



www.ijpes.com

ISSN: 2148-9378



A Case Study regarding the Comparison of Collaborative Writing in Digital and Face-to-Face Environments

Osman ÖZDEMİR¹

¹Faculty of Education, Istanbul Sabahattin Zaim University, Turkey  0000-0003-0627-0768

ARTICLE INFO

Article History

Received 02.02.2021

Received in revised form

16.03.2021

Accepted 18.04.2021

Available online:

21.04.2021

ABSTRACT

The present case study aims to compare collaborative writing activities produced on the Padlet website on the internet and in a face-to-face (F2F) environment. This study for which criterion sampling was used included two different groups, both of which were formed with four people. For the triangulation of the case study, texts produced F2F and online, video recordings of the F2F writing process and records of the group interviews conducted after the internet practice. Thus, comparative evaluation regarding various components, such as writing processes, writing achievement, group interaction, creativity, and opinions of participants was performed depending on different data types. The findings suggest that the online environment shone out with advantages, such as time, flexibility, supporting creativity through and multimedia tools, whereas F2F writing offered advantages in communication and simultaneous changes by group members. However, it was detected that online texts were more successful than F2F texts and students' achievement perceptions were higher in their Padlet texts.

© 2021 IJPES. All rights reserved

Keywords:

Collaborative writing, online collaborating, writing environments, group interactions, creativity in writing.

1. Introduction

Writing is a skill area which is defined as a unique learning mode as well as being a complex expression process, involving individuals' choices, constituents affecting these choices, cognitive activities, defining and categorizing those activities during text production (Emig, 1977; Flower & Hayes, 1981; Nystrand, 2006; Rijlaarsdam & Bergh, 2006; Tompkins, 2000). Therefore, using distinct methods and strategies is required in practice and instruction of this complex process necessitating multi-tasking. One of these methods is the collaborative writing method. Mostly based on Vygotsky's theories, collaborative learning is basically multiple students working in a group, finding solutions, understanding and creating a product (Smith & MacGregor, 1992; Wang, 2007). Indeed, Vygotsky (1986) emphasizes the effects of guidance of an adult or collaboration of more competent peers among the factors increasing learning level. In connection, it is quite likely to trace the benefit of collaborative learning in areas requiring competence, creativity and grammar knowledge (Dobao, 2012; Storch, 2005; Storch, 2011; Vanderburg, 2006).

With the increasing technology use in education, patterns for device functions, teacher roles and student behavior change because as technology advances, the ways of producing, acquiring and sharing knowledge evolve. Educational, collaborative works have also been affected by these changes. The current collaborative writing research has increasingly involved the use of technological tools. This multitude of studies indicated

¹ Corresponding author: Faculty of Education, İstanbul Sabahattin Zaim University, Turkey
e-mail: osman.ozdemir@izu.edu.tr

Citation: Özdemir, O. (2021). A Case Study regarding the comparison of collaborative writing in digital and face-to-face environments. *International Journal of Psychology and Educational Studies*, 8(2), 246-258.

<https://dx.doi.org/10.52380/ijpes.2021.8.2.425>

that technological tools and web environments were suitable for collaborative work (Baker, 2000; Bikowski, 2015; Fey, 1997; Hron & Friedrich, 2003; Lamb & Johnson, 2007;) and they respectfully increased writing skill in collaborative writing activities (Dobao, 2012; Li, Chu & Ki, 2014; Dobao, 2014) and that students developed positive attitudes toward collaborative writing in the digital domain (Jeong, 2016; Chao & Lo, 2011).

Padlet is one of the digital platforms where collaborative writing can be performed, representing the virtual version of physical classroom bulletin boards/wall activities (Weller, 2013). In this virtual bulletin board, students can accomplish tasks posted as links by the teacher. As the posts are open to everyone, they can see each other's answers and comment on them. Due to providing simple editing and collaborative learning, it can be easily used for classroom and extensive activities (Williams, Scott & Simone, 2015). For extensive collaborative writing activities, in particular, students need to be present as a group since they are required to complete the whole text together; that is, students need to see every update and make simultaneous contributions. However, this is not always possible; getting together proves difficult concerning time and space. While providing a shared feed view, Padlet allows for simultaneous follow-up for updates, commenting, and contribution through responding to the comments in collaborative writing activities. Therefore, Padlet harbors a potential to serve as an alternative collaborative environment to be effectively used for collaborative writing. Despite this, it is crucial to compare students' opinions for such an environment where F2F interaction is absent to an F2F collaborative writing process. Motivated by this notion, the purpose of this study is to compare F2F and Padlet collaborative processes, which generates the fundamental question, "What is the course of collaborative writing activities done F2F and in Padlet?". Additionally, sub-problems are as follows:

- How do groups compare in written expression levels regarding their collaborative writing products in Padlet and F2F activities?
- How do groups compare in writing experience in Padlet and F2F environments?

2. Method

2.1. Research Method

The research method used in this study was designed as a qualitative case study, which is defined as a detailed examination of a determined phenomenon limited to the context of a system through collecting varied types of data (Baxter & Jack, 2008; Merriam & Tisdell, 2015). In connection, students were initially asked to perform F2F collaborative writing activities and the activity was recorded on video, followed by another collaborative writing on Padlet. Finally, a group interview was administered regarding writing processes in both environments and recorded. Thusly, three distinct data types were used as follows: students' texts in both environments, video recordings of F2F process and group interview voice records.

