Al-Ishlah: Jurnal Pendidikan
Vol.15, 1 (March, 2023), pp. 1-14
ISSN: 2087-9490 EISSN: 2597-940X, DOI: 10.35445/alishlah.v15i1.2872

Integrating Computer-Mediated Peer Review in ESL/EFL Higher Education: A Systematic Review

Nur Arifah Drajati[1], Dewi Rochsantiningsih[2], Dewi Cahyaningrum[3], Ellisa Indriyani Putri Handayani[4], Endah Kurtianti[5]

[1] Universitas Sebelas Maret, Surakarta, Indonesia; nurarifah_drajati@staff.uns.ac.id
[2] Universitas Sebelas Maret, Surakarta, Indonesia; dewi_roch@staff.uns.ac.id
[3] Universitas Sebelas Maret, Surakarta, Indonesia; dewicahyaningrum@staff.uns.ac.id
[4] Universitas Sebelas Maret, Surakarta, Indonesia; ellisaindriyani@staff.uns.ac.id
[5] Universitas Sebelas Maret, Surakarta, Indonesia; endahkurtianti@student.uns.ac.id

ARTICLE INFO

Keywords:

Comments;
Computer-mediated;
Peer review;
Research;
Systematic review.

Article history:

Received 2022-10-30
Revised 2022-11-26
Accepted 2022-12-14

ABSTRACT

This review of the literature gives an overview of how technology has been incorporated into ESL/EFL peer review over the last two decades. Eight peer-reviewed articles contextualized in L2 writing classes were reviewed, capitalizing on Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2010 procedures. This study applied Lai's (2010) three dimensions (perception, process, and product) to classify constructs in research papers. Students favoured integrating technology into peer review as they recognized the significance of giving and receiving peer reviews. Since their teachers did not actively intervene during their interactions, it was convenient for them to exchange and negotiate the reviews. Peer review could therefore encourage their autonomous learning. Concerning the results of the review, they made more comments that were revision-oriented and addressed global issues. The implications for future research are twofold. Pedagogically, teachers should thoroughly prepare their students for integrating new technology into peer-review writing instruction. Effective computerized peer interaction can only occur with teachers' guidance and supervision and the technology's user-friendliness. Practically, teachers can show students proper response rhetoric examples and instruct them on how to create the most valuable, pertinent, and use peer reviews to inform the next revision and useful online comments. Further, the ability to generate qualified feedback is a crucial graduate skill, and as such, higher education curricula should devote far more attention.

Corresponding Author:
Nur Arifah Drajati

Universitas Sebelas Maret, Surakarta, Indonesia; nurarifah_drajati@staff.uns.ac.id

1. INTRODUCTION

Writing requires a developmental process in which writers or students discover the meaning and share their interpretation of a specific rhetorical pattern. Considering the inarguable significance of writing, teachers need to engage with students to guide their ideas. The literature has documented that language learning has widely adopted peer review, where students review and comment on their peers' drafts and subsequently get feedback from those comments (Hyland & Hyland, 2006). In terms of finding more effective approaches to assist students in becoming better writers, peer review is a common instructional strategy used to help with the writing process at the tertiary level. Furthermore, Huisman et al. (2018) have recognized that academic writing assignments usually incorporate peer review in higher education.

Peer review is generally known as peer revision, peer feedback, or peer response (Lundstrom & Baker, 2009). It refers to feedback exchange between a pair or three students on their drafts. Students can address the content, cohesion, text organization, grammar, vocabulary, and punctuation. Hyland (2003) defined peer review as an activity to aid continuing reinforcement of communicative competence, motivate greater student participation, build an authentic communicative setting, and help writers understand reader demands better. One of the advantages of peer review is that learners read other drafts to reflect on what they and their friends have written; hence, they obtain any new insight they may apply in their drafts. Nicol et al. (2013) strengthened that peer review has been linked to developing critical reading, problem-solving skills, and reflective knowledge building.

Peer review research has a long history in both L1 and L2 writing. This field of study began to grow in popularity in the 1980s. The first attempt was depicted in chapter six of Ferris & Hedgcock's (2005) book. Starting with an analysis of the advantages and drawbacks of peer feedback, they then provided a thorough summary of the research results in three strands: the description of the activities in peer review, textual analysis of peer feedback on revisions, as well as students' perceptions toward peer review. Efforts have been undertaken to synthesize numerous peer-review studies contextualized in L2 writing classes and published in recent decades. There are numerous choices of systematic literature of peer review available (Bahari, 2020; Cheung, 2011; Huisman et al., 2018; Li, 2018). Cheung (2011) synthesized 14 articles published between 1992-2009 and contended peer review has less effect on student writers' grammatical improvements. The analysis may mislead us because it may overlook the impact of peer review only on content and organization.

Chen (2014) performed a meta-analysis of 95 articles on the computer-mediated peer review (CMPR) in ESL/EFL published between 1990-2010. The findings were presented in terms of: a. CMPR characteristics (e.g., interaction, discourse patterns, language use, teachers' roles, and students' roles); b. CMPR benefits and drawbacks (practical, affective, and technical issues); c. synchronous and asynchronous CMPR functions; and d. implications for future CMPR research (pedagogy, grouping, and training). Subsequently, Bahari (2020) reviewed the theoretical and pedagogical affordances as well as difficulties raised by studies on correcting L2 learners' mistakes by using computer-mediated feedback in online and blended learning. He categorized the findings regarding productive and receptive skills.

