

# The Effects of Online Collaborative Writing on Learners' Online Writing Performance and Writing Attitude

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**Abstract:** *This study investigated the effects of online Collaborative Writing (CW) on learners' L2 writing performance and their L2 writing attitude. The study included 76 students; 37 of the students were A1 level and 39 students were A2 level in a preparatory school at a foundation university in Istanbul. Both of these student levels were divided into control and experimental groups in two intact classes. In the control groups learners completed writing tasks individually. Same tasks were carried out by learners collaboratively in the experimental group as a group of four or five on Microsoft Teams platform. The study lasted 7 weeks and included a pretest and posttest. The quality of the writings was evaluated by a rubric used in preparatory school that assessed content, grammar, vocabulary, organization, and spelling quality. The results for the quantitative data showed that students who participated in online collaborative writing activities performed better in writing than their counterparts. In order to support the quantitative data, all of the experimental group participants were given a written interview after the study. Additionally, 5 randomly chosen volunteer students from both levels were interviewed orally to strengthen the findings. The results showed that the learners tend to have positive attitudes towards online collaborative writing tasks and benefitted from online group participation in their writing tasks.*

**Keywords:** Collaborative Writing; Collaborative Learning; Online Education; Online Collaborative Writing; Group Work

## 1. INTRODUCTION

Writing when compared to listening, reading, and speaking, is thought to be an individual task that necessitates accumulated knowledge about a topic, awareness of grammar rules, and prior knowledge of L2 (second language). Writers are expected to create their final product by gathering information and choosing the right lexical items following several steps of writing. In many ESL and EFL classes, it is observed that learners are usually reluctant to take part in the writing process regardless of their language proficiency level. Especially learners with low levels of L2 are usually more discouraged by this challenge, which results in lack of self-esteem. Collaborative writing tasks can be a solution to the challenging writing task by turning it into a manageable group task. Olsen and Kagan (1992, cited in Oxford, R.E.B.E.C.C.A.L.1997) define collaborative learning as an organized group activity in which the learning process is maintained through a socially structured exchange of information between group members. Also, in group interaction each learner is responsible for his or her learning and is a resource for the learning of others. Storch (2013: 23) stated that collaborative writing technique creates a possibility for learners to receive or give immediate feedback naturally about the entire writing process which is more useful for the linguistic and cognitive development of learners when compared to the teacher feedback. Subsequently, the feeling of shared responsibility in the writing process as well as the direct and immediate feedback between learners can improve learners' writing skills.

Due to the complexity of writing, learners usually have negative attitude towards writing tasks regardless of their proficiency levels which causes poor writing performance. According to Johnson et al (1994: 4), writers cooperate to accomplish shared goals. Each group member seeks outcomes beneficial to everyone in the group to produce a final draft by maximizing not only their own but also others' learning, unlike the practice of traditional solo writing. With the help of the collaborative writing approach, it is possible to mitigate the common perception of writing difficulty and writing anxiety by increasing the contribution and responsibility of each learner in the writing process.

Istifci and Kaya (2011) stressed that technology-based online collaborative learning environment creates mobility and reduce the time and place dependence for teachers and learners. Thus, collaborative writing does not have to take place only face-to-face in language classes. Along with technological advancements, collaboration can also be achieved in an internet environment as well. For EFL learners or teachers, many sources like blogs, channels, clubs, or classes can create an opportunity for autonomous learning opportunities. Riley (2000, cited in Pardede, 2012) claimed that learners can benefit from unlimited online tools to reduce teacher interruption and gain autonomy which allows an increase in academic achievement. Therefore, online language education through some channels like Moodle or Microsoft Teams can become a fertile ground for language learning and writing experiences. To increase the advantages of collaboration in writing, simulating a traditional classroom environment via Microsoft Teams can be rewarding for improving writing skills. Microsoft Teams is an application that allows group and class conversations as well as file or screen sharing features where learners can easily work together for a common goal such as a writing task. They can gather their

ideas, brainstorm, or give feedback to each other as a group. Therefore, the present study will explore the performance differences between individual and collaborative writing assignments in an online environment in Covid 19's distance education. For assessment, participants' writings are evaluated individually in terms of content, grammar, vocabulary, organization, and spelling in a numerical rubric utilized in the preparatory school of a foundation university where the study is carried out. Additionally, this study also aims to understand more about learners' attitudes towards online collaborative writing, because our perceptions also impact our writing performance.