2.2. Participants

Eight teacher candidates studying Turkish Education were equally divided into two groups. To gather anticipated data, participants were selected based on certain criteria. To serve this purpose, criterion sampling was used. (Miles & Huberman, 1994). Since the participants were selected from the two classes the researcher taught, they were structured into two different groups. The sampling criteria were as follow:

- Students were selected among those having enrolled in and passed written expression course; namely they had knowledge and experience about collaborative and process-based writing.
- In the selection, students' voluntariness, accessibility, and identifiability by the researcher were observed.
- Involvement of students who were level to each other was observed due to the purpose of examining group dynamics and the collaboration process.
- Students with internet access and technological experience were selected in this study.

Table 1. *Participants*

Group 1	Age	Gender
Participant I.	21	Male
Participant II.	21	Female
Participant III.	22	Female
Participant IV.	21	Female
Group 2	Age	Gender
Participant V.	21	Female
Participant VI.	21	Female
Participant VII.	20	Female
Participant VIII.	22	Female

2.3. Data Collection

This research aimed to thoroughly analyze different collected data types in accordance with certain situations. Given data types, observation, interview and document analysis techniques were used. Primarily, student texts written online and F2F were examined in the sense of writing achievement. Next, F2F collaborative writing video records were displayed and group writing behaviors were observed. Another data type collected in the study was the voice records of group interviews, which were transcribed to be analyzed. These records included students' experiences in Padlet and F2F collaborative writing processes, perceptions of these distinct environments and opinions of group dynamics. The interviews were based on structured interview questions (Merriam & Tisdell, 2015). Accordingly, detailed information about the process was sought through 15 structured interview questions asked in the form.

2.4. Data Analysis

In the data analysis, thematic analysis was used. Thematic analysis offers an entirely qualitative, detailed and nuanced explanation of the data (Braun & Clarke, 2006, Vaismoradi & Snelgrove, 2019). For the analyses of written texts, camera recording of F2F writing and group interview records, the thematic analysis method was used. Transcriptions of videos and voices were coded and categorized into themes to be run for thematic analysis based on the determined themes. Since the analysis process aimed to compare two writing environments, codes and themes were generated based on F2F video recordings and group interview records as a whole, and they were analyzed together within the scope of these codes and themes.

2.5. Trustworthiness

Case studies aim to merge different data types to be interpreted. Hence, ensuring the reliability and validity of researcher's interpretations is a vital step to increase the quality of qualitative research since procedures serving to the quality of the research contribute to the integrity of the research by promoting awareness to some extent about the methodological effects of decisions made during the project (Seale, 1999). The interpretive validity was highlighted as this study was constructed as interpretive research. In line with the interpretive validity definition of Maxwell (1992), details portraying participant perspective, such as intention, awareness, impact, belief, evaluation, in this research were sought. Furthermore, many procedures are required for validity and reliability of qualitative interpretations. To increase the validity and reliability of this study, firstly, the triangulation method was used for data diversity, which included collaborative texts of both environments, video record of F2F writing and voice records of group interviews. To ensure trustworthiness, on top of the aforementioned, an external researcher was consulted concerning the data and interpretation made (Miles, Huberman & Saldana, 2014).

2.6. Ethics

Only volunteering participants were selected for this research, before which they were informed both verbally and written that personal information would not be used other than scientific purposes. Anonymity was secured by assigning numbers to participants.

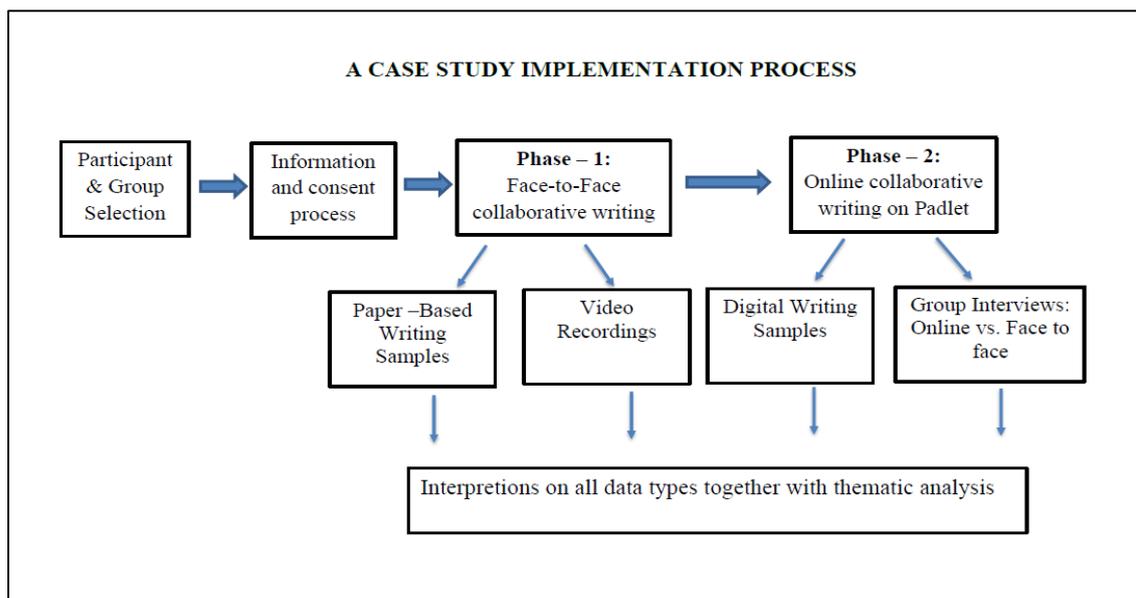


Figure 1. Implementation process

3. Results

The comparison of the F2F and online writing process of the groups were made in the light of groups' texts in different environments, F2F video recordings and post-Padlet group interview voice records. Primarily, codes were formed for texts, voice and video transcriptions. Subsequently, these codes were analyzed following their categorization under certain themes.