It is also well acknowledged that those syntheses have contributed to our perceptions of peer-review studies. It is appropriate to revisit such issue and re-examine the results in L2 peer review studies. Researchers have continuously investigated the effects of particular computer-mediated communication tools in computerized peer review to improve students' writing abilities compared to face-to-face peer review. Besides, most research overwhelmingly employs quantitative measurements, such as feedback adoption rates or the ratio of revisions that peers influenced. To better understand how CMPR could be integrated into L2 writing classrooms, this review focused on the emerging studies that highlighted students' perceptions, processes, and products in CMPR. This has particular

advantages for teachers to provide a set of activities as a means of giving peer review benefited students with a variety of affordances (i.e., lowering anxiety, enhancing students' perception and motivation).

To capture the impacts of peer review training, several studies examining have been commonly conducted through qualitative measurements (Sánchez-Naranjo, 2019; Zhu, 1995). Instead of qualitative studies, quantitative empirical investigations have generated significant advancements in the subject. Thus, gaps and directions for future research could be recognized. The objective is to demonstrate the use of technology in peer review ordinarily occurs; how ESL/EFL students make use of feedback from a particular application. The researchers reviewed 8 articles with qualitative research design contextualized in the L2 writing published in the past twenty years.

Peer review is typically a one-step procedure in which students comment on the other drafts. Zhu & Carless (2018) delineated peer feedback as a dialogue between the giver and the receiver regarding the quality of the evaluated work. Providing a detailed definition, Topping et al. (2000) indicated students work cooperatively to assess other students' drafts to offer their feedback, with the overall goals of improving the student learning process, the final product quality, and enhancing understanding of the peer's draft. On the contrary, students do not necessarily give any score on those drafts (Boase-Jelinek et al., 2013).

Numerous studies have been conducted on the impact of peer review and if engaging in peer comment improves student writing abilities in language learning practice and research (Hyland & Hyland, 2006; Liu & Sadler, 2003; Rollinson, 2005; Tsui & Ng, 2000). Although teachers have given reviews, students need a relatively free procedure to provide reviews to help their friends to have better subsequent drafts. A further result is that numerous peer reviews are easier to comprehend and incorporate in revision than expert reviews. Hyland & Hyland (2006) considered Vygotsky's (1978) synthesis of the Zone of Proximal Development (ZPD) and noted that writing skills could rise with the assistance and involvement of others.

Peer review has been generally carried out face-to-face, whether in-class sessions or outside of class. Oral face-to-face peer reviews could be more efficient when the teacher and students are in a homogeneous group, where both the writers and reviewers speak the same language, for instance, in their L1. Another finding was illustrated by Liu & Sadler (2003) that face-to-face peer review provided fewer local comments (focusing on supporting details, language, and referencing). They distinguished local and global comments, in which local comments concentrate on vocabulary, spelling, grammar, and mechanics, while global comments focus on idea development, content, and organization.

Currently, computer-mediated peer review is inevitably integrated due to the adoption of educational technology. Various modes of peer review (e.g., F2F, synchronous CMC, and asynchronous CMC) are being evaluated (Chang, 2012; Lai, 2010; Liu & Sadler, 2003). Research on the use of the web as a means for peer review is expanding (Chang, 2012; Dippold, 2009; Guardado & Shi, 2007; Jin & Zhu, 2010). Another tool employed in peer review is Google Docs, as it may benefit student collaborative writing (Li, 2018; Ma, 2020). Much research on Google Docs as a means for peer feedback at the university level has been conducted (Ebadi & Rahimi, 2017; Semeraro & Moore, 2016; Suwantarathip & Wichadee, 2014).

Liu & Sadler (2003) have suggested that students feel fun using a computer to conduct peer reviews as students make more comments, revision-oriented comments, and a significant number of revisions. Previous research has strongly suggested that L2 students preferred CMC to F2F peer feedback (Ebadi & Rahimi, 2017; Liu & Sadler, 2003; Pham & Usaha, 2009). Pertaining the effect of the blog on peer review in writing instructions has been previously reported in the literature (Pham & Usaha, 2009). Students preferred to comment on the blog; it was practical since it could be accomplished at any time and hence was not restricted to class hours. The CMC group generated more revision-oriented comments in Song & Usaha's (2009) study. In terms of writing quality, the computerized peer response group exceeded the face-to-face group.

Whether CMC or F2F peer review is better has been equivocal. DiGiovanni & Nagaswami (2001) pointed out that although it is easier and more efficient to revise when students have a written review

printout, in online peer review, anonymity or a pseudonym excludes embarrassment and encourages honest and critical comments. It is why computer-mediated peer review may be a realistic and advantageous alternative to face-to-face peer review. Dizon (2016) and Ho et al. (2020) examined the effect of Facebook peer feedback and face-to-face peer feedback on writing quality among Japanese (n=30) and Vietnamese (n=72) university students. Both studies used the same quasi-experimental research design and elucidated that the experimental group outperformed the control group regarding writing gains.

The studies with various perceptions on the research of technology-supported peer review in ESL/EFL writing contexts suggest that writing education has entered a new era due to the diffusion of multiple technologies and perspectives. Therefore, when integrating a particular technology into peer-feedback activities, ESL/EFL writing teachers should know that different technologies have various features and acknowledge each technology's affordances and constraints. The following was the question that guided the literature search and analysis: (1) What are the most frequently reported students' perceptions toward the use of technology in peer review in ESL/EFL higher education?; (2) What are the most frequently reported process of integration of technology in peer review in ESL/EFL higher education?; (3) What are the most frequently reported product of peer review mediated by technology in ESL/EFL higher education?

