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Collective Scaffolding in Virtual Collaborative Writing: A Study during Emergency Remote Teaching in Indonesia

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Abstract

Along with online education and emergency remote teaching trends during the COVID-19 pandemic, collective scaffolding within virtual collaboration in an academic writing course is still under investigation. To fill the gap, this present study explored to what extent the collective scaffolding provided in virtual collaborative writing helped learners complete writing tasks and examined EFL university students' responses to this learning activity. Guided by a qualitative case study design framework, 43 EFL university students, who attended an academic writing course, voluntarily participated in the study. The data were collected through multiple sources during the virtual writing course, such as students' work artifacts (photographs and descriptions), an online questionnaire, and teacher's written reflective journals of Zoom class video recordings as the research instruments. A thematic analysis with a category system was applied to answer the formulated research questions. The findings reveal that collective scaffolding occurred during collaborative writing in the text co-construction during the writing process. Further, collaborative writing allowed L2 improvements, mutual support, and contribution. Additionally, the activity of assisting and monitoring by the teacher was still significant during group deliberation and text development. Although technology-assisted collaborative writing sounds possible and affordable, a few students felt disappointed as they

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experienced some technological constraints and unexpected group dynamics. Some groups successfully achieved the tasks and social dimensions easily; while others needed a longer time to reach the group development and text productivity.

Keywords: collaborative writing, collective scaffolding, EFL university students, EFL writing, scaffolding.

1. INTRODUCTION

In educational and pedagogical contexts, the elucidation of scaffolding refers to a process that enables a novice learner to achieve a goal beyond his unassisted efforts (Rodgers, 2004). A scaffold, by definition, is a temporary support system given to the learners when assistance is needed, and it is removed when they reach the goal (Lajoie, 2005). With a scaffold, a learner can successfully achieve the targeted task. Further, in collective scaffolding, learners provide mutual scaffolding in a collaborative learning setting to facilitate each other's progress and to connect their present level with the targeted level with the support of others (Hsieh, 2017). Without a doubt, therefore, collective scaffolding, a term coined by Donato (1994), refers to scaffolding among peers when working collaboratively via group work (Li & Zhu, 2013) with the collective orientation to jointly co-construct activities (Donato, 1994). Specifically, in collaborative writing, learners experienced collaborative discourse and scaffolding mechanisms among peers, such as mutual engagement, discussion on different opinions, explanations, and models that support joint writing tasks in a group work activity (Hsieh, 2017). Based on the researcher's first experience with EFL learners in writing courses, joint construction of a text in collaborative writing tasks might create a supportive learning environment that allows the learners to generate ideas, pool knowledge together, achieve shared understanding, and build writing as a social activity process. Nonetheless, with this initial knowledge in mind, little is known about how collaborative writing in a virtual learning context may facilitate collective scaffolding among peers in the group to complete a writing task.

Collaborative learning in university/college has started to gain much attention as Bruffee (1987) argued that it offers a social process of learning judgment and empowers students to work more successfully and interdependently. Meanwhile, writing requires a continuing process of making judgments and decisions—what to write, how to start, and how to say it. In collaborative writing, students in groups learn to discuss and decide on completing writing tasks (Henschen & Sidlow, 1990). A collaborative writing task is considered a coordinated, synchronous activity in which the collaborative learners attempt to construct a cohesive writing product using the shared skills and knowledge in groups (Thomas, 2014). During the collaboration, students assist each other reciprocally in order to achieve the writing task objectives. When students in a group display collaborative discourse, construct texts, and provide self-corrections and other corrections (Hsieh, 2017), collective scaffolding occurs. In collective scaffolding, the element of collaboration between students during pair or group activity is situated in symmetrical dyads (Gonulal & Loewen, 2018) in which all group members expectedly have similar, equal roles and contributions, such as pair of students working on joint-construction of a text.

A number of investigations on group/pair work or collaboration in the language classroom have significantly been conducted in various contexts. A study by Storch (2005) found that the pair writing activity helped students discover ideas and explore different views together. The texts produced by the pairs, when compared to individual texts, had more concise and better grammatical accuracy and linguistic complexity. Mulligan and Garofalo (2011) reported that collaborative writing at the university level could be a non-threatening approach for students, resulting in purposeful usage of the target language across skills and demonstrable improvements in writing. An experimental study conducted by Alwaleedi et al. (2019) revealed that collaborative writing gave students the opportunities to generate ideas while drafting text jointly, discussing language, gaining L2 knowledge, and engaging in meaningful interaction. Through a mixed-method study, Mirzaei and Eslami (2015) confirmed that collaborative dialogic activity (languaging) in writing helped students to overcome negative feelings, improve their L2 writing skills, and enhance their meta-discourse, grammar, and vocabulary ability. Furthermore, with the advancement of technology in ELT particularly in writing instruction, numerous research studies related to the use of applications and platforms of technology-assisted-collaborative writing activity (i.e., wikis, blogs, web-based collaboration, Google Docs, EtherPad) have been extensive. For instance, a study by Manegre and Gutiérrez-Colón (2020) found that collaborative writing activity through computer-mediated communication (online forums) has increased foreign language writing skills, including grammar, syntactic structure, and accuracy in the foreign language, and improved the students' comprehension of the writing material.

To be precise on collective scaffolding, the patterns of scaffolding, either face-to-face or online peer collaboration, reinforce peer assistance, help co-construction of shared understanding, enhance language accuracy, promote autonomous learning, and reach high-quality collaboration (Hsieh, 2017). Concerning the student perception of the scaffolding pattern, the group interaction patterns among EFL students may influence their perception of the learning experience. For example, in a computer-mediated interaction of small collaborative writing groups using Wikis, Li and Zhu (2013) reported that not all students worked collaboratively on the assigned writing task, nor did they perceive positivity toward this learning experience. Interactional scaffolding patterns among group members may, in fact, implicate the students' perception of learning experiences, writing development, and second language learning in general.

Admittedly, there has been much research on the enactment and effectiveness of online collaborative writing at higher education levels and on interactional patterns of collective scaffolding in collaborative writing (Hsieh, 2017; Li & Zhu, 2013). However, the students' attitudes and perceptions of collaborative writing are diverse and inconclusive (Storch, 2005). Moreover, since the trend of education has begun to move toward online instruction, more research needs to be conducted on the effect of such a trend on L2 learners (Such, 2019), and further research might also investigate how students can collaborate effectively online (Thomas, 2014). However, little is known about online collaborative writing which provides collective scaffolding based on learners' perspectives. Additionally, very few studies dealt with the collective scaffolding of university students during virtual collaborative writing. More studies investigating the impact of collaborative writing are needed (Storch, 2018a). Therefore, the current work of investigating collective scaffolding during collaborative

writing in a virtual learning environment is relevant and significant, particularly to explore how scaffolding in text co-construction among peers occurs, and how it benefits each learner's writing skill. These research findings may contribute to EFL learners and teachers in selecting the most appropriate peers or members in group formation and in designing the best writing task for a virtual writing course. This current research was, thus, carried out to answer the following research questions:

- To what extent did the collective scaffolding provided in virtual collaborative writing help learners complete writing tasks?
- How did EFL university students respond to collaborative writing as they engaged in a virtual writing course?

2. LITERATURE REVIEW

2.1 Scaffolding in the Learning and Teaching Process

The original idea of the term 'scaffolding' was first introduced by Jerome Bruner, a cognitive psychologist, to describe how a mother's intuitive structures help a child acquire language (Lajoie, 2005; Wang, 2011). This concept is parallel with Vygotsky's work and conception of zone proximal development (ZPD), which is the distance between the actual developmental level and the potential developmental level under adult assistance or in collaboration with more capable peers (Vygotsky, 1978). The likely state could be achieved through scaffolding with parents, teachers, and peers (Lajoie, 2005). To have this in mind, scaffolding can be described as temporary adaptive support provided until one can solve the task by themselves (Shvarts & Bakker, 2019). Such scaffolding was initially situated by the idea of a teacher-student or adult-child functional system in accomplishing some tasks; hence, to bridge one's current state of capability into an anticipated targeted state in the future. In short, Gonulal and Loewen (2018) concluded that scaffolding is a dynamic fluid support tuned to a child's progress to help the child become self-regulated.