Table 2. Codes and themes

Codes	Themes
Preparation Planning Draft Revision	1. Writing processes
Advantages of Padlet Advantages of the face-to-face writing process Disadvantages of Padlet Disadvantages of the face-to-face writing process	2. Advantages & Disadvantages
Group communication Group roles Decision-making processes	3. Interaction
Opinions for writing process Opinions for writing product	4. Perspectives/comments
Creativity offered by Padlet and face-to-face process Opinions for the creativity of text components	5. Creativity
Opinions for participant number Effects of personal relations on collaboration	6. Group Dynamics

3.1. Writing Processes

When texts of the groups were analyzed, it was clearly seen that both groups produced more successful content on Padlet. This detail can be explained under two headings as plan and its reflection on paper. Concerning the plan, groups constructed successful text plans in both environments. However, due to the multitude of ideas taking much time, groups had difficulties finalizing the texts in F2F collaboration, which indicated that they were not as successful at processing the texts as they were at planning. This was confirmed in F2F recordings and group interviews as well. Regarding the processing of contents, Padlet texts were more successful

concerning construction of exposition, climax and resolution, cohesion and textually supporting the given expressions.

Camera recordings and interview transcripts indicated that both groups were careful with employing the stages of process-based writing. In F2F collaborative writing, the 1st group struggled with finishing the text due to failing at forming consensus although they completed preparation and planning stages successfully. Thus, planned conclusion part did not coincide with the actualized text. Participant IV explained this as follows: "Collaborative writing is more advantageous because more and broader ideas are created, but it's hard to meet on a common ground. Everyone values their own idea more. Determining a topic becomes hard." On the other hand, completing all writing stages, the 2nd group could entirely transfer the text construct they determined in the preparation and planning phase onto paper. The main issue mentioned by all the members of the 2nd group while referencing the collaborative writing process was the harmony and communication among the members. The said harmony and effective communication could be seen in video records. Participant VIII described this as the following: "Actually, different ideas were created. Some made depictions and some turned to different things, but I think we eventually made a good thing."

In online collaborative writing, 1st group's disagreements increased; thus, instead of writing altogether, they divided the labor among members, leading to each member writing their part separately and combining the work in the end. Consequently, although Padlet text was more successful than the F2F text, students wrote cooperatively, not collaboratively. Student I quoted: "I drafted the outline, then started writing the text according to the outline. One after another I knew what would happen and where. When I got stuck, I carried on expanding the sentence in the outline and resolved it." While student III continued, "IV and I both corrected spelling mistakes and changed some parts, without disrupting the flow." Therefore, it was seen that the first group achieved group interaction and consensus during text production. The second group, on the other hand, stated that they completely employed collaborative means and each member participated in every stage of the work. Additionally, they reported that they could reflect every writing stage in the online environment. Participant VII narrated the situation as follows: "Let me write whatever I can think of. After all, this story was left to me. I wrote the introduction and after that my friends liked it and continued, you know. This way, everyone wrote as they liked and they were similar. I liked all of them. It was better than face-to-face, I think. ...I did the introduction. I asked, 'This is what I think, is it fine by you?' Then, you know, we developed the side characters together...".

3.2. Advantages & Disadvantages

Both groups considered immediate feedback and developing ideas through discussion in F2F collaboration to be an advantage despite the hardship of generating a text from various perspectives. Indeed, the 1st group highlighted the hardship of reaching an agreement. Thus, some members addressed switching to cooperation while writing on Padlet as an advantage despite their weakening communication. In this case, it is thought that the tendency to avoid discussion due to deep disagreements impacted the first phase of the activity. In fact, upon examining the videos, the discussion hindered the healthy progression of the text. That Padlet text scored more than F2F text supports this deduction for the 1st group. However, acquiring better organization and harmony, 2nd group participants regarded differing opinions as an advantage. No matter the different opinions as evidenced in videos and recordings, students seemed to find ways to compromise, which positively affected the group harmony. Participant VII explained it as: "When one of us was unsatisfied, we tried to do it like this: say we wrote one section, and VI said 'Should we have added this, too?' We tried to insert his/her idea losing as little time as possible because, as we said, there is no end to this. Everyone has an opinion. We tried to connect all of them with sentences. We met in a common ground generally."

Students regarded the emergence of different opinions and constant feedback as a time constraining disadvantage in the F2F process. On the contrary, the flexibility of the online environment allowed for repetitive feedback, making Padlet advantageous and more suitable for the process-based writing approach in students' eyes. Regarding the time constraints, participant I stated: "After every third or fourth sentences we wrote, we turned back and checked it. Is it coherent with the previous paragraph, etc..." However, participant VI commented on the time advantages of the online environment as follows: "Whoever wrote on

Padlet, we logged in to read it, anyway. I constantly revised it. Checked if there were disconnections or defects between sentences.”.

To group 1, insufficient communication on Padlet was regarded as disadvantageous. However, second group members who created a WhatsApp group completed text production on Padlet through instant voice/text chat. At this point, what was declared as a drawback by one group was overcome using a different communication tool. On top of this, 2nd group’s Padlet comments and criticism were answered on WhatsApp since WhatsApp enabled instant messaging and everyone allowed could see the comments. Participant V commented on the issue as: “Padlet comments were answered on WhatsApp because it is more comfortable for privacy,” whereas participant VII stated: “When you write on WhatsApp, you get immediate notification. People can immediately reach you when they want to ask something.”