2. METHODS

Data Collection Procedure

A systematic literature search was done to find all relevant articles in the past two decades to provide an overview of CMPR research. The researchers utilized the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) procedures introduced by Moher et al. (2010) to synthesize studies concerning the integration of CMPR in ESL/EFL tertiary education. The researchers systematically searched the databases (ERIC and Google Search Engine) for the same customized index terms. The following were the search phrases used in databases: "peer review", "peer revision", "peer feedback", "peer response", "peer review using computer", "computer-mediated peer feedback", "computer-mediated peer review", "computer-mediated peer revision", "peer review in EFL writing". To modify the search terms strategy (e.g., keyword and/or topic and/or theme searches), the specifications of each electronic database were taken into consideration to ensure a balance between the specificity and sensitivity of the articles.

The selection of the final papers for analysis and the definition of the review's scope are both depicted in detail in Figure 1 throughout the entire step of the overall review process.

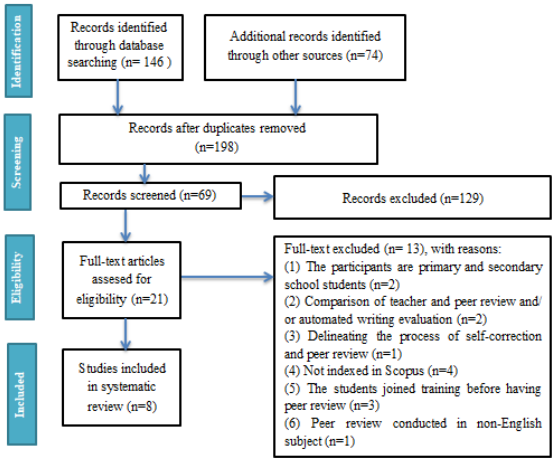

Figure 1. PRISMA flow diagram.

A preliminary literature search yielded 220 results. Duplicate records were eliminated, and these articles were exported. The remaining papers' titles and abstracts were then evaluated against the inclusion and exclusion criteria. Articles addressing peer review, which included oral and written online peer review concerning the affordances of technology at the ESL/EFL tertiary level, were included. As the participating students grew older and their English proficiency may have increased, they grew more accustomed to having peer review activities and they tended to use peer criticism more effectively for writing improvement.

The articles indexed on Scopus were included as they are subject to a thorough peer-review procedure. Non-English articles were not included to guarantee the authors' comprehension of the studies. Thesis and dissertations as well as reviews, theoretical articles, book chapters, and opinion articles were not included as those included were empirical studies. Additionally, qualitative studies were included for a variety of reasons. First, the researchers wanted to investigate implementing a particular technology in computerized peer review. Second, qualitative studies need to be propagated on this subject; thus, synthesizing the related studies could offer concrete suggestions for future research that need further investigation.

Articles regarding peer assessment, peer critique, peer evaluation, and peer rating were not included since peer review only provides needed feedback without grading or formal assessments. Those who discuss peer review among primary and secondary school students and a peer review conducted in another EFL/ESL subject were also excluded. Furthermore, the researchers excluded articles that report the comparison between F2F and CMPR as well as the difference between the teacher and peer review mediated by technology. In this review, the researchers sought to investigate profoundly the process of peer review supported by technology and capture the possible information of other variables such as assignment types, computer experience of the students, as well as their motivation and enthusiasm for completing the electronic tasks.

The articles whose theme are effects of computer-mediated peer review on students' writing were excluded as most studies examining the impact of online peer review were conducted in quantitative and mixed-method design. At last, studies uncovered the training applied to students before having computer-mediated peer review was excluded as well. Such training may improve the way students criticize their friends' drafts. Additionally, studies unravel the performance of student reviewers before and after training; and simultaneous comparison of trained and untrained groups was excluded. Thus, the number of articles that had to be synthesized was reduced to 8 by inclusion/exclusion criteria.

Data Analysis

This study gave a review of articles on CMPR that was published in the past two decades. Articles published before the mentioned periods frequently involved quantitative and mixed-method designs. Instead, the researchers only sought to synthesize the studies exploring the peer review mediated by technology. Over the review period, the number of articles increased considerably, demonstrating that the topic is fast developing. After retrieving the publications, the researchers carefully looked through the references to discover additional relevant articles. The researchers limited the review to 8 studies to make the data analysis manageable. Those included studies employed a qualitative research design. Details of the included studies or data in this study can be referred to in the Appendix.

The research findings from each study were treated as raw data during the data analysis process for a critical evaluation. Remarkably, the researchers thoroughly examined and analyzed the research findings reported to determine the main research foci and findings concerning computerized peer review at ESL/EFL tertiary level. Three filters: (a) being peer-reviewed; (b) being pertinent to the key elements of the research question; (c) evaluating the full-text version were applied to the pre-specified eligibility criteria to ensure the transparency and objectivity of the adopted method in determining the study quality. As a result, the adopted eligibility screening is guaranteed to be repeatable in subsequent studies, and subjective, selective, inconsistent inclusion/exclusion is less likely to result in errors (i.e.,

incorrectly classifying an article) and bias (e.g., when the same data is used more than once in an evidence synthesis).

