instructor input, peer feedback, and self-assessment is an area that requires further research to incorporate multiple levels of feedback on an individual writer's growth. Other researchers is recommended to investigate peer assessment in other areas, such as organization and engagement, cognitive conflict, communication, and affect. They also consider investigating more than one sub-process of peer assessment or expanding the level and context of the research.

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