Since F2F writing took place in a discussion group, first group participants stated that they could change other members’ writing, but on Padlet, due to not seeing the addressee and their reaction, they were hesitant to make changes or criticism. The second group members did not state any problems about making changes. However, participants saw disadvantages in Padlet as it allowed anyone to create a text in the long run, causing members to come across changes every time they log back in. This makes it hard for members to understand the point of the change. Participant VIII explained this as: “I for one write a comment, then a friend logs in and I become unaware, I don’t know about the idea behind the change.” In addition, participant VI added: “Yes, we constantly open (Padlet) and see it’s suddenly changed. What should I write?”

Participants reported shortcomings in the F2F writing process because they needed to complete the text at one session when they got together. On the contrary, they had a chance to log in as many times as they wanted in an extended time to make additions and editing on Padlet. Regarding Padlet, participant I stated: “...It’s already collaborative work, so we take ideas bit by bit and synthesize. Because Turkish Education Program is based on process-based writing, we can better observe our students during group work referencing our own works.” When groups’ written texts in different environments compared in terms of language, style and textuality criteria. In the sense of textuality, no difference can be seen between the texts of both environments. Similarly, language, word choice, expressive styles, consistency, and coherency features showed no distinction in digital or F2F environments.

Comparing F2F and Padlet concerning tools used, both group participants stated that online writing was more advantageous than pen and paper. Main reasons for this are the easier nature of digital writing, which offers alternative ways for changing and editing. Both group members reported that they preferred their mobile phone touch screens while only switching to their computers when they needed bigger screens. They explained this preference with their familiarity and tendency for frequent use of these devices. Participant VI stated: “We generally did it on our phones because phones are more commonly used than computers. We got it done on the phones instead of turning on computers. Because now, our hands are more used to the phone keyboards.”. Although two students reported preference for pen and paper due to their effect on their imagination and motivation, they admitted they finalized their texts on computers. Participant II explained it as: “If I need to write a text, I firstly write it on a notebook with a pen, then I copy it to the computer. It affects my imagination. I can’t improve it.” While participant III rationalized the preference as follows: “Even if it’s social network, I prefer scribbling first. (To write a text) I don’t necessarily need pen and paper. I want to make a draft or outline to remember. I can edit and copy it (to computer) later.”

3.3. Group Interaction

Second group stated that each member played an active role writing processes and they had a fruitful writing experience. As participant VII stated: “I really liked everyone having different opinions. For example, V formed very nice sentences. Like descriptions that made the reader visualize. The depictions were great. Then, VI was good at imagining more action type things. I, for one, put together the sentences and VIII detected the lacks, correcting our mistakes as in ‘Should we do it like this or that?’. Everyone really had very useful roles like that. It wasn’t dominance, passiveness, I don’t know, but there were just different characters, different interpretations.”. As can be seen, the participant describes an ideal collaborative writing process. It can be noticed in F2F writing video recording that although no roles or instructions were given in groups, the process

naturally constructed itself due to group interaction. The main factor here was the components of communication and used language in collaborative writing process. For instance, when participant V made so many descriptions, other members objected by saying “we should diminish descriptions because we’re not writing a novel.” and moved on to creating different ideas without causing any problems. However, first group reported that they had problems in F2F writing as everyone insisted in promoting their own ideas. Based on video recordings, it can be seen that participant I objected to the idea of participant III by saying “very ridiculous idea” and the argument erupting after that influenced the concentration of the group in text writing process.

It is evidenced that language and expressions used in group interactions entirely differed between two groups in F2F writing process. Indirectly, the effects of this situation were reflected upon the online collaboration process. Indeed, 2nd group members attempted to let everyone know about the changes they made online by notifying them about the change on WhatsApp. Participant VIII reported it as follows: “Anyone writing on Padlet immediately let us know. Like saying I added something. We were notified whenever someone wrote something.” On the contrary, due to the heat of the argument in F2F writing process, 1st group members avoided interaction as much as possible. This seems to have affected writing process, writing environment, writing scores and preferences of participants in writing environment.

3.4. Perspectives

Given the perspectives of 1st group participants regarding Padlet and F2F, participant I stated: “Between the two, I choose face-to-face activity but Padlet also was comfortable for writing process”; participant II responded as: “Padlet is not suitable for collaborative writing and I wouldn’t prefer Padlet”; participant III remarked: “I preferred face-to-face collaborative writing because it offers spontaneous communication but provided it can offer communication opportunity with immediate feedback, Padlet can be used”; finally, participant IV stated: “Padlet provides mentally relaxing writing process because it doesn’t have time or space limitations, so I can prefer Padlet.”

Regarding the perspectives of the 2nd group, participant V stated “No matter how successful I find Padlet, finding it more fun, I prefer face-to-face collaborative writing”; participant VI remarked “While ideas get tangled when voiced in face-to-face communication, I prefer Padlet because I can see ideas more orderly and it enables long and good thinking concerning time”; participant VII reported: “In face-to-face communication, I get interrupted when someone voices their idea and I can forget my ideas partially, that’s why I prefer Padlet for collaborative writing”; finally, participant VIII stated “Padlet is more advantageous considering time, and it provides more accurate written product because it supports creative thinking due to offering more time and enables logging in and out to edit.”

When both groups were asked which product was more successful, the 2nd group unanimously remarked that their Padlet story was more successful. 1st group members, however, divided in half in favoring the more successful environment. It was noted that participants’ perspectives of success and writing environment preferences mostly coincided. However, there were instances of preferring F2F writing despite finding online writing process and product successful, and vice versa.