A coding for qualitative data analysis (Saldaña, 2013) was conducted by carrying out first-cycle coding. The data from the included studies (n=8) were coded according to study methodologies, participants, technology or application adopted, and how students perceived the process and product of peer review. This study employed Lai's (2010) three predetermined dimensions (perception, process, and product) to further code the findings that emerged from those included studies. Reports were frequently compared and contrasted with one another to uncover the similarities and differences in constructs. The findings were summarized once the research constructs had been identified and the articles had been categorized.

The five researchers also considered the methodology used in the review's earlier studies. They specifically listed the participants, the data collection, and the analysis techniques and further examined the advantages and disadvantages of the research methods to suggest possible research directions. Each researcher carried out the analysis independently to increase the review's validity. Subsequently, they engaged in rounds of discussion to reach a consensus about the strands and the review findings. The emerging codes from each study were integrated into various categories, which were then contrasted, compared, and synthesized to provide three main themes that reflect the general trend of the reviewed literature: 1) ESL/EFL learners' perception/attitude toward peer review, 2) description of what happens during peer review, and 3) text analysis of peer review in revisions.

3. FINDINGS AND DISCUSSION

This study pointed out the way technology-mediated peer review in ESL/EFL tertiary classrooms. The emerging strands in this study were students acknowledged the value of offering and getting peer reviews; they exchanged and negotiated the meaning during the peer review; more addressed global issues and provided revision-oriented comments. Table 1 summarizes the content of the reviewed studies.

Table 1. The 8 reviewed qualitative studies by content area

No.	Studies	Perception	Process	Product	Communication tools	Modes
1.	Guardado & Shi (2007)	Some students prefer to have face-to-face communication as they have typing issues.	Student writers take advantage of real comments from anonymous reviewers; nonetheless, they could not request further clarifications.	Revision-oriented comments on global and local issues	Bulletin Board	Asynchronous
2.	Chang (2009)	More than half of the students acknowledged that peer review via SCMC or ACMC helped them reinforce their writing quality.	Reviewers typically skipped interacting with others or asking questions regarding work processes in the ACMC mode because of its delayed-time feature and lack of immediate communication. Instead, they focused on the reviewing process.	More revision-oriented comments on local issues	MSN and E3	Asynchronous and synchronous
3.	Jin & Zhu (2010)	Two participating students were interested in improving their writing skills in the expository essay through collaborating in instant messaging.	A reader's worksheet that contained 16 specific questions about peer response was supplied to the students to assist them with peer comments.	Revision-oriented comments on global and local issues	Instant Messaging	Synchronous
4.	Anderson et al. (2010)	Both Miami and Chalmer students indicated a wish for a stronger relationship with their international counterparts and a sense of responsibility for successful peer review.	Chalmer students' revisions were in the form of end comments, yet, they did not receive any training. Whilst, Miami students, receive such training; thus, they include reasoning in their reviews.	Revision-oriented comments on global issues	Globally networked learning environment (GLNE) Google Docs	Asynchronous

5.	Gedera (2012)	Students felt precious about the comments given by peers, and they did not feel embarrassed by those comments. Getting feedback improves their writing skills.	They showed high participation to comment in the blog and peer review, promoting their autonomous learning as they started to learn without any prompt from their instructor.	Revision-oriented comments on local issues	Blog	Asynchronous
6.	Bradley (2014)	Students regarded peer review as a new experience, showed a willingness to participate, and made use of peer review activities.	Student reviewers are no longer embarrassed to correct writers' mistakes in front of them.	Revision-oriented comments on global issues	Wiki web	Asynchronous
7.	Razak & Saeed (2014)	Five of the fifteen EFL newcomers who participated in the online CoP's collaborative writing revision exercises at first felt like they were on the outside looking in, but with time they realized they were a part of the CoP and had contributed to the exercises.	When editing their paragraphs, EFL students from diverse Asian and Arabic nations used a variety of approaches, including addition, substitution, deletion, permutation, consolidation, and distribution.	Revision-oriented comments on global and local issues	Facebook Group	Asynchronous
8.	Li & Li (2018)	Most ESL American academic writing students believed that accessing the papers and comments of others was very beneficial for coming up with new ideas for their writing.	The students might flag problematic passages in the article by using composition notations and commenting tools as they read it. It would help them better perceive the subject matter and develop their confidence in providing feedback.	Global revision-oriented comments .	Turnitin	Asynchronous

Process

Process describes how computer-mediated peer reviews are implemented, including student writer-reviewer relationships and the nature of peer feedback. The Swedish and American master program student texts were created in a text editor like Microsoft Word and placed on the wiki for participating peer students to access. Student reviewers are no longer ashamed to fix writers' errors in front of them (Bradley, 2014). A fruitful finding in Gedera (2012) was that Malaysian students' views and writings revealed that posting news summaries to a blog helped them improve their paraphrasing and summarizing skills and increased motivation and enthusiasm for participating in blogging activities. The discussions that were started on their own, without the teacher's prompting, clearly indicated their growing autonomy and independence.

Two-thirds of the voluntary interviewees (ESL Canadian students) viewed positively toward online anonymity and thought it would allow them to be more critical and honest in their feedback. Students who could write comfortably under anonymous peer review appreciated the legitimate criticism. Conversely, some students expressed dissatisfaction that they requested additional clarification when the reviewers were anonymous (Guardado & Shi, 2007). In another study, EFL learners from several Asian and Arabic nations employed various techniques, including distribution, substitution, addition, deletion, permutation, and consolidation, when revising their paragraphs (Razak & Saeed, 2014).