Wood and Middleton (1975, as cited in Rodgers, 2004) illustrated the level of assistance given when a mother provided scaffolding to her children to construct a wooden toy. The mother scaffolded by: 1) giving general verbal instructions; 2) giving specific verbal instructions on what was needed next; 3) providing materials and preparing them; and finally, 4) giving a demonstration on how it needed to be done. The variety and level of scaffolding may contribute to the child's learning development and independence. Besides, in order to help the child achieve the targeted tasks or the expected results, the parents could vary the mode of scaffolding which can be in many forms, including interactive dialogues, inscriptional text materials, and indexical signs (Michell & Sharpe, 2005).

In the context of teaching and learning, scaffolding is described as "a system of temporary guidance offered to the learner by the teacher, jointly co-constructed, and then removed when the learner no longer needs it" (Boblett, 2012, p. 1). According to Wood et al. (1976, as cited in Rodgers, 2004) and Shvarts and Bakker (2019), scaffolding has six dimensions: recruitment, reduction in degrees of freedom, direction maintenance, marking of critical features, frustration control, and demonstration (see Table 1 for further detail). In simple words, the function of scaffolding is to connect

the present learner's ability with the target task so that the learner can complete the task by themselves. The functions of scaffolding can be seen in Table 1.

Table 1. Scaffolding functions by Wood et al., (1976, as cited in Rodgers, 2004) and Shvarts and Bakker (2019).

Functions	Descriptions
Recruitment	Introducing the target task
Reduction in degrees of freedom	Simplifying the task by reducing the constituent acts to reach the solution and concentrating on the difficult skills of the task
Direction maintenance	Keeping the learners focus on the target task and maintenance of practicing a particular skill without distraction
Marking critical features	Providing information about the discrepancy between what the learner has produced and what the teacher would recognize as a correct production
Frustration control	Keeping the responsibility of the leading level of activity in the process of self-regulation and controlling frustration in problem-solving
Demonstration	Modeling the task solution for the learner, who is supposed to imitate it

Not as simple as the word 'help', scaffolding, as argued by Wang (2011), is a future-oriented, dynamic, fluid, and temporary activity given to children or learners. This scaffolding is gradually faded when they can accomplish the task independently. Scaffolding is considered a task-enabling support that facilitates the accomplishment of new or onerous tasks so that the learners have task control in facing the task complexity (Michell & Sharpe, 2005). In education, scaffolding can be seen as three levels of pedagogical scales from macro to micro (Walqui, 2006), such as providing support for specific activities and skills, carrying out a particular activity in the class, and assisting moment-to-moment interaction. These three scales of pedagogical scaffolding contain six central features that characterize scaffolding as contingent, collaborative, and interactive (see Table 2).

Table 2. The features of pedagogical scaffolding by van Lier (2004, as cited in Walqui, 2006).

Central features	Descriptions
Continuity	Repeated tasks with variety, which have a connection to one another
Contextual support	A safe, supportive environment applied in a variety of ways
Intersubjectivity	Mutual engagement and rapport; encouragement and non-threatening participation
Contingency	Adjustable procedures of the task depending on the actions of learners
Handover/takeover	As skill and confidence increase, the role of the learner increases
Flow	Balance in skills and challenges; focus on the task and tuned in with each other

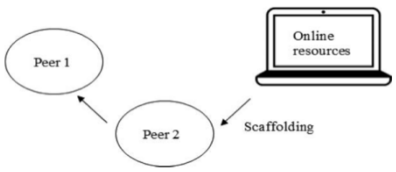
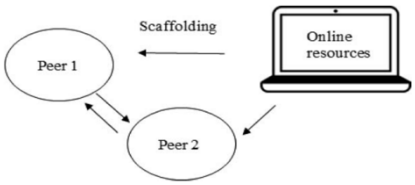
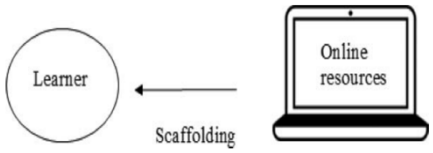
In the classroom context, teachers support the learners through interactive scaffolding in four categories of classroom discourse (Rodgers, 2004). The first is giving instruction, where the teacher tells the learners about what to do, such as "you skip the page". The second is demonstrating, in which the teacher takes the learners' role and demonstrates the action. Then, directing the activity as the teacher leads the learners to take a particular activity, such as "check it to make sure you're right". And the last is asking questions, for example, "does it say leopard or lady?" (Rodgers, 2004, p. 511). In summary, the deployment of scaffolding acted as temporary support within

ZPD to bridge one's current capability to an anticipated future state by contingent interaction between a leading level and background levels (Shvarts & Bakker, 2019).

2.2 Collective Scaffolding in Collaborative Writing

Not only situated in asymmetrical dyads, such as parent-child and teacher-learner, scaffolding can also occur in symmetrical equal-level dyads, such as a pair of students in the problem-solving task (Gonulal & Loewen, 2018). Donato (1994) introduced the term 'collective scaffolding' to describe assistance given among peers or by a more knowledgeable person to enable the less knowledgeable person in collaborative work to reach a higher level of performance. Boblett (2012, p. 6) simplified the concept of collective scaffolding by "adding the element of collaboration between learners". Furthermore, Gonulal and Loewen (2018, p. 3) wrote the advantages of collective scaffolding as "learners can create ZPDs for each other and can produce better results together than they would have been able to do alone". From previous research, Hsieh (2017) concluded that an interactive discourse among collaborative learners could facilitate their work within ZPD and create shared understanding, including the following: making collective co-construction of the text, telling explicit requests for assistance, questioning competing forms, jointly managing components of the problem, giving self-correction or peer correction, and conducting interactional conversation among peers in groups. Through the process of collective scaffolding, collaborative learners can pool their linguistic knowledge and sources when encountering problems (Storch, 2018a). The patterns of collective scaffolding can be seen in Table 3.

Table 3. Collective scaffolding patterns in collaborative learning setting (Hsieh, 2017).

Scaffolding patterns	Descriptions	
Peer-to-peer scaffolding		One peer obtained scaffolding from online resources and used it to help the other peer
Multidirectional scaffolding		Both learners obtained scaffolding from the online resources to support their mutual assistance and interaction
Individual scaffolding		Individual scaffolding occurs between an individual learner and the online resources

Face-to-face collaborative writing may offer the best way to express ideas and deliberate about language choices during discussion and interaction, as well as elicit immediate feedback from peers (Storch, 2011, 2018a). However, when technology and

collaboration are combined, the role of online sources can be undeniable in scaffolding. A study by Hsieh (2017) was conducted to figure out an in-depth analysis of learners' interaction in a collaborative learning environment with online sources/internet support. The study found three distinctive patterns of dynamic interaction and scaffolding between peers and online sources: peer-to-peer, multidirectional, and individual (see Table 3). These types of scaffolding support peer assistance, mediate co-construction of shared understanding, enhance language accuracy, and promote autonomous learning among group members (Hsieh, 2017). Table 4 presents the patterns of computer-mediation interaction in collaboration.

Table 4. Patterns of computer-mediation interaction in collaboration (Storch, 2002, as cited in Li & Zhu, 2013).