**The research questions** are as follows:

### 1.1 Research Questions

- 1) Are there any statistically significant differences between the pre-test and post-test results of A1 and A2 proficiency level experimental groups in terms of content, grammar, vocabulary, organization, and spelling?
- 2) Is there a statistically significant difference between the pre-test and the post-test results of A1 and A2 proficiency level experiment and control group learners?
- 3) What are the attitudes of experimental group participants about online collaborative writing after having the first-hand collaborative writing experience?

## 2. LITERATURE REVIEW

Literature review will include Collaborative Learning, Computer Supported Collaborative Learning, and Collaborative Writing as important elements of group writing endeavors. These different subheadings will highlight the impact of collaborative writing on the L2 writing performance as well as the attitude projected to the L2 writing.

### 2.1 Collaborative Learning

Collaborative learning has an indispensable role in EFL and ESL classes as language learning requires social interaction and group engagement. There are several ways of collaboration in L2 classrooms: peer collaboration, pair collaboration, group collaboration, online collaboration, collaboration with native and non-native speakers and so on. Kagan (1989, cited in Panitz, 1999) defines collaborative learning as an approach that depends on structures of creation through content-free social integration in the classroom. Collaborative learning enables learners to help their peers improve themselves. It also facilitates social interaction among learners. It eliminates competition among them since when success is achieved, it will not be an individual success but a shared one. Therefore, it also promotes social outcome through problem solving and critical thinking skills among learners.

According to socio-psychological approach, collaborative learning shapes interdependence. Students are eager to see each other's achievement and assist their peers to accomplish a task. Therefore, learning together positively influences learners' social skills. In the context of a challenging task, it requires students to concentrate on a single outcome as a group. Thus, the shared responsibility of collaborative learning increases group connection between members as well as reducing the individual's performance anxiety experienced in solo tasks.

Many social constructivists like Vygotsky, Dewey and Freire believed that language learning can only be achieved through social interaction which shows the limitations of an individual outside of the social context. From a constructivist viewpoint, written and oral communication always include more than one person. Therefore, one can only learn the target language in a limited fashion through teacher-centered styles. Vygotsky (1978) asserts that people can only develop themselves to a fuller extent through social interaction. A person needs an assistance to improve the cognitive and linguistic skills as it is the case for a child and benefits from the guidance of a more knowledgeable other known as scaffolding. According to Shooshtari & Mir (2014), scaffolding enables the learner to gain more authority in the learning process as extra support by the teacher is geared and is slowly reduced. Thus, in L2 learning, group or pair work is crucial in improving the cognitive and linguistic skills of a learner. Similarly, peer feedback is an effective teaching strategy and an initiator of learning autonomy. It disburdens learners' language challenges and initiates positive interdependence by bringing together group members for achieving a goal collaboratively. According to Noreen Webb (1982: 643), peer assistance can improve the academic achievement of a learner more effectively than teacher intervention, because peer feedback enables a learner to take more responsibility.

### 2.2 Computer Supported Collaborative Learning (CSCL)

Computer Supported Collaborative Learning (CSCL) is an important technological tool that requires highlighting because rapid development in technology made CSCL a fundamental part in L2 language learning. This advanced technology provides many sources not only for learners but also for teachers. Akgün and Akkoyunlu (2013) asserted that CSCL environment provides learners many opportunities to gain autonomy in their own learning process. Learners automatically become more active in a group environment and feel responsible for each other. Learners generally express a tendency of obligation to take part in the proposed activities. Haythornwaite (1999) claimed that unlike face-to-face collaboration, CSCL reduces social anxiety and enables learners to collaborate without group size restriction. It can be more challenging to respond to class members or correct their peers' mistakes in a large classroom space where the teacher is omni-present. On the contrary group atmosphere of CSCL can be much less threatening and become more sincere to share

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views. Because it is an online environment it can assist socially anxious learners in expressing themselves more easily. Also, a group will be a much smaller unit than an actual classroom which is likely to provide more comfort to shy students as well as providing more opportunities for each learner to contribute to the project at hand.

Despite many benefits of face-to-face education, it presents a fixed physical location with a predetermined time schedule. Students might be bored or feel obligated about the fixed nature of the learning transaction. Collaboration through technological devices on the other hand provides learners with a more flexible learning environment. Today, smartphones alone have all the features of computers, and they are portable devices that provide flexibility in learning. Kreijns, Kirschner & Jochems (2002) argues that collaboration do not necessarily have to be face-to-face. It is possible to collaborate via technology anytime anywhere which makes learning more flexible and less stressful.