Another finding captured in Chang's (2009) study, students made up 93 per cent of comments in ACMC and 78 per cent in SCMC, respectively, following the peer editing checklist. In contrast, students showed high engagement percentages in the ACMC peer review as they paid close attention to the review process and showed little interest in interacting with others. In another study, two Taiwanese students' interactions during a peer response may have an impact on and be influenced by students' motivations for participating in the task using a synchronous tool (instant messaging) (Jin & Zhu, 2010). They were also given a reader's exercise with 16 particular questions to consider. The participant's slow typing ability and lack of chat experience annoyed him and his partner during synchronous chats.

Not only did students cooperatively interact with their peers, but they also should master computer literacy skills. While reading the article, the students could use Turnitin's composition marks and commenting tools to highlight problematic sections. It would enable them to comprehend the material better and assist them in gaining confidence in giving feedback (Li & Li, 2018). Consequently, computer literacy seems to be required for an efficient and enjoyable CMPR, which implies that a good CMPR requires sufficient computer literacy. Nevertheless, CMPR appears to have the ability to reduce learners' anxiety at technological, socioemotional, and technical levels. Therefore, simultaneously maximizing the benefits of CMPR and minimizing the drawbacks is an issue that worries all writing instructors and scholars.

Research confirms the need for training in peer review. Despite the training, students need a peer review model at the beginning of activities. Chalmer students (L2) did not obtain a peer commenting model from their instructor; hence, they compose a greater percentage of end comments. Nevertheless, Miami students received such training, so they provided reasons for their suggestions; reviewers could raise the likelihood that the writer would learn general guidelines to use in future writing and decrease the possibility that the writer would perceive their comments as unpredictable (Anderson et al., 2010).

Product

The perceptions of learners of the peer review, process and product were of interest to L2 peer review researchers. A finding for the global revision resulted in a technology-enhanced peer review. Additionally, the majority of students made global revisions. More recently, Bradley (2014) demonstrated a positive result during the process of NNS students collaborating with NS students in a peer review using a web-based wiki. The two most common remark kinds were suggestions and evaluations, both of which mostly addressed global issues. On the nature of the comment, 90 percent of revision-oriented comments were produced.

The same conclusion was drawn by Anderson et al. (2010); Chalmer students provided their comments on global features (75 percent), which are revision-oriented. On the one hand, Miami students also offered 42 percent of their comments on global features, which are also revision-oriented. While researching American speakers' revision, Li & Li (2018) observed that students shifted their attention from local to global and made more revision-oriented comments. Most students considered the peer feedback they got via Turnitin beneficial, detailed, and constructive.

Chang (2009) identified a contrasting finding that EFL Taiwanese students yielded more local comments in both SCMC and ACMC peer reviews. Similar to the results found in Bradley (2014), students produced revision-oriented comments in both modes. In line with previous studies, when comparing students' early drafts with their final drafts, it is clear that they have made significant progress in both vocabulary and grammar (Gedera, 2012). Although the lecturer provided guidelines covering global and local issues, students paid more attention to giving local comments.

Given this continuing dispute, Jin & Zhu (2010) revealed two behaviours resulting in CMPR mediated by IM: beyond- and on-screen during three analysis steps. Two participants were balanced in making comments on local (grammar) and global areas (i.e., organization, format, content, and references) with various language functions. This product confirmed the results mentioned by Guardado & Shi (2007); more students revised their drafts (13 out of 22) with revision-oriented comments on global and local issues. In Razak & Saeed (2014), students' revisions concentrated on the paragraphs' unity, mechanics, and language (forms and meaning), which are included in global and local issues.

Discussion

This systematic review of literature captured the nature of online peer review provided by ESL/EFL university students by synthesizing 8 studies on ESL/EFL CMPR published over the past two decades. Previous studies have typically determined the benefits of peer review as it has been demonstrated to assist students in enhancing their writing abilities and self-confidence (Coniam & Lee, 2008). It is in line with Lai (2010), in terms of process, peer evaluation (PE) was favored by student writers over automatic writing evaluation (AWE) as it allowed them scaffolding when they worked with peers. Also, peer review promoted communication and knowledge co-construction. The advantages of peer reviews were having interactive social learning and increasing audience awareness. This study illustrated that peer review benefits through communication tools or platforms. Wiki writing in peer review is beneficial since it fosters participant interaction and teamwork skills (Bradley, 2014; Lin & Yang, 2011).

Despite these advantages, some of them doubted whether their peers' feedbacks were correct (Liou & Peng, 2009; Tsui & Ng, 2000; Wang, 2014). Also, students may over-emphasize local errors (Chang, 2009; Gedera, 2012; Lin & Yang, 2011). Student reviewers sometimes withheld feedback from their peers, avoiding direct contention (Bradley, 2014; Choi, 2014) with the Chinese context in Choi (2014). Cotterall (1995) also discovered that Chinese students were accustomed to a conventional teaching method in which the teacher gave instructions and was expected to follow them. Overall, when given autonomy, they were blank and would only rely on their teacher's comments. As a result, we should consider cultural considerations because some cultures do not tolerate open disagreement. Anonymity could be an optional strategy to address this genuine disagreement, as it allows students to be more honest in commenting without fearing hurting others (Chen, 2015; DiGiovanni & Nagaswami, 2001; Guardado & Shi, 2007).