	Collectively contributing/ mutually supportive	**Authoritative/ responsive**	**Dominant/ withdrawn**
Equality	Group members make equal contributions to the group discussion.	Group members have unequal contributions and degrees of control. One member takes the most control.	Group members have unequal contributions and degrees of control. Two members control the task; the third member gives minimal contribution, and the other member even withdraws from the writing task.
Mutuality	Group members are willing to offer and engage with each other's ideas through discussion and text construction.	The two members acknowledge the leading role and are responsive to the leader's behavior; group members fully engage with one another's ideas.	Group members are unwilling or unable to engage; there is no reciprocal interaction and little mutual scaffolding.

Given the fact that collective scaffolding within collaborative writing leads to positive effects and advantages to language learning and writing skills, some studies found that not all collaborative learners work collaboratively in groups. It did not always show notable writing improvement (Li & Zhu, 2013). To be more specific on collaboration patterns, Storch (2002, as cited in Li & Zhu, 2013) examined peer interaction and proposed dyadic interaction patterns of collaboration into two: equality (degree of control/authority) and mutuality (level of engagement/contribution), see Table 4 for further details. In addition to interactive collaboration patterns among group members, L2 learners' proficiency may also get more attention in collaborative writing. Storch (2011) suggested that some writing tasks (i.e., text reconstruction) may not suit low-proficiency L2 learners for collaboration. Moreover, a study by Zhang (2019) reported that intermediate EFL learners may not always collaborate in collaborative writing tasks with selected partners. Zhang (2019) further indicated that collaboration type does not affect the text quality and the linguistic accuracy of students' collaborative texts. However, the nature of the relationship and interaction among members, the nature of the task, learners' goals, and L2 proficiency may become factors affecting the success of collaboration and writing improvement (Boblett, 2012). Therefore, learners' interaction and collective scaffolding dynamics during collaborative writing particularly in a virtual learning environment need further exploration.

Writing in group activity seems more complex than it is known as it covers not only the task dimension but also the social dimension (Nelson & Murphy, 1992) during group formation and group development. This indicates that writing activity in small groups not only dealt with linguistic accuracy, text organization, and writing development, but more than those aspects. Dornyei and Murphey (2009) illustrated how social dimension matters in a process of group formation at the early stage:

> Students must deal with others whom they hardly know, and they are uncertain about whether they will like them or, more importantly, whether they will be liked by them. They observe each other suspiciously, sizing up one another and trying to find a place in an unestablished and unstable hierarchy… Those who lack sufficient social skills often find this process very demanding and frustrating (Dornyei & Murphey, 2009, p. 14).

Within a small group activity, the group members experience group developmental stages. This is as suggested by Ehrman and Dornyei's system of group development (Dornyei & Murphey, 2009), in which the stages consist of the formation stage, the transition stage, the performing stage, and the dissolution stage. A teacher plays important roles at all stages. Dornyei and Murphey (2009) suggested some roles of a teacher during group developmental stages, such as a goal setter and a manager at the early stage of group formation; a mediator and a negotiator during the transition stage; a supervisor of group cohesiveness at performing stage; and an evaluator of group accomplishment and a supporter for continuity at dissolution stage.

3. METHODS

Informed by a qualitative research framework that represents the perspectives of the people under real-world contextual conditions to explain human social behaviour (Yin, 2011), this study adopted a case study research design that favors intensity and depth, exploring the interaction between matter and context for defining a unit of analysis (i.e., an individual, a small group, an intervention) (Marshall & Rossman, 2016). As a case study offers to illustrate a phenomenon in a very vivid, detailed, and highly contextualized way from different perspectives (Duff, 2020), this current research explored to what extent the collective scaffolding provided in virtual collaborative writing helped learners complete writing tasks and examined EFL university students' responses to this learning activity. Furthermore, guided by a case study framework for looking at the holistic and detailed behavior, performance, knowledge, or perspective of a few or many subjects (Duff, 2012), this study examined the enactment of collaborative writing, collective scaffolding, and the student perceptions of this learning activity toward their L2 writing development by observing their real-life-experiences and voices in virtual group work of writing activities through audio-visual means.

3.1 The Participants and the Course

The participants were those who attended an academic writing course and filled in their online consent forms (via a Google form link) to participate in this study. The

total participants were 43 university students and one writing instructor/teacher (female, 38 years old) who was responsible for teaching and managing the course in the English Education department at a private university in Jakarta, Indonesia. The demographical information of the participants can be seen in Table 5.

Table 5. Demographic information of participants.

Participants	**43**		
Age	< 25 years old 25 – 35 years old > 35 years old	9 24 10	20.9% 55.8% 23.3%
Gender/sex identity	Female Male	27 16	62.8% 37.2%

The academic writing course was initially designed for a face-to-face instruction with three credits and with two and a half hours for each meeting. Due to the Corona virus outbreaks/COVID-19 pandemic, the course sessions were immediately shifted to fully online instruction for temporary circumstances, called an emergency remote teaching (ERT) system (Bozkurt & Sharma, 2020; Hodges et al., 2020). Most Indonesian ERTs were applied through learning management systems (LMS), video conferencing, and messenger applications (Amin & Sundari, 2020; Rahiem, 2020). During the virtual academic writing course, the sessions were facilitated by three digital platforms divided into two modes: synchronous sessions (Zoom video conferencing) and asynchronous sessions (Google Classroom LMS and WhatsApp messenger application).

Prior to taking part in a collaborative writing project, all participants were asked to complete one individual essay as a writing task submitted via Google Classroom. Then the writing instructor organized the scores into writing proficiency-level categories. The categories were based on the overall writing scores, including organization, sentence structure, writing mechanics, and content (Oshima & Hogue, 2007), with a maximum score of 100 points. The results of scoring and classifying the students' writing proficiency levels showed that the scores ranged from 65.0 to 88.0, with a mean of 80.6 (SD= 6.29). Eleven students (27%) whose scores were from 86.00 to 88.00 were labeled as high level; 17 of them (39%) who got scores ranging from 79.00 to 86.00 were labeled as intermediate level; meanwhile, the rest of the 15 students (34%) were categorized as low level with scores ranging from 65.00 to 78.00. The information about these writing proficiency levels was then used for group formation of three to four members. Each group contained members from each writing proficiency level, or at least from two writing proficiency levels. Having 16 meetings throughout the course, six meetings were served for the writing project collaborative writing, which was to compose a short article from mini research.

3.2 Instruments

Guided by a case study framework to contextualize and particularize the phenomenon from different perspectives (Duff, 2012, 2020), the empirical data was gathered through multiple sources: students' work artifacts (photographs and descriptions), an online questionnaire, and teacher's written reflective journals of Zoom class video recordings. During the Zoom breakout room sessions, the participants were asked to photograph what they believed essential to show in their

writing activities and to portray their views of online/virtual collaborative writing they have applied from their real-life experiences in virtual collaborative writing activities. This photovoice technique of data collection was conducted in two periods: the pre-writing stage and the whilst-writing stage. Photovoice is a specific photographic technique that is used to visually document and record the knowledge, voices, and experiences of a community member (Call-Cummings et al., 2018; Wang & Burris, 1997). The images may include experience when analyzing sample text, brainstorming ideas, selecting topics, drafting a rough draft, and revising the draft. They then wrote narratives describing what happened in the image that may cover the people, the feeling/preferences, the activity, the experiences, and in what ways it meant to them. The narrative was guided by a set of questions modified from SHOWED (See, Happening, Our lives, Why, Educate, Do) analysis method (Strack, 2017; Wang & Burris, 1997), as follows:

- What do you see here (in the picture)?
- What is happening here (in the picture)?
- How are your feelings when you are involved in the activity (in the picture)?
- Do you think the activity (in the picture) benefits your writing skill development?
- If yes, in what ways does the activity improve your writing skills?
- If not, what difficulties/challenges do you find when involved in the activity?
- What can you learn from the activity in the picture?