3.5. Creativity

Regarding the improvement of creativity in collaborative writing process, both groups pronounced a two-dimensional relationship between Padlet writing process and creativity. First, creating a written product in a collaborative process requires creativity. Second, creativity of all students improved in the process. However, the following findings were obtained when Padlet and F2F environments were compared in creativity:

Participant number I in the first group claimed that F2F process supported creativity more, basing it off of other members’ remarks during idea forming and writing stages. In F2F video recording, participant II warned others in drafting stage: “That’s so simple, think something different. Let’s change our point of view.”. Others in the group agreed with the suggestion. However, same group members stated they could not make suggestions due to not knowing how others would react in Padlet environment. This could mean that F2F

disagreements negatively affected their Padlet writing process. In connection, participant II underlined this shyness on Padlet despite being able to warn group members in F2F process: "Maybe we can develop the text further, change it but it was all too connected. Once I deleted something, I had to delete everything. I thought such a thing would be rude to other members." The reason for the first group's limited creativity might stem from switching from collaboration to cooperation since members had difficulties commenting on others' work due to the situation where everyone cooperated independently instead of making common decisions. Participant IV commented on this as: "It was already so hard to make changes on Padlet. We had to change what we wanted in draft, exposition, climax and resolution." Consequently, first group members favored F2F writing environment more concerning creativity. Nevertheless, they stated they would prefer Padlet for individual writing process owing to its advantages.

When the 2nd group was asked to compare Padlet and F2F processes, they claimed that Padlet supported creativity in writing more for two reasons. First, Padlet offered more time to think and this enabled them to produce more creative ideas. Second, it provided various stimulating advantages, such as image, audio and video. Indeed, the story written by the group told about a person immigrated to Italy to follow his dreams. To address the character's imaginativeness and development of a part of the plot, participant VII shared "Imagine" by John Lennon, claiming the lyrics of the song could give inspiration for the plot. In addition, as suggested by participant VI, to depict the Italian coastal town the character settled in, they posted the picture of an Italian coastal town on Padlet feed. Participant VI explained this process as follows: "I saw the pictures first while I was writing, I made the descriptions according to that. It helped me. I remember adding the song later. I added it because of its lyrics." Participant V said: "I saw the pictures first while I was writing, I made the descriptions based on that. It was helpful to me." Finally, participant VI added: "I felt it play in my ear as I thought about the story. We might have come up with the title due to the song."

3.6. Group Dynamics

To investigate both groups' progression of group relationships, communication types and group roles in F2F and online environments, F2F video recordings and group interview transcriptions were reviewed. Based on the videos, participants I and III of the 1st group had a big disagreement during F2F process. While participant I insistently tried to impose ideas to others, and while number III intensely objected, number II and IV relatively kept quiet. Following the argument, I and III receded, whereas number II tried to ease the tension and find a compromise. Number IV, on the other hand, was prone to remain passive and uninvolved, only participating when asked a question or he produced an idea. In the group interview, participants stated they shied away from making comments to others' parts to protect their friendship. When asked how groups members being their friends affected their writing, they mentioned no effect regarding their friendship. Number II remarked on the matter: "I don't think closeness affected much. Maybe we'd fail to write that much with strangers or get riled up to argue more fiercely. Or, the opposite, when one of us stated an idea the others would keep quiet, saying nothing (about the argument)" When asked about the participant numbers in groups, they found four to be ideal, stating fewer people could not interact to generate different ideas and more people would make it hard to reach an agreement.

Given the 2nd group F2F video recordings, it was noteworthy that participant VII stood out while number VI mostly advocated VII's ideas. Although number V and VIII frequently participated with their ideas in the process, it seemed that other two participants were more dominant. However, each member shared their opinion, contributing to the text. In the interview, members regarded the group as harmonious concerning group dynamics. Number VII explained this as: "Harmony in the group is more about character. Other than friendship, for example, I have many common tastes with VI. When we want to add something, we both get excited very much. What we like rarely differs. Being on the same page together made things easier." Regarding disagreements, groups members remarked that objections did not cause any problems, highlighting the appropriateness of the language used in communication. Number VIII addressed it as: "This was also nice in our group: There was no bad-mouthing when something was disliked. Nobody was reproachful, everyone spoke supportively. Everyone was mild-mannered, good things happened all the time." Regarding the participant number, the group stated that four people were enough since participants could achieve sufficient interaction and it did not cause idea complicity. However, participant VII suggested that

three of five members would be more suitable because odd numbers would prove advantageous in voting in case of disagreements. When they were asked about the inclusion of a stranger in the group, group members thought there would not be enough interaction, causing problems with uncertainty about what to expect in case of criticizing/rejecting the stranger.

4. Conclusion and Discussion

Based on the results obtained in this study, the findings suggest that online collaborative texts were more successful than F2F texts. In the meantime, students found Padlet texts more successful, underlining the many advantages offered by the online environment. Dominance of success obtained by online texts showed similarities with studies emphasizing the success that various applications (e.g., wikis, Google Docs and Padlet) added to collaborative writing (Baker, 2000; Elola & Oskoz, 2010; Jeong, 2016; Passig & Schwartz, 2007; Wang, 2015).

Participants in both groups gave their best to employ all the stages of process-based writing in both environments. Both groups reported challenges in finalizing the texts due to the hardship caused by the necessity to finish up in one session during F2F practice. Reasons for the failure in achieving sufficient success were as follow: physical and mental fatigue at the final stage due to the obligation to finish the text in one session, complexity of addressing overwhelming number of ideas simultaneously, and potential problems with finding compromise in F2F disagreements. Given that online practice offered more time, that individuals could prepare for evaluating different ideas and that distance enabled more leveled discussion, Padlet and similar digital collaborative writing applications could find solutions for aforementioned disadvantages. As opposed to this, as Tekobbe, Lazcano-Pry and Roen (2012) suggested, participants stated that they disengaged from the order and direction of discussion while offline, and they had difficulties synchronizing after the additions and changes made by other members. This way, the synchronized group interaction in F2F collaborative writing was advantageous.