Lu & Zhang (2012) delineated that student reviewers also applied suggestions and comments to their writing. Another study by Rouhi & Azizian (2013) has indicated that, in comparison to those who received feedback, individuals who gave feedback significantly improved their writing. More recently, student reviewers in an online learning environment benefited from their learning as they got opportunities to increase their self-editing (van Popta et al., 2017; Yusof et al., 2011). Importantly, Lundstrom & Baker (2009) concluded that the writing skills of students who provided feedback were

superior to those of their peers. This benefit suggests that when students actively participated in giving feedback, they could view their writing with greater objectivity.

Peer feedback with adequate training has been shown in previous research to enhance student writing in some ways, including increasing writers' awareness of their audience, increasing student engagement, making revision easier, and improving writing quality (Dizon, 2016; Sánchez-Naranjo, 2019; Tsui & Ng, 2000). This particular line of research tends to imply that training is necessary for the effectiveness of peer review. When students get accustomed to operating an application, it is easier to comment on their peers' drafts and incorporate comments from them. According to Hu (2005), the training sessions must give participants a proper understanding of the peer review procedure and its possible advantages. This phenomenon might alert researchers and teachers about the importance of the computer-mediated peer-review training process.

Jin & Zhu (2010) contended that the existence of an instructor could establish the instrument or readers' worksheet as guidance to review students' writing: whether problems emerged and what revision they could suggest. This result ties promptly with the previous study wherein, with the help of guidance, before students conducted peer review, they were directed to focus (Choi, 2014; Gedera, 2012). This result is supported by Pritchard & Morrow (2017), who strengthened the need for instruments for self-evaluation to be used following group sharing of work to ensure they are following the sharing's objectives. Furthermore, Liang (2010) suggested the need to model peer response techniques early in the course can help learners with varying levels of L2 competence be ready for online discussion and negotiation. According to Lundstrom & Baker (2009), the potential benefits are expected if the peer feedback process is carefully planned and based on theoretical principles.

Comments provided by students are more varied than those offered by teachers (Cho et al., 2006), as those may be delivered to a non-threatening audience (Lin & Yang, 2011; Gedera, 2012). Concerning how students generally consider peer review, it was seen as more concrete. The presence of a live audience and there was an acknowledgment of the pleasant peer-to-peer social interaction (Lai, 2010). Although MyAccess! provided computerized feedback that was low quality and a little form-focused (i.e., vague, formulaic, and repetitive), Taiwanese EFL learners valued the immediateness of it, but still, they are dissatisfied with the "dehumanizing instruction" (Lai, 2010, p. 442).

Findings from the reviewed literature delineated the focus of ESL/EFL college students to produce global revision-oriented comments. Conversely, Lai (2010) showed similar patterns that EFL Taiwanese students preferred to offer commentary on global and local issues (i.e., focus and meaning; organization; language use and style; mechanics; and convention). For this reason, students in higher education considered the adoption of CMPR into their classroom as they could offer and obtain reviews. Regarding the feedback produced, the literature implied that students considered it balanced in addressing local and global issues (Guardado & Shi, 2007; Jin & Zhu, 2010; Razak & Saeed, 2014). The other literature mentioned students separately addressed the issue of global and local writing with much focus on the global writing area. The communication tools frequently used in CMPR among those 8 studies were asynchronous mode (e.g., wiki web, blog, Vox, E3, Google Docs, Turnitin, and Facebook group), in which students may lack immediate interaction; instead, they focused on reviewing process.

4. CONCLUSION

Based on the reported findings, students favoured integrating technology in peer review as they could incorporate feedback from their peers into their writing. Consequently, peer review could promote their autonomous learning. Of the 8 studies, the asynchronous modes were mostly used (endorsed by 6 studies), the synchronous modes endorsed by a study, and the asynchronous and synchronous modes endorsed by a study. This current systematic review has several limitations to be addressed. First, the portrayed literature only focuses on qualitative analysis; consequently, there should be more synthesis of quantitative or mixed-method studies. Second, Taiwanese ESL/EFL speakers made up a sizable share of the subjects, followed by ESL/EFL Chinese, Malaysian, American, and Swedish speakers. Other EFL environments in Asia or ESL contexts in Europe and Latin America should also receive further attention. Third, the findings of this review may assist practitioners in

developing appropriate activities for use in ESL/EFL classrooms and conducting the technology-supported peer review process. A potential future research direction is for teachers to look into the appropriate applications used in peer review in L2 classroom instruction. Moreover, teachers should arrange the appropriate activities for students' needs and regard their computer literacies as a fulfilled prerequisite in peer review. A further recommendation for future review research is to give considerably more emphasis on curricula for higher education to generate high-quality feedback. Besides, future research should evaluate whether combining the two approaches (online peer feedback and teachers' feedback) would be beneficial.

REFERENCES

Note: Studies that were included in the systematic review are marked with one asterisk (*).

*Anderson, P., Bergman, B., Bradley, L., Gustafsson, M., & Matzke, A. (2010). Peer reviewing across the Atlantic: Patterns and trends in L1 and L2 comments made in an asynchronous online collaborative learning exchange between technical communication students in Sweden and in the United States. *Journal of Business and Technical Communication*, *24*(3), 296–322. https://doi.org/10.1177/1050651910363270

Bahari, A. (2020). Computer-mediated feedback for L2 learners: Challenges versus affordances. *Journal of Computer Assisted Learning*, 1–15. https://doi.org/10.1111/jcal.12481

Boase-Jelinek, D., Parker, J., & Herrington, J. (2013). Student reflection and learning through peer reviews. *Issues in Educational Research*, *23*(2), 119–131.