Together with a photovoice technique, an online questionnaire (closed and opened-ended questions) was distributed at the end in order to gauge students' perceptions and opinions on virtual collaborative writing they have experienced when completing the writing tasks and to find out in what ways their collaborative partners and activity scaffolded their writing improvement. The questionnaire consisted of two items of questions. In a closed-ended question, the students responded to the question 'do you think collaborative writing (writing in a group activity) is effective in developing your writing skills?' with 3 options of responses: yes, no, maybe. This question was followed by an open-ended question (If yes/no/maybe, please explain in what ways writing group activities are effective/not for developing your writing skills!) to elaborate on their responses.

To check the consistency of the data collection from the photovoice and the questionnaire, the data from class video recordings followed by the teacher's written reflective journals were also collected. One of the researchers acted as a teacher who captured how each participant in collaborative writing scaffolded one another as well as in what ways collective scaffolding occurred, and how group dynamics happened during the synchronous virtual sessions. The teacher's written reflective journals were guided by Smyth's DICR framework (1989, as cited in Williams & Grudnoff, 2011), which has four steps as a set of guided questions: describing (what did I do?), informing (what does this mean?), confronting (how did I come to be this way?), and reconstructing (how might I do things differently?).

3.3 Data Analysis

In data analysis of 78 photographs from photovoice, a four-part layer approach in evaluating photovoice offered by Oliffe et al. (2008) was selected to analyze the photographs and the narratives systematically. The steps covered preview, review, cross-photo comparison, and theorizing to generate themes and patterns from the

narratives (Behrendt & Machtmes, 2016). The photographs were previewed and reviewed. However, only photos that portrayed virtual learning activity during collaborative writing were used for further analysis, and the narratives that were not responded to all of the provided questions were excluded. As there was twice data collection of photographs and narrative, they reached and divided into 2 data sets: dataset 1 (1-38) and dataset 2 (2-40). The data from the narratives were then treated as textual data for qualitative thematic analysis.

The textual data from the narratives, named dataset 1(1-38) and dataset 2 (2-40) as well as the open-ended questionnaire's responses (Q1-Q43) were further subject to analysis. We repeatedly read and tabulated the data grounded by a theoretical foundation (scaffolding and collective scaffolding) to serve the proposed research questions. The tabulated data from narratives and open-ended questions were analyzed and coded using a qualitative analysis technique (Flick, 2009; Saldana, 2009). The tabulated data were coded into a thematic category system through multiple reading circles. Meanwhile, the result from the close-ended question was descriptively presented in percentages. To warrant the trustworthiness of the gathered data, teachers' written reflective journals were analyzed to check the consistency of the data.

4. RESULTS

Guided by a qualitative case study design, the purposes of this current research are twofold: examining to what extent the collective scaffolding provided in virtual collaborative writing helped learners complete writing tasks and exploring the EFL university students' responses as the research participants to this learning activity. The themes that emerged from the data analysis process are presented in the following to answer the formulated research questions.

4.1 Collective Scaffolding in Virtual Collaborative Writing

4.1.1 Co-construction of the text

During virtual collaborative writing in small groups, students narrated that they jointly constructed the assigned academic article over three stages of the writing process. In the pre-writing stage, they collaboratively chose the topic (dataset1-18), brainstormed, and exchanged ideas among group members (dataset1-5, dataset1-6, dataset1-21). Then, in the whilst-writing stage, each student in the group contributed to drafting the first version of the article (dataset2-12).

Further, at the post-writing stage, they reported that they rechecked the outline (dataset2-25), examined the result of the first draft (dataset2-27), reviewed the sentences (dataset2-13), and did corrections over the article together (dataset2-3, dataset2-6). They admitted that they had the same purpose during this virtual writing task, that is to make a good composition (dataset2-8) and to achieve a coherent, cohesive paragraph (dataset1-37). For example, Students 2-13 recounted how the members of the group co-constructed the draft by selecting words and structuring sentences during the Zoom meeting session (see Figure 1).

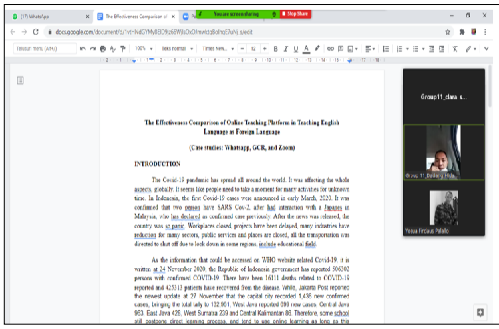


Figure 1. Photovoice 2-13: Co-construction of the text (photo taken by respondent CSS (Group 11) in Dec 2020 with consent from the respondents).

4.1.2 L2 Writing development

After having the experience to produce the article in a virtual small group collaboration, most of the students perceived that their L2 writing cognition and skills have immensely increased. Through real experience, students expressed that they understood how to start and manage the process of writing to produce a qualified written text in L2, such as collecting and taking notes of references (dataset1-9, dataset1-20), choosing a unique theme/topic (dataset1-33), making an outline (dataset1-37), and writing and re-writing (dataset2-3). The excerpts from open-ended questions illustrated what the students perceived about their L2 writing development as they engaged in virtual collaborative writing.

(1) It develops my writing skills to structure good sentences (Q19).
(2) Reviewing journal (articles) can develop my writing skills and make me understand the journal content better (Q9).
(3) Yes, I extensively developed my writing skills with the assignment…I become a more creative individual… (Q29).

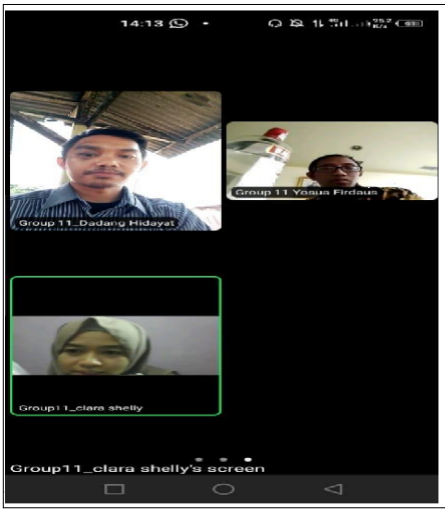
Besides, students also felt more aware of the cognitive processes that occurred during writing in L2. They reported that they carried out several cognitive and high-thinking processes, such as learning new topics (dataset1-16), understanding text types (dataset1-28), reading and reviewing selected L2 references (dataset1-24, dataset2-4), combining various ideas (dataset1-3), and thinking critically (dataset1-24). As in Figure 2, student-participants 2-6 narrated how writing skills improved the quality of their writing product and writing skills.

4.1.3 Mutual support and contribution within discussion and teamwork

During virtual collaborative writing, students expressed that they contributed to the group in completing the writing task and that they received support from other members. Led by the group leader (dataset1-14) in virtual discussions, student participants as group members tried to give contributions (dataset1-23, dataset1-32) by sharing opinions/ideas/thoughts (dataset1-9, dataset1-12, dataset1-25 to dataset1-28) and sharing experience and knowledge (dataset1-16, dataset1-31).

The picture shows the activity of writing group discussion. We were discussing some changes in the writing of an article. The other focus is about the composition of questionnaire. When doing this discussion, we were excited and shared ideas each other. This activity really gave us benefits to finish our assignment. When we wrote something, we corrected it each other. It also gave us better skills in writing. The challenges we found was how to accommodate all ideas becoming compromise ideas. To sum up, this activity is very good to create a better writing result.