Collaborative Writing is less common in comparison to the teaching of other skills. This is because of the presence of the traditional teaching dogmatizing writing as an individual labor of the student. Group activity or collaborative learning do not appear as second nature like speaking classes. However, today more and more language educators realize the potential collaborative writing presents to language learners. Storch (2005: 154) defines collaborative writing as a shared authorization of learners to reach the final product. Learners do not only take equal responsibility but also, they attain ownership of a written product. The feeling of ownership increases the willingness of learners to take part and contribute to the task at hand. Since there are many sub skills to consider in writing, it is generally considered by L2 learners as a discouraging task to engage in. According to Erkan and Saban (2011), to accomplish a writing task, learners need to have certain linguistic and vocabulary knowledge. Therefore, especially unskilled writers need motivational, cognitive, and linguistic support to complete the writing tasks without anxiety. Collaborative writing provides a relief of anxiety for the less proficient student. Kim (2010, cited in Challob, Bakar and Latif, 2016) asserts that with the help of collaborative writing, learners can get direct feedback spontaneously during the process. This assistance can motivate learners to take an active part in their learning process and gain more autonomy. Li (2018) asserted that collaboration during writing can be useful for learners when they consult each other for the meaning and come up with a final linguistic choice. Additionally, unlike individual writing, learners who take part in collaborative writing activities can improve their grammatical accuracy through the supervision of their peers. Fung (2010) claims that collaborative writing process helps learners gain different perspectives about a topic so that they can generate ideas more effectively. Hence, learners take more responsibility, feel more comfortable and become more eager to contribute to the development of the writing task.

### **3. METHODOLOGY**

This chapter will start with the detail explanation of the research design and continue with population and sampling. Then, data collection instruments as well as data analysis will be presented.

Research design includes both quantitative and qualitative research design in order to support quantitative data analysis with a qualitative focus. This study employs a case study approach as it aims to gather the target data to seek an answer to the problem. According to Crowe, Cresswell, Robertson, Huby, Avery, and Sheikh (2011: 1), a case study is an approach that is applied to get a deeper understanding of a complicated issue in a natural context, so it is also called naturalistic approach. To understand the effect of collaborative writing experience, the 76 students participated in the study. 37 of the students were A1 level and 39 students were A2 level in a preparatory school. Students in each level were divided into control and experimental groups.

For the quantitative data, pre-test and post-test design was used to compare the results of control and experimental groups. The first session of the study lasted 7 weeks and consisted of A1 proficiency level students who were divided into experimental and control groups. Before the intervention, both the control and experimental groups were given a pretest. The experimental group members were divided into 4 groups with 5 members to participate in online collaborative writing. Every week they came together to write a paragraph collaboratively on Microsoft Teams platform. After the online collaborative writing session, all the writings were shown to everyone in the classroom and mistakes were found by the peers. After 7 weeks, the same procedure that was carried out for A1 level was also repeated with A2 proficiency level group. After the study, both groups were given a posttest.

To collect the qualitative data, experimental group participants were given a written interview to understand participants' diverse experiences as a result of participating in a collaborative writing project. Written interview carried out with the experimental group participants provided general ideas about the collaborative writing process. In order to get more detailed responses from experimental group members, the researcher requested volunteers from the experimental groups for an oral interview in order to cross check the themes gathered from the written interview and also to get a deeper and closer understanding of the attitudes of the students towards online collaborative writing tasks. Oral interviews were carried out with five volunteers from the experimental groups who nominated themselves upon the request of the instructor/researcher. These qualitative parts of the data collection aimed to better understand the experience of shared writing experience from the lenses of the collaborative writing group members.

#### **3.1 Population and Sampling**

Population and Sampling constitutes an important part of any research undertaking because it informs about the selection procedures utilized in the study. The participants of the study are selected from an English Preparatory school in a foundation University in Istanbul in the 2021 fall semester by random selection technique. This study focuses on two target populations: A1 and A2 proficiency level students. The first session was conducted with randomly selected A1 students. The experimental group consisted of 18 students. The control group included 19 students. The second session was carried out after seven weeks of the first quarter of the Preparatory school with different randomly selected A2 level students. While the experimental group consisted of 20 students, the control group included 19 students.