*Bradley, L. (2014). Peer-reviewing in an intercultural wiki environment - student interaction and reflections. *Computers and Composition*, *34*, 80–95. https://doi.org/10.1016/j.compcom.2014.09.008

*Chang, C.-F. (2009). Peer-review through synchronous and asynchronous CMC modes: A case study in a Taiwanese college English writing course. *The JALT CALL Journal*, *5*(1), 45–64.

Chang, C. F. (2012). Peer Review via Three Modes in an EFL Writing Course. *Computers and Composition*, *29*(1), 63–78. https://doi.org/10.1016/j.compcom.2012.01.001

Chen, A.-H. (2015). Examining the Effects of Peer Review via the Computer-mediated Communication Device. *Intergrams*, *15*. Retrieved from http://benz.nchu.edu.tw/~intergrams/intergrams/152/152-chen.pdf

Chen, T. (2014). Technology-supported peer feedback in ESL/EFL writing classes: a research synthesis. *Computer Assisted Language Learning*, 1–34. https://doi.org/10.1080/09588221.2014.960942

Cheung, Y. L. (2011). Critical feedback on peer review research. *Procedia - Social and Behavioral Sciences*, *15*, 535–538. https://doi.org/10.1016/j.sbspro.2011.03.137

Cho, K., Schunn, C. D., & Charney, D. (2006). Commenting on writing: Typology and perceived helpfulness of comments from novice peer reviewers and subject matter experts. *Written Communication*, *23*(3), 260–294. https://doi.org/10.1177/0741088306289261

Choi, J. (2014). Online Peer Discourse in a Writing Classroom. *International Journal of Teaching and Learning in Higher Education*, *26*(2), 217–231.

Coniam, D., & Lee, M. W. K. (2008). Incorporating wikis into the teaching of English writing. *Hong Kong Teachers' Centre Journal*, *7*, 52–67.

Cotterall, S. (1995). Readiness for autonomy: Investigating learner beliefs. *System*, *23*(2), 195–205. https://doi.org/10.1016/0346-251X(95)00008-8

DiGiovanni, E., & Nagaswami, G. (2001). Online peer review: An alternative to face-to-face? *ELT Journal*, *55*(3), 263–272. https://doi.org/10.1093/elt/55.3.263

Dippold, D. (2009). Peer feedback through blogs: Student and teacher perceptions in an advanced German class. *ReCALL*, *21*(1), 18–36. https://doi.org/10.1017/S095834400900010X

Dizon, G. (2016). A comparative study of Facebook vs. paper-and-pencil writing to improve L2 writing skills. *Computer Assisted Language Learning*, *29*(8), 1249–1258. https://doi.org/10.1080/09588221.2016.1266369

Ebadi, S., & Rahimi, M. (2017). Exploring the impact of online peer-editing using Google Docs on EFL

learners' academic writing skills: a mixed methods study. *Computer Assisted Language Learning*, *30*(8), 787–815. https://doi.org/10.1080/09588221.2017.1363056

Ferris, D. R., & Hedgcock, J. S. (2005). Building a community of writers: Principles of peer response. In *Teaching ESL Composition: Purpose, process, and practice* (2nd ed., pp. 223–259). New Jersey: Lawrence Erlbaum Associates.

*Gedera, D. S. P. (2012). The dynamics of blog peer feedback in ESL classroom. *Teaching English with Technology*, *12*(4), 16–30.

*Guardado, M., & Shi, L. (2007). ESL students' experiences of online peer feedback. *Computers and Composition*, *24*(4), 443–461. https://doi.org/10.1016/j.compcom.2007.03.002

Ho, P. V. P., Phung, L. T. K., Oanh, T. T. T., & Giao, N. Q. (2020). Should Peer E-comments Replace Traditional Peer Comments? *International Journal of Instruction*, *13*(1), 295–314. https://doi.org/10.29333/iji.2020.13120a

Hu, G. (2005). Using peer review with Chinese ESL student writers. *Language Teaching Research*, *9*(3), 321–342. https://doi.org/10.1191/1362168805lr169oa

Huisman, B., Saab, N., van den Broek, P., & van Driel, J. (2018). The impact of formative peer feedback on higher education students' academic writing: a Meta-Analysis. *Assessment and Evaluation in Higher Education*, *44*(6), 1–18. https://doi.org/10.1080/02602938.2018.1545896

Hyland, K. (2003). *Second Language Writing*. Cambridge: Cambridge University Press.

Hyland, K., & Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching*, *39*(2), 83–101. https://doi.org/10.1017/S0261444806003399

*Jin, L., & Zhu, W. (2010). Dynamic motives in ESL computer-mediated peer response. *Computers and Composition*, *27*(4), 284–303. https://doi.org/10.1016/j.compcom.2010.09.001

Lai, Y. H. (2010). Which do students prefer to evaluate their essays: Peers or computer program. *British Journal of Educational Technology*, *41*(3), 432–454. https://doi.org/10.1111/j.1467-8535.2009.00959.x

*Li, J., & Li, M. (2018). Turnitin and peer review in ESL academic writing classrooms. *Language Learning and Technology*, *22*(1), 27–41.

Li, M. (2018). Computer-mediated collaborative writing in L2 contexts: an analysis of empirical research. *Computer Assisted Language Learning*, *31*(8), 882–904. https://doi.org/10.1080/09588221.2018.1465981

Liang, M. (2010). Using synchronous online peer response groups in EFL writing: Revision-related discourse. *Language Learning and Technology*, *14*(1), 45–64.