In addition to providing flexibility in time and space in online collaboration in this study, it was remarked that shareability of distinctive stimulants, such as video, image and audio increased writing achievement. A variety of research in the literature confirmed that online collaborative activities proved advantageous for writing achievement (Awaluddin, Karim & Saad, 2017; Alshalan, 2016; Bikowski & Vithanage, 2016; Garnham, Betts & Hole, 2018; Ramachandiran, & Mahmud, 2018)

Regarding group interaction, although both groups were comprised of close friends, writing processes and group interactions differed in nature. 2nd group members experienced a fruitful writing process and group interaction; however, facing a disagreement during F2F collaboration, the 1st group had a problematic collaboration. This disagreement affected their online writing process, leading to cooperative writing instead of collaborative on Padlet to avoid potential disagreements. It is stated that shared labor that decreases interaction is not a genuine collaborative writing, and all members should actively participate in design and development (Hadjerrouit, 2011). The assumptions for the inability to obtain collaboration in the 1st group could be explained by imbalance in leader-team player distribution defined by Arnold, Ducate and Kost (2012) as four student types, or the gender factor as explained by Scanlon (2000). Concerning both groups' online writings, the findings showed that participants were more positive toward the process; therefore, collaboratively writing students preferred Padlet while cooperative students preferred F2F.

Several studies confirm that Padlet provides adequate social interaction, removing communication barriers (DeWitt, Alias & Siraj, 2015; Ellis, 2015; Fisher, 2017; Fuchs, 2014). However, although groups' Padlet scores were higher in this study, members stated that they needed F2F collaboration or an instant messaging application besides Padlet. On this aspect, the result of this research does not align with aforementioned studies. Moreover, it was stated that participants chose WhatsApp because they did not want some of their comments to be viewed publicly. This can be explained by what Fuchs (2014) remarked for Padlet in terms of lack of anonymity. Similar participant reservations could be observed in Jeong's (2006) collaborative writing study on Google Docs and Baker's (2000) tool-based technology research. On the contrary to other research,

some participants in the study expressed reservations over making change and criticism of Padlet due to not knowing what type of reaction they would have in return.

Given the groups' comments on writing processes, it was revealed that 2nd group students focused more on harmony and social interaction in the writing process, while the 1st group made achievement-based comments. Upon reviewing the literature, online writing activities mostly involved process-oriented actions, perspectives and comments rather than the achievement of writing product, which is proximal to the perspective of 2nd group students (DeWitt, Alias & Siraj, 2015; Ellis, 2015; Fisher, 2017; Fuchs, 2014; Hadjerrouit, 2011; Kessler & Bikowski, 2010; Lowe & Humphrey, 2018). Based on this, positive group interaction, democratic participant and contribution of each member should all be highlighted for online collaborative writing activities.

Providing longer writing duration, recursive additions and editing, and a self-paced nature in online text production contribute to text revision and mistake correction. Thus, web environment promotes flexibility through online time and spatial opportunities and student autonomy (Kessler & Bikowski, 2010). Online collaborative writing can offer a more non-linear writing process. It can be suggested that online collaborative writing is more advantageous in employing process-based writing.

Implementing basic language skills online requires a certain set of skills for the use of digital technologies. Although participants in this study had no prior experience of Padlet use, they were able to use the application both mobile and on computers. This result differed from the findings of the studies conducted by Awaludin, Karim and Saad (2017) and Brodahl, Hadjerrouit and Hansen (2011). The main reason for this outcome is that students participating in this study were familiar with internet applications. Digital literacy skills, as well as the competence required by the research, are effective for such studies to succeed (Özdemir & Açıık, 2019).

Students generally favor digital environments over pen-and-paper for writing since it is easy to write orderly in digital environments and mistakes are more easily corrected. Based on F2F videos, it was seen that students first decided who should write with pen-and-paper, generally assigning one person for the writing. On the other hand, they favored touch screens over keyboards in online writing. They rationalized it, stating they were more familiar with touch screens due to frequent texting. Mangen et al. (2015) and Frangou et al. (2019) stated that the contribution of touchpads to certain cognitive skills is correlated with experience. However, this study revealed that hand-writing was found most beneficial over keyboard and touch-screen. On another note, only two participants remarked the contribution of hand-writing to cognitive skills, while other participants did not mention such detail.

When students' perspectives of writing environments were asked, the findings showed that the 1st group experiencing problems in collaborative writing preferred F2F, while the 2nd group deemed Padlet more preferable. The reasons given by participants for preferring online writing both individually and collaboratively coincides with the research of Elola and Oskoz (2010). However, all the students favoring F2F collaborative writing here, parallel to Ellis' (2015) results, underlined Padlet's contributions to the collaborative and writing process even if they did not prefer it.

Concerning creativity, participants remarked that they could be more creative on online texts. The literature often addresses collaborative writing on Padlet as improving creativity (DeWitt, Alias & Siraj, 2015, Ramachandiran, & Mahmud, 2018; Garnham, Betts & Hole, 2018). Drawing on the data of this study, the relationship between writing on Padlet and creativity can be explained on two points. Firstly, participants stated that they could generate creative ideas and organize them in their time allocated for thinking. Secondly, Padlet made contributions to creative ideas and text development by allowing image and music sharing.