Data Collection Instruments provides information about how the data is obtained in a study. The quantitative data was collected through pretests and posttests. The aim was to understand if there was any improvement in the writing subskills of the experimental groups in A1 and A2 levels and to understand whether there was a significant difference between the control and experimental groups' writing performances. The assessments were done by two experienced instructors in the university through rubric utilized in the preparatory school of the same university research is carried out.

The qualitative data was collected through a written and an oral interview. The written interview was given to all experimental group participants who participated in online collaborative writing tasks for 7 weeks in order to understand their attitudes towards online collaboration in writing after the experience ended. To strengthen the information gathered from of the written interview and also to cross check the data, 5 random students who volunteered were interviewed orally.

### 3.2 Data Analysis

Data Analysis is important for any research because it interprets what the data means for the researcher. For the quantitative data, SPSS 25 program was used to analyze the data of the research. Arithmetic means and standard variation were used in statistical analysis. As a result of the normality analysis, normality was not achieved in the control group content sub-factor of the A1 level, and the content sub-factor of the A2 level, and total scores were normal. While the results of normality analysis were being checked, Shapiro Wilk test results were considered since the number of participants was under 30 (Can, 2014) and p-value was examined. Normality cannot be achieved in the spelling sub-factor at the A2 proficiency level. That is why Skewness and Kurtosis values were examined. Those values were found to be -0.12 for Skewness and -0.207 for Kurtosis. According to Tabachnick and Fidell (2007), it is possible to consider that data is distributed normally if the Skewness and Kurtosis coefficients value between -1,5 and +1.5. For the inter-rater reliability, Cohen's Kappa coefficient was calculated. In this study, Wilcoxin Sign Rank test, T-Test for associated samples and T-Test for unrelated samples was used to compare the participants' scores. Effect size values were also calculated to compare the scores. While effect size is interpreted as very large if it is above one; if it is evaluated as 0.8, the effect is large, if it is evaluated as 0.5, the effect is medium, and if it is evaluated as 0.2, the effect is minor effects (Can, 2014).

For the qualitative data analysis, students' responses from the written interviews and oral interviews were elicited through categorization. This helped emerge the as main ideas and themes. Qualitative data is was gathered to support or contradict the data captured from the quantitative data. In a study such as this one, it is necessary to go beyond numbers and try to understand the experience of participants in the collaborative writing experiment qualitatively. This is crucial because the quantitative data already confirmed that collaborative writing group performed better than the individually performing students. However, we cannot understand what the online writing experience meant for learners unless we engage a written interview and oral interview.

### 4. FINDINGS

In this section, inter-rater reliability of the two raters are shown in a table for A1 and A2 proficiency levels. Then, pretest and posttest results will be examined in light of the research questions.

In this study, SPSS 25 program was used to analyze the data of the research for the quantitative data. Cohen's Kappa Coefficient was used to assure the reliability of the scores given by two raters who were experienced instructors. Landis and Koch (1977, cited in Can, 2014) considered weak fit for values of 0.20 and below, values in the range of 0.21-0.40 points are considered the middle fit, the 0.41-0.60-point range is a moderate agreement, the range of 0.61-0.80 points were recommended as a good level of adaptation, and finally the range of 0.81 and 1.00 as a very good level of adjustment. Additionally, the 1 point obtained as a result of the calculation shows full harmony. Cohen's Kappa Coefficient scores, which is the coefficient agreement between raters of A1 and A2 groups are given below in Table 1 and 2.

**Table 1.** The Results of A1 group Cohen's Kappa Coefficient

A1 Level Class			K
Pre-Test	Control Group	Content	0.902

Post-test	Experimental Group	Grammar	0.850
		Vocabulary	0.754
		Organization	0.919
		Spelling	0.836
		Content	0.786
	Control Group	Grammar	0.837
		Vocabulary	0.913
		Organization	0.912
		Spelling	0.914
		Content	0.876
Experimental Group	Grammar	0.867	
	Vocabulary	0.814	
	Organization	0.804	
	Spelling	0.925	
	Content	0.833	
Experimental Group	Grammar	0.724	
	Vocabulary	0.795	
	Organization	0.847	
	Spelling	0.894	
	Content	0.894	

**Table 2.** The Results of A2 group Cohen's Kappa Coefficient

A2 Level Class		K	
Pre-Test	Control Group	Content	1
		Grammar	0.743
		Vocabulary	0.878
		Organization	0.752
		Spelling	1
	Experiment Group	Content	1

		Grammar	0.784
		Vocabulary	0.841
		Organization	1
		Spelling	1
Post-Test	Control Group	Content	1
		Grammar	0.880
		Vocabulary	0.736
		Organization	1
		Spelling	1
	Experiment Group	Content	1
		Grammar	0.864
		Vocabulary	0.737
		Organization	0.833
		Spelling	1

#### 4.1 The Findings of the Data Analysis Relating to the First Research Question

Are there any statistically significant differences between the pre-test and post-test results of A1 and A2 level experimental groups in terms of content, grammar, vocabulary, organization, and spelling?