Lin, W. C., & Yang, S. C. (2011). Exploring students' perceptions of integrating Wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique*, *10*(2), 88–103.

Liou, H. C., & Peng, Z. Y. (2009). Training effects on computer-mediated peer review. *System*, *37*(3), 514–525. https://doi.org/10.1016/j.system.2009.01.005

Liu, J., & Sadler, R. W. (2003). The effect and affect of peer review in electronic versus traditional modes on L2 writing. *Journal of English for Academic Purposes*, *2*(3), 193–227. https://doi.org/10.1016/S1475-1585(03)00025-0

Lu, J., & Zhang, Z. (2012). Understanding the effectiveness of online peer assessment: A path model. *Journal of Educational Computing Research*, *46*(3), 313–333. https://doi.org/10.2190/EC.46.3.f

Lundstrom, K., & Baker, W. (2009). To give is better than to receive: The benefits of peer review to the reviewer's own writing. *Journal of Second Language Writing*, *18*(1), 30–43. https://doi.org/10.1016/j.jslw.2008.06.002

Ma, Q. (2020). Examining the role of inter-group peer online feedback on wiki writing in an EAP context. *Computer Assisted Language Learning*, *33*(3), 197–216. https://doi.org/10.1080/09588221.2018.1556703

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *International Journal of Surgery*, *8*(5), 336–341. https://doi.org/10.1016/j.ijsu.2010.02.007

Nicol, D., Thomson, A., & Breslin, C. (2013). Rethinking feedback practices in higher education: a peer review perspective. *Assessment and Evaluation in Higher Education*, *39*(1), 1–21.

https://doi.org/10.1080/02602938.2013.795518

Pham, V. P. H., & Usaha, S. (2009). Blog-Based Peer Response for EFL Writing: a Case Study in Viet Nam. *AsiaCall Online Journal*, *4*(1), 1–29.

Pritchard, R. J., & Morrow, D. (2017). Comparison of Online and Face-to-Face Peer Review of Writing. *Computers and Composition*, *46*, 87–103. https://doi.org/10.1016/j.compcom.2017.09.006

*Razak, N. A., & Saeed, M. A. (2014). Collaborative writing revision process among learners of English as a foreign language (EFL) in an online community of practice (CoP). *Australasian Journal of Educational Technology*, *30*(5), 580–599.

Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal*, *59*, 23–30. https://doi.org/10.1093/elt/cci003

Rouhi, A., & Azizian, E. (2013). Peer review: Is Giving Corrective Feedback Better than Receiving it in L2 Writing? *Procedia - Social and Behavioral Sciences*, *93*, 1349–1354. https://doi.org/10.1016/j.sbspro.2013.10.042

Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers* (2nd Ed.). London: SAGE Publications Ltd. Retrieved from www.sagepublications.com

Sánchez-Naranjo, J. (2019). Peer review and training: Pathways to quality and value in second language writing. *Foreign Language Annals*, *52*(3), 612–643. https://doi.org/10.1111/flan.12414

Semeraro, J., & Moore, N. S. (2016). The Use of Google Docs Technology to Support Peer Revision. *Writing Instruction to Support Literacy Success*, *7*, 203–220. https://doi.org/10.1108/S2048-045820160000007013

Song, W., & Usaha, S. (2009). How EFL University Students Use Electronic Peer Response into Revisions. *Suranaree Journal of Science and Technology*, *16*(3), 263–275.

Suwantarathip, O., & Wichadee, S. (2014). The effects of collaborative writing activity using Google Docs on students' writing abilities. *Turkish Online Journal of Educational Technology*, *13*(2), 148–156.

Topping, K. J., Smith, E. F., Swanson, I., & Elliot, A. (2000). Formative peer assessment of academic writing between postgraduate students. *Assessment and Evaluation in Higher Education*, *25*(2), 149–169. https://doi.org/10.1080/713611428

Tsui, A. B. M., & Ng, M. (2000). Do Secondary L2 Writers Benefit from Peer Comments? *Journal of Second Language Writing*, *9*(2), 147–170. https://doi.org/10.1016/S1060-3743(00)00022-9

van Popta, E., Kral, M., Camp, G., Martens, R. L., & Simons, P. R. J. (2017). Exploring the value of peer feedback in online learning for the provider. *Educational Research Review*, *20*, 24–34. https://doi.org/10.1016/j.edurev.2016.10.003

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge. MA: Harvard University Press.

Wang, W. (2014). Students' perceptions of rubric-referenced peer feedback on EFL writing: A longitudinal inquiry. *Assessing Writing*, *19*, 80–96. https://doi.org/10.1016/j.asw.2013.11.008

Yusof, J., Manan, N. A. A., & Alias, A. A. (2011). Guided Peer Feedback on Academic Writing Tasks using Facebook Notes: An Exploratory Study. *Procedia - Social and Behavioral Sciences*, *67*, 216–228. https://doi.org/10.1016/j.sbspro.2012.11.324

Zhu, Q., & Carless, D. (2018). Dialogue within peer feedback processes: clarification and negotiation of meaning. *Higher Education Research and Development*, *37*(4), 883–897. https://doi.org/10.1080/07294360.2018.1446417

Zhu, W. (1995). Effects of training for peer response on students comments and interaction. *Written Communication*, *12*(4), 492–528. https://doi.org/doi:10.1177/0741088395012004004