5. Recommendations and Limitations

In this research, peers who knew each other were selected and groups were assigned without any consideration for gender. However, future online collaborative writing research can investigate the effects of gender. In online activities, cooperative and collaborative terms should be differentiated. Especially for group interaction and the amount of contribution of group members, methods best suited for certain situations

should be looked into. In an online collaborative writing context, special research on the effect of multimedia constituents on creativity can be conducted. In this research, it was seen that internet collaboration was appropriate for a process-based writing activity and also its effects on the success in genre-based and process-genre-based writing activities. Given student interaction in internet-based collaborative writing, these interaction types (vocal/written/visual) could be specially investigated in terms of affecting the writing process and text level.

This study was limited in the sense of comparing groups' written products as it focused on the process and perceptions of the participants. Since the present study was conducted with a small number of participants, additional comparative studies with larger groups and quantitative design can provide complementary data for the results of this study to provide valuable insights into the relevant literature.

6. References

- Alshalan, A. M. (2016). *The effects of wiki-based collaborative writing on ESL student's individual writing performance* [Doctoral dissertation, Graduate School of Wayne State University Detroit, Michigan]. https://digitalcommons.wayne.edu/cgi/viewcontent.cgi?article=2508&context=oa_dissertations
- Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision processes in wikis. *Calico Journal*, 29(3), 431-448. <https://doi.org/10.11139/cj.29.3.431-448>
- Awaludin, F. A., Karim, R., & Saad, N. H. (2017). Padlet: A digital collaborative tool for academic writing. *Journal of Education and Social Sciences*, 8(1), 179-184. https://www.jesoc.com/wp-content/uploads/2017/12/KC8_84.pdf
- Baker, E. B. (2000). Integrating literacy and tool-based technologies: Examining the successes and challenges. *Computers in the Schools*, 16(2), 73-89. https://doi.org/10.1300/J025v16n02_08
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, 13(4), 544-559. <https://nsuworks.nova.edu/tqr/vol13/iss4/2>
- Bikowski, D. (2015). The Pedagogy of Collaboration: teaching effectively within an evolving technology landscape. *Innovation in English language teacher education*, 223-231. https://www.teachingenglish.org.uk/sites/teacheng/files/pub_Tec14%20Papers%20Final%20online.pdf#page=223
- Bikowski, D., & Vithanage, R. (2016). Effects of web-based collaborative writing on individual L2 writing development. *Language Learning & Technology*, 20(1), 79-99. <http://llt.msu.edu/issues/february2016/bikowskivithanage.pdf>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Brodahl, C., Hadjerrouit, S., & Hansen, N. K. (2011). Collaborative writing with Web 2.0 technologies: education students' perceptions. *Journal of Information Technology Education: Innovations in Practice*, 10(18), 73-103. <https://doi.org/10.28945/1384>
- Chao, Y. C. J., & Lo, H. C. (2011). Students' perceptions of Wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environments*, 19(4), 395-411. <https://doi.org/10.1080/10494820903298662>
- DeWitt, D., Alias, N., & Siraj, S. (2015 May). Collaborative learning: Interactive debates using padlet in a higher education institution. In *International Educational Technology Conference (IETC 2015)*, Istanbul, Turkey. http://eprints.um.edu.my/13630/1/971662_Journal-Submission_WN.pdf
- Dobao, A. F. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of second language writing*, 21(1), 40-58. <https://doi.org/10.1016/j.jslw.2011.12.002>
- Dobao, A. F. (2014). Attention to form in collaborative writing tasks: Comparing pair and small group interaction. *Canadian Modern Language Review*, 70(2), 158-187. <http://dx.doi.org/10.3138/cmlr.1768>

- Ellis, D. (2015, October). Using Padlet to increase student engagement in lectures. In *14th European Conference on e-Learning: ECEL2015* (pp. 195-198). Academic Conferences and Publishing Limited. <http://www.academic-conferences.org/conferences/ecel/>
- Elola, I., Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology*, 14(3), 51-71. <https://www.learntechlib.org/p/52235/>
- Emig, J. (1977). Writing as a mode of learning. *College composition and communication*, 28(2), 122-128. <https://doi.org/10.2307/356095>
- Fey, M. H. (1997). Sharing writing through computer networking. *Reading & Writing Quarterly: Overcoming Learning Difficulties*, 13(4), 383-388. <https://doi.org/10.1080/1057356970130408>
- Fisher, C. D. (2017). Padlet: An Online Tool for Learner Engagement and Collaboration, Available at <https://padlet.com>.
- Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College composition and communication*, 32(4), 365-387. <https://doi.org/10.2307/356600>
- Frangou, S. M., Wikgren, J., Sintonen, S., Kairaluoma, L., & Vasari, P. (2019). The effect of writing modality on recollection in children and adolescents. *Research in Learning Technology*, 27, 1-13. <https://doi.org/10.25304/rlt.v27.2239>
- Fuchs, B. (2014). The writing is on the wall: using Padlet for whole-class engagement. *LOEX Quarterly*, 40(4), 7-9.
- Garnham, W. A., Betts, T., & Hole, A. (2018). The Padlet project: fostering creativity, engagement and digital literacy in seminar teaching. *HEA Action-Research: Sector Case Studies*, 59-64.
- Hadjerrouit, S. (2011). A collaborative writing approach to wikis: Design, implementation, and evaluation. *Journal of Information Technology Education: Innovations in Practice*, 8(30) 431 – 449. <https://doi.org/10.28945/1432>
- Hron, A., & Friedrich, H. F. (2003). A review of web-based collaborative learning: factors beyond technology. *Journal of Computer Assisted Learning*, 19(1), 70-79. <https://doi.org/10.1046/j.0266-4909.2002.00007.x>
- Jeong, K. O. (2016). A study on the integration of Google Docs as a web-based collaborative learning platform in EFL writing instruction. *Indian Journal of Science and Technology*, 9(39), 1-7. <https://doi.org/10.17485/ijst/2016/v9i39/103239>
- Kessler, G., & Bikowski, D. (2010). Developing collaborative autonomous learning abilities in computer mediated language learning: Attention to meaning among students in wiki space. *Computer Assisted Language Learning*, 23(1), 41-58. <https://doi.org/10.1080/09588220903467335>
- Lamb, A., & Johnson, L. (2007). An information skills workout: Wikis and collaborative writing. *Teacher Librarian*, 34(5), 57 – 71.
- Li, X., Chu, S. K., & Ki, W. W. (2014). The effects of a wiki-based collaborative process writing pedagogy on writing ability and attitudes among upper primary school students in Mainland China. *Computers & Education*, 77, 151-169. <https://doi.org/10.1016/j.compedu.2014.04.019>
- Lowe, T., & Humphrey, O. (2018). A Platform for Partnership: A Technology Review of the Padlet sharing platform. *The Journal of Educational Innovation, Partnership and Change*, 4(1). <https://doi.org/10.21100/jeipc.v4i1.706>
- Mangen, A., Anda, L. G., Oxborough, G. H., & Brønnick, K. (2015). Handwriting versus keyboard writing: effect on word recall. *Journal of writing research*, 7(2), 227-247. <https://doi.org/10.17239/jowr-2015.07.02.1>
- Maxwell, J. (1992). Understanding and validity in qualitative research. *Harvard educational review*, 62(3), 279-301. <https://doi.org/10.17763/haer.62.3.8323320856251826>

- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. San Francisco: John Wiley & Sons.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. California: Sage.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook*. California: Sage.
- Nystrand, M. (2006). The social and historical context for writing research. In Charles A. McArthur, Steve Graham and Jill Fitzgerald (Ed) *Handbook of writing research*, (pp.11-27). Newyork: Guilford Press.
- Özdemir, O., & Açıık, F. (2019). Development of written expression skills with flipped learning instruction: an embedded mixed method study. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 34(4), 1075-1091.
- Passig, D., & Schwartz, G. (2007). Collaborative writing: Online versus frontal. *International Journal on E-Learning*, 6(3), 395-412. <https://www.learntechlib.org/primary/p/22819/>
- Ramachandiran, C. R., & Mahmud, M. M. (2018). Padlet: A Technology Tool for the 21st Century Students Skills Assessment. *vol, 1, 8*. <https://doi.org/10.26499/iceap.v1i1.81>
- Rijlaarsdam, G., & Van den Bergh, H. (2006). Writing process theory. In Charles A. McArthur (Ed). *Handbook of writing research*, (41-53). Newyork: Guilford Press.
- Scanlon, E. (2000). How gender influences learners working collaboratively with science simulations. *Learning and Instruction*, 10(6), 463-481. [https://doi.org/10.1016/S0959-4752\(00\)00009-8](https://doi.org/10.1016/S0959-4752(00)00009-8)
- Seale, C. (1999). Quality in qualitative research. *Qualitative inquiry*, 5(4), 465-478. <https://doi.org/10.1177/107780049900500402>
- Smith, B. L., & MacGregor, J. T. (1992). What is collaborative learning. *Towards the Virtual University: International Online Learning Perspectives*, 217-232.
- Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of second language writing*, 14(3), 153-173. <https://doi.org/10.1016/j.jslw.2005.05.002>
- Storch, N. (2011). Collaborative writing in L2 contexts: Processes, outcomes, and future directions. *Annual review of applied linguistics*, 31, 275-288.
- Tekobbe, C., Lazcano-Pry, Y., & Roen, D. (2012). Collaborative learning and writing in digital environments. In K. M. Hunzer (Ed.), *Collaborative learning and writing: Essays on using small groups in teaching English and composition* (pp. 87-98). Jefforson: McFarland & Company, Inc.
- Tompkins, G. (2000). *Teaching writing: Balancing process and product*. 3rd Edition, New Jersey: Prentice – Hall Inc.
- Vaismoradi, M., & Snelgrove, S. (2019, September). Theme in qualitative content analysis and thematic analysis. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 20, No. 3). <https://www.qualitative-research.net/index.php/fqs/article/view/3376/4471>
- Vanderburg, R. M. (2006). Reviewing research on teaching writing based on Vygotsky's theories: What we can learn. *Reading & Writing Quarterly*, 22(4), 375-393. <https://doi.org/10.1080/10573560500455778>
- Vygotsky, L. S. (1986). *Thought and language* (A. Kozulin, trans.). Cambridge: MIT Press.
- Wang, L. (2007). Sociocultural learning theories and information literacy teaching activities in higher education. *Reference & User Services Quarterly*, 47(2), 149-158. <https://doi.org/10.5860/rusq.47n2.149>
- Wang, Y. C. (2015). Promoting collaborative writing through wikis: A new approach for advancing innovative and active learning in an ESP context. *Computer Assisted Language Learning*, 28(6), 499-512.
- Weller, A. (2013). The use of Web 2.0 technology for pre-service teacher learning in science education. *Research in Teacher education*, 3(2), 40-46.
- Williams, L., Scott, K., & Simone, D. (2015). SocialNetworks: Making nonfiction trend in your classroom. *The Reading Teacher*, 69(2), 181-188. <https://doi.org/10.1002/trtr.1357>