Figure 2. Photovoice 2-6: L2 writing development (photo taken by respondent AS (Group 1) in Dec 2020 with consent from the respondents).



In this picture, there are three students. We try to divide the task that will be discussed for next meeting. After discussion, we have agreed that for introduction it will be prepared by me, literature review will be prepared by Mr. [redacted], and Mr. [redacted] will make some questions related to the method that we will use. While, Ms. [redacted] will help us to check and complete the things that still need to be added. By discussing and coordinating each task, we learn to be the responsible one, especially in current situation (academic purpose). The concern that we have only about the time, and the final result, but as long as we try to give our best, we do believe that it will be a strength for us to pass this writing task. Through discussion, we can share our ideas and perspectives. Don't hesitate to speak up and have a deep conversation with the team because the more you are active in looking for knowledge, the better you can be!

Figure 3. Photovoice 2-19: Mutual support, job distribution, and contribution (photo taken by respondent DA (Group 1) in Dec 2020 with consent from the respondents).

Based on Photovoice 2-19, one student described the activities that the group members undertook during virtual collaborative writing (see Figure 3). In virtual group discussions (dataset1-16, dataset1-7, dataset1-8, dataset1-18), group members distributed writing jobs among the members (dataset1-1, dataset1-15, dataset1-20, dataset1-22). Further, they also discussed the topic, the content, the timelines (dataset1-14), the best title (dataset1-27), the changes on the text article (dataset2-6), the next step/strategy/solution (dataset1-33, dataset2-7) in order to achieve the final decisions (dataset1-30, dataset1-23, dataset2-8). Moreover, students also expressed that each member in the group supported one another (dataset1-1, data1-15, dataset2-8), helped one another (dataset1-3), received feedback from the others, and gave contributions (dataset2-5) through sharing ideas (dataset1-9, dataset1-28) and doing the job descriptions (dataset1-2, dataset1-10). They also admitted that they reached a mutual understanding (dataset1-2) and mutual trust (dataset1-14) to reach the goal (dataset1-34) collaboratively. The students' responses to open-ended questions brought almost a similar fashion of mutuality and contribution among group members, as in the following excerpts:

(4) We could learn language, knowledge, and experience from our friends. (Q8)
(5) Among members, we shared ideas with one another. (Q15)

(6) Because we worked together, we gave feedback to each member. (Q25)
(7) We could assist one another to finish the task, such as by sharing ideas and giving solutions. (Q27)

4.1.4 Social and communication skills

Having carried out virtual collaborative writing during interaction and discussion, students felt that their collaborative writing, or generally group working, required social and communication skills. In virtual conversation, they mentioned that they should listen to other members' opinions (dataset1-4, dataset1-9), accept and appreciate others' views (dataset1-34), stop talking when the other was talking, and lower their voice tune (dataset1-9) to reach a deep conversation (dataset1-19). In short, they were trained to be good listeners (dataset2-19, dataset2-23). Additionally, as illustrated by Students 1-26, virtual discussion and conversation during collaborative writing encouraged the group members to have good intentions as well as to be good collaborators and communicators at the same time regardless the background and personality diversity.

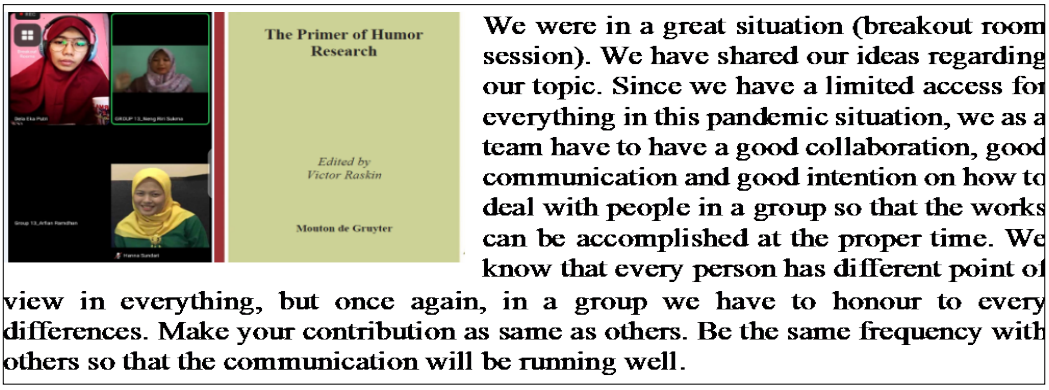


Figure 4. Photovoice 1-26: Social and communication skills (photo taken by respondent AHR (Group 13) in Nov 2020 with consent from the respondents).

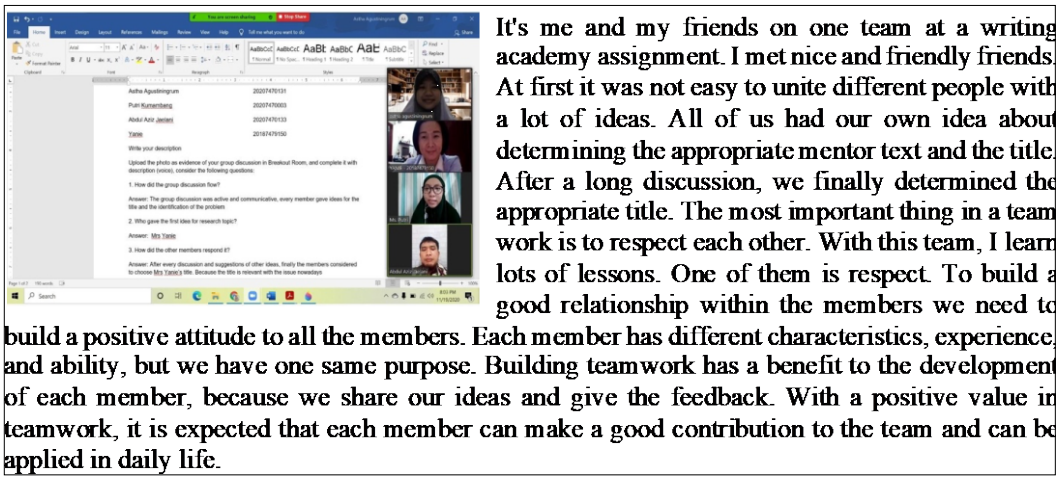


Figure 5. Photovoice 1-23: Social and communication skills (photo taken by respondent AA (Group 7) in Nov 2020 with consent from the respondents).

Furthermore, the students also narrated that, since this collaborative writing project needed interaction among members, they should show respect and honor to

other members (dataset1-12, dataset1-36, dataset1-23); they needed to understand, adapt to, and accept other members (dataset1-22), as well as filled the gaps in other's weakness points (dataset1-9). In addition, they should be responsible for the distributed job (dataset1-19), be open-minded (dataset1-22, dataset1-38), and not be judgmental of others' opinions (dataset1-12, dataset1-26). Students 1-23 described that respecting others in a group collaboration was crucial so that group members positively build a good relationship and successfully achieve the goal (see Figure 5).

4.1.5 Teacher assistance and monitoring

This collaborative writing activity was expected to enable group members to construct a short article jointly during the virtual writing course. Students admitted that the writing instructor/teacher had played the role of a mentor and supervisor over the entire text development and project collaboration. Students 2-7 narrated that the writing teacher joined in Zoom breakout room sessions, monitored the virtual discussion, and provided feedback to the group.

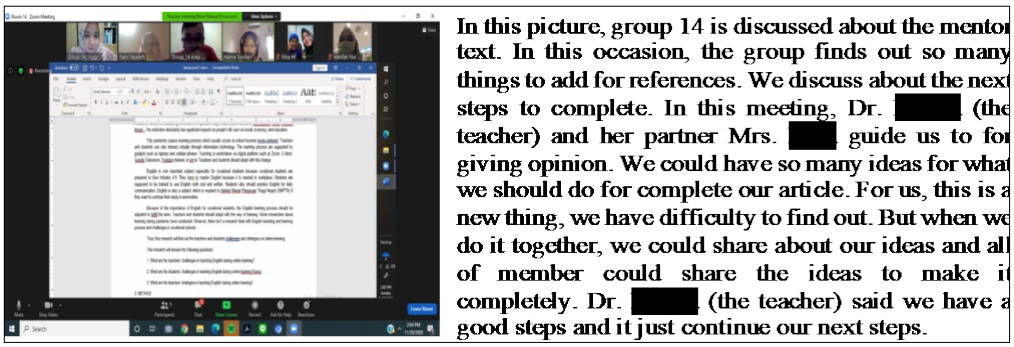


Figure 6. Photovoice 2-7: Teacher assistance and monitoring (photo taken by respondent AH (Group 14) in Dec 2020 with consent from the respondents).

In addition, some students stated that the writing teacher assisted them by checking and monitoring group discussion (dataset1-26, dataset1-34) and giving the sample text as a mentor (dataset2-7, dataset2-30). They also reported that the writing teacher provided feedback, directions, and guides (dataset2-5, dataset2-7).

4.2 EFL University Students' Responses to Virtual Collaborative Writing during ERT

4.2.1 Student's responses toward collaborative writing

Concerning the students' responses to collaborative writing in completing the writing tasks, based on the questionnaire, more than half of the student participants (62.8%) stated their agreement that collaborative writing was effective in developing writing skills. Conversely, the rest revealed their uncertainty and disagreement with 25.6% and 11.6%, respectively.

Students, who perceived a positive response toward collaborative writing activity, said that during writing in a small group, they experienced fun work (dataset1-2, dataset1-15), high willingness and motivation (dataset2-2), good and fantastic feelings (dataset2-5, dataset2-7), hard but happy work (dataset2-11), happy feeling

(dataset2-20, dataset2-27, dataset2-30, dataset2-37), as well as excitement and enthusiasm feeling (dataset2-32, dataset2-36, dataset2-24, dataset2-25). As Students 2-3 recounted on Photovoice 2-3 (see Figure 7), excitement and enthusiasm were dominantly expressed since the collaborative writing activity allowed the members to share ideas/opinions without fear of making mistakes.

On the other hand, some students also perceived that the collaborative writing they experienced during the virtual course was seemingly ineffective in improving their writing skills. Students' responses on open-ended questionnaires revealed unexpected situations during the writing task in virtual collaborative activity, as in the following excerpts.

(8) I've done my part, but I needed to wait for other members to accomplish their parts. It seemed no one took this seriously, and even they said: I'll do it; Maybe I've to finish this by myself (Q5).
(9) Writing in a group was less effective because there were many people and many thoughts, so it was challenging to come to a consensus (Q12).

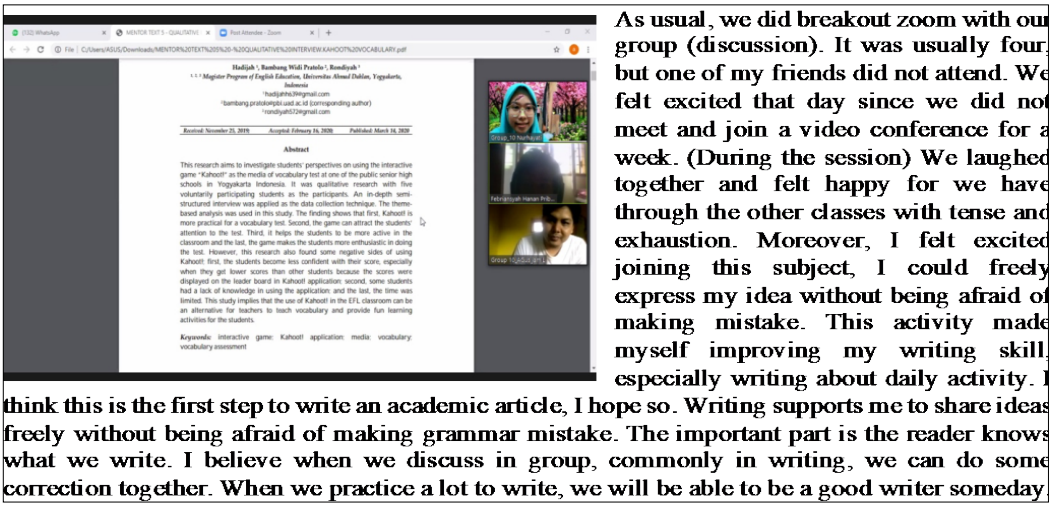


Figure 7. Photovoice 2-3: Students' responses to collaborative writing (photo taken by respondent AJ (Group 10) in Dec 2020 with consent from the respondents).

4.2.2 Merits and pitfalls of virtual collaborative writing

Concerning writing tasks in virtual collaborative writing, students revealed that this type of writing activity could be possible to implement as it provided flexibility in terms of place and time. As it was in the Covid-19/pandemic situation (dataset1-35), switching to online learning (dataset1-28), and finding a new method for teaching and learning (dataset1-31) was necessary. Group projects (dataset1-28) through virtual sessions (dataset1-35) would be a new teaching practice (dataset1-15). In addition, Students 1-15 described how collaborative work could be conducted through a distance learning between the group members.

Furthermore, in applying a collaborative work to complete an article, students mentioned that technology helped facilitate communication, interaction, and writing management. As narrated by Students 1-37, this group used several technological devices and tools to assist them during the entire text completion with various functions, such as a video conference application, search engine, digital document reader, and messenger application (see Figure 8).

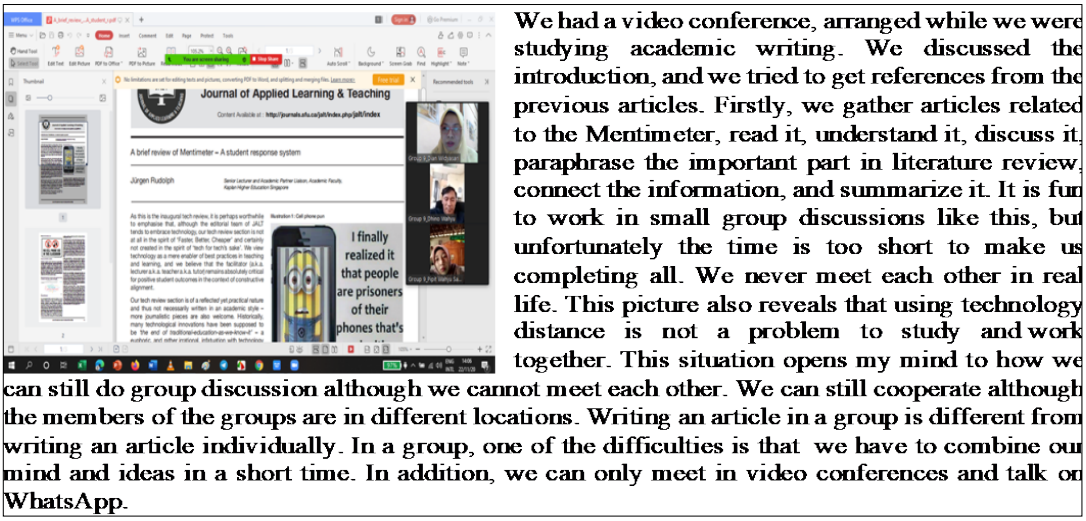


Figure 8. Photovoice 1-15: Flexibility of virtual collaborative writing (photo taken by respondent DW (Group 9) in Nov 2020 with consent from the respondents).

Even though most of the students admitted that technology-assisted collaborative writing was advantageous and possible, a few of them brought a different story of the virtual collaborative work. From the questionnaire, one student-participant (Q13) narrated the constraints of managing an online group project in which all members were in different places. Additionally, as in the excerpt below, they struggled with the time constraint and internet connection.

(10) In my case, although they are single, the other members were always busy, and when they were not busy, they had internet connection problems. D lives in Cikarang, P lives in Solo, and K lives in Cirebon. The only way to contact communicate was through WhatsApp, but sometimes there was no response, only P responded, but lately, she had a problem at home so she couldn't complete the task. I tried so many times to discuss this by video conference, but only I and P attended. I wasted so much time asking them to work on the task together, but they just helped with the literature review. I think writing group activity was ineffective in an online class because the members could not meet and complete the task together (Q13).

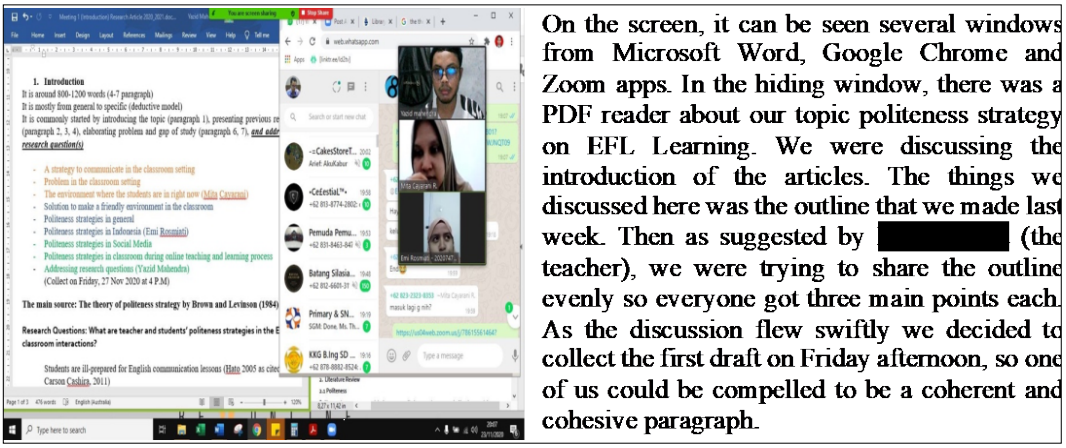


Figure 9. Photovoice 1-37: Technology-assisted collaborative writing (photo taken by respondent YM (Group 8) in Nov 2020 with consent from the respondents).

4.2.3 Group dynamics

In this research, the collaborative writing on completing a short article was conducted within six weeks. Throughout the weeks, some groups successfully completed the writing task as they planned, and they maintained their social relationships. However, it was revealed that not all groups successfully worked as expected. Students 1-11 expressed happiness and enthusiasm over this collaborative writing at the early stage of the project. As seen in Figure 10, the narrative and facial expressions at the first photovoice collection brought an impression of positive vibes among the members.

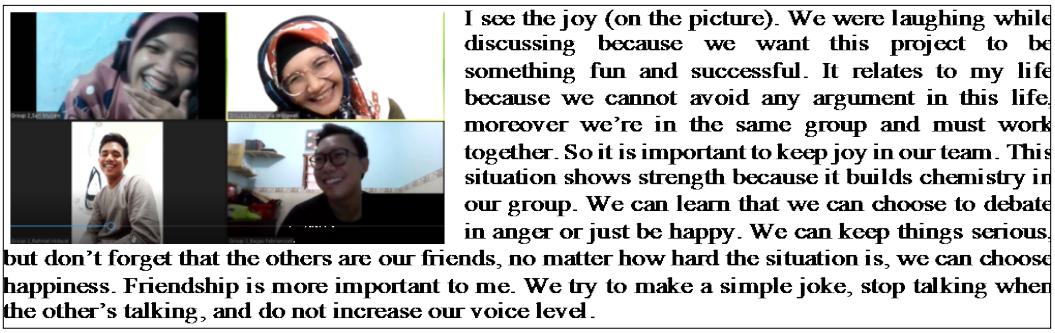


Figure 10. Photovoice 1-11: Group dynamics (photo taken by respondent EYW (Group 2) in Nov 2020 with consent from the respondents).

However, in the second data collection of photovoice, the same student revealed expressions of disappointment to one of the members (see Figure 11). Then at the general level, the student-participant felt uncertain if this could be maintained until the end, and if collaborative writing would benefit the members in producing high-quality text and in improving their writing skills.

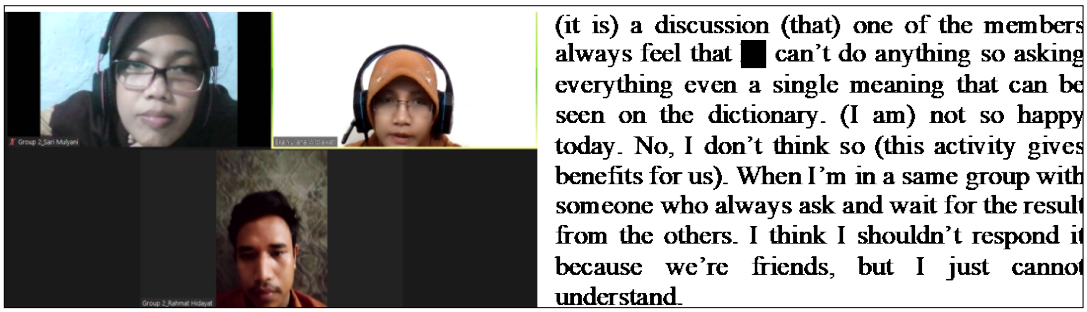


Figure 11. Photovoice 2-21: Group dynamic (photo taken by respondent EYW (Group 2) in Dec 2020 with consent from the respondents).

5. DISCUSSION

This present research has found that during virtual collaborative writing, the students collectively scaffolded each other in the joint construction of the academic article in three stages of the writing process. During the pre-writing stage, they collaboratively brainstormed, exchanged ideas, selected the topic for the paper, and deliberated the best language choices. After that, each group member contributed to

outlining and writing the first draft of the paper in the whilst-writing stage. Then, they reviewed and corrected the entire article collaboratively during the post-writing stage. The stages in collaborative writing on producing the article, performed by the students in the group, were consistent with the process-based approach to text development, which requires planning and drafting (Badger and White, 2000) and with the five underlying principles: planning, writing, reflecting, collaborative writing, and personalized writing instruction (Li & Razali, 2019). The recursive procedure of the writing process allowed learners to develop their awareness of the text type and text development (Ghufron, 2016). This leads the collaborative learners to possibly acquire knowledge of the text genre and to be active co-constructors of the text as the students in this research admitted that they had the same purpose in writing, which was to make a good composition and to achieve coherence and cohesion in the text. This purpose of writing was achieved collaboratively by the group members through co-constructing the draft, selecting words, and structuring sentences during synchronous and asynchronous sessions.

After jointly producing an article in the virtual small group collaborations, most of the students perceived that their L2 writing cognitions and skills have immensely increased. They revealed that they understood how to start and manage the procedure of L2 written text, such as collecting and using references, choosing the topic, making an outline, writing, and re-writing. In this case, collaborative writing facilitates students in learning to write in L2 (Storch, 2018a), in terms of a 'learning-to-write' activity in which writing activities aim to improve writing abilities; in this context, the students build awareness of text knowledge and the process of text development. A similar result was also reported by Mulligan and Garofalo (2011), who highlighted that students in collaborative writing demonstrate improvement in writing; thus, it can be a non-threatening approach for university students.

It was found that the students in this study became more aware of the cognitive processes during L2 writing which include learning a new topic, understanding text types, reading, reviewing selected L2 references, combining various ideas, and thinking critically. They contributed by sharing opinions/ideas/thoughts and by sharing experiences and knowledge. Further, they also revealed that they discussed the topic, the content, the timelines, the best title, and the changes to the article draft. They decided/concluded what was best for the task. This finding is consistent with what was found by Storch (2005), who claimed that a pair writing activity helps students discover ideas together and explore different views. Moreover, the findings of this research support the result of the study by Alwaleedi et al. (2019) who discovered various students' writing activities during collaborative writing, including generating ideas, joint drafting, discussing language and L2 knowledge, and engaging in meaningful interaction. Moreover, interactive, meaningful dialogue and language during deliberations among group members may allow L2 writing skill improvement (Mirzaei & Eslami, 2015). During this process, collective scaffolding may occur as the learners consolidate linguistic knowledge and receive immediate feedback from peers (Storch, 2018a).

Furthermore, the students in this research expressed that they received support, help, and feedback from others which at the same time contributed to the co-construction of the text although they have never met in person. A similar finding is also found in the study by Hsieh (2017) that investigated peer collaboration in face-to-face activity with an online source. This pattern of collective scaffolding may reinforce

the co-construction of shared understanding, increase language accuracy, and foster autonomous learning. Taking-giving interaction and collaborative conversation among group members facilitate the students to work within ZPD – moving from the current state to the targeted state (Mirzaei & Eslami, 2015; Nassaji & Swain, 2000; Storch, 2018b).

During the virtual interaction, the students in this study admitted that they reached mutual understanding and mutual trust to accomplish the goal of the writing task collaboratively. Furthermore, they mentioned that working in a group required social and communication skills, such as listening to others, accepting, and appreciating different opinions, not interrupting when others are talking, and lowering their voice tunes. Showing respect becomes the most prominent social skill in maintaining relationships and teamwork. This can be seen as collaboration in collective contribution and mutual support. Each group member desires to engage with each other's ideas through deliberations and text construction (Li & Zhu, 2013). Concerning the feedback from the teacher, Storch (2018a, 2018b) stated that, in collaborative writing, feedback from peers is available throughout the writing process. Meanwhile, in solitary/individual writing, the feedback from the teacher or peers (in peer feedback activities) is delayed as it is given once the writing activity has been completed. However, the current research found that the writing instructor acted as a mentor and a supervisor over the entire text development and project collaboration by providing feedback to the group during students' deliberations, monitoring group discussion, giving sample texts, and providing necessary feedback. It indicates that, although collaborative learners are intentionally set in the environment to scaffold each other, the teacher/instructor still plays a pivotal role in text development in collaborative writing. The teacher had an important role in all stages of collaborative writing, from the early stage of group formation, the performing stage, until the dissolution stage (Dornyei & Murphey, 2009). The teacher might not expectedly give the entire control and responsibility to the group members. Conversely, the writing teacher monitored and assessed each stage of the writing process to make sure it worked well.

With the expansion of technology into writing classrooms, technological devices have helped the application of collaborative writing, such as the use of Wikis (Zheng et al., 2015), web-based collaboration (Wang, 2019), and other online collaborative writing activities (Such, 2019). Then these technology-assisted collaborative writing activities have been proven to improve the students' writing skills, particularly in grammar accuracy, syntactic structure, and material comprehension (Manegre & Gutiérrez-Colón, 2020). As revealed in this current research, students stated that technology brought flexibility and broad access. The technology-assisted collaborative writing project is possible and affordable for some of them. Helped by several technological tools, such as video conference applications, search engines, digital document readers, and messenger applications, various scaffolding patterns (i.e., peer, individual, and multidirectional) may occur between students and the tools during virtual writing activity and text development. Different from Hsieh (2017) who noted that using online resources as technological tools plays a role of scaffolding to support the group members' mutual assistance and interaction, in this current research, the technological tools can be both scaffolding and mediation of scaffolding that allow collective scaffolding among members to occur during the virtual discussion. On the other hand, a few students stated that they faced constraints related to the time

management and internet connection. Unsurprisingly, the similar finding of online learning restrictions has also been widely found in numerous ELT studies in Indonesia during the COVID19 pandemic, such as challenging during ERT and technology preferences of university students (Amin & Sundari 2020; Rahiem 2020; Sujarwo et al., 2020), ERT problems from students, teachers, and parents (Atmojo & Nugroho, 2020), and education readiness (Churiyah et al., 2020).

Concerning the students' responses to the collaborative writing activity, more than half of the students in this present study perceived favoritism toward collaborative writing since they experienced excitement and enthusiasm in the writing activity. They were also aware of the improvement of their L2, as also found in the study by Mulligan and Garofalo (2011), Mirzaei and Eslami (2015), Alwaleedi et al. (2019), and Manegre and Gutiérrez-Colón (2020). However, the students who expressed disagreement on the advantages of virtual collaborative writing were noteworthy since the number was seemingly significant. They revealed unexpected situations in the virtual collaborative writing activity that led to ineffective teamwork. Furthermore, one of the groups demonstrated the group dynamics at the initial writing stage in which they had high motivation and excitement to collaboratively involve in the text development. However, the situation turned into disappointment and decreased motivation in the following stages. This writing group activity may not benefit their writing motivation and L2 writing improvement. Additionally, the main features of collective scaffolding, including mutual support and equal contribution, may not occur in this group. A similar view is also suggested by Li and Zhu (2013). In virtual collaborative groups, not all students worked collaboratively on the assigned writing tasks, nor did they feel positive attitudes toward this learning experience. The diversity of group members' backgrounds and English proficiency may lead to tension, conflict, and disappointment. Compared to other writing groups in this present research, this type of group may take a longer time in group development to step forward from the early forming group to the transition stage and performing stage. At the stages of group formation and transition, it requires a sufficient foundation of trust and good communication skills among group members to avoid conflicts (Dornyei & Murphey, 2009). In summary, the overall experiences and interactions among group members in the text development activity might influence the students' perception of learning experiences, writing development, and second language learning in general. As a final remark, Such (2019, p. 8) reported that "collaboration was difficult, even impossible if one to two participants in the group did not participate".

6. CONCLUSION

This present research explored the extent to which the collective scaffolding provided in virtual collaborative writing activities helped EFL students complete a writing task and how they responded to this learning activity. The EFL students responded positively to collaborative writing as they engaged in the virtual writing course. The findings revealed that collaborative writing provided collective scaffolding as it allowed the joint construction of the text among group members, L2 improvement, mutual support, and equal contribution through deliberations and teamwork. Despite its collaborative support within collaborative writing, teacher assistance and monitoring cannot be neglected, particularly to maintain the writing

process that works well. Additionally, collaborative writing also developed social and communication skills by respecting other members. Furthermore, many EFL students found collaborative writing an engaging activity, and technology-assisted collaborative writing seems possible and affordable. Meanwhile, a few of them considered collaborative writing ineffective as they experienced constraints, such as time management, internet connection, and unexpected group dynamics. Several groups succeeded in achieving the task and social dimensions; meanwhile, others took more time in group development and text productivity.

These findings may suggest the EFL virtual writing instruction with a collaborative writing project. Writing teachers need to take some consideration in forming a group and in designing a targeted writing task. Although students are assigned to complete the task together and scaffold one another, the presence of the teacher is highly crucial at any stage of writing development, especially to provide feedback and direction. Moreover, the current research has limitations in terms of the teaching context and the number of participants as the investigation was conducted in one classroom during an emergency online/virtual writing course. To generalize the findings, further research should be conducted, particularly research in other EFL writing contexts with specific technological tools/devices. Furthermore, as the writing product of L2 articles was not explored, it is recommended that future researchers examine the articles, particularly in terms of L2 writing development across levels.

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