In order to understand whether there is a statistically significant difference between the pre-test and post-test results of the members of A1 level experimental group in terms of content factor, Wilcoxon Signed-Rank Test was conducted. The results are presented in Table 3.

**Table 3.** Results of the Wilcoxon Signed-Rank Test conducted for the Pre-test and Post-test Results of the Content Factor for A1 level

End Measurement- Initial Measurement	N	Avarage Rank	Rank Sum	Z	P
Negative Ranks	1	1	1		
Positive Ranks	15	9	135	-3.539	0
No Difference	2				

According to the results of the Wilcoxon Signed Ranks test that was conducted to understand whether there is a statistically significant difference between the pre-test and the post-test results of the A1 experimental group students. A statistically significant

difference was observed between the Pre-test and Post-test results [ $z=-3.539$ ,  $p<0,05$ ] of online collaborative writing participants in terms of 'content factor'. The different scores in favor of the positive ranks (post-test) proves that the program has a statistically significant effect in terms of effectiveness.

In order to understand whether there is a statistically significant difference between the pre-test and post-test results of the members of A1 level experimental group in terms of grammar factor, T-Test was conducted. The results are presented in Table 4.

**Table 4.** T-Test Results for Associated Samples for Pre-Test and Post-test Results of Grammar Factor for A1 Level

	N	X	S	Sd	t	P
Pre-Test	18	17.28	1.41	17	-9.16	0
Post-Test	18	21.67	1.81			

To compare the pre-test and the post-test results performed after the treatment for 18 students who participated in online collaborative writing activities, found a high impact for 'grammar factor'. As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=17.28$ ) and the Post-test ( $X_{post-test}=21.67$ ). [ $t(17)=-9.16$ ,  $p<0.05$ ] The effect size ( $d=2.16$ ) indicates that this difference was very high.

In order to understand whether there is a statistically significant difference between the pre-test and post-test results of the members of A1 level experimental group in terms of vocabulary factor, T-Test was conducted. The results are shown in Table 5.

**Table 5.** T-Test Results for the Associated Samples for the Pre-test and Post-test Results of the Vocabulary Factor for A1 Level

	N	X	S	Sd	T	P
Pre-Test	18	17.22	1.23	17	-8.46	0
Post- Test	18	23.11	2.35			

As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=17.22$ ) and the Post-test ( $X_{Post-test}=23.11$ ) of the experimental group of A1. [ $t(17)=-8.46$ ,  $p<0.05$ ] The effect size ( $d=1.99$ ) was very high for 'vocabulary factor'.

In order to understand whether there is a statistically significant difference between the pre-test and post-test results of the members of A1 level experimental group in terms of organization factor, T-Test was conducted. The results are shown in Table 6.

**Table 6.** T-Test Results for Associated Samples for the Organization Factor's Pre-test and Post-Test Results for A1 Level

	N	X	S	Sd	T	P
Pre-Test	18	14.39	1.56	17	-7.47	0
Post-Test	18	18.22	1.88			

As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pretest}=14.39$ ) and the Post-test ( $X_{posttest}=18.22$ ) for the experimental A1 group. [ $t(17)=-7.47$ ,  $p<0.05$ ]. The effect size ( $d=1.76$ ) was very high for 'organization factor'.

In order to understand whether there is a statistically significant difference between the pre-test and post-test results of the members of A1 level experimental group in terms of spelling factor, T-Test was conducted. The results are shown in Table 7.

**Table 7.** T-Test Results for Related Samples for Pre-test and Post-test Results of Spelling Factor for A1 Level

	N	X	S	Sd	T	P
Pre-Test	18	5.78	0.61	17	-3.59	0.002
Post-Test	18	6.61	0.81			

As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pretest}=5.78$ ) and the Post-test ( $X_{posttest}=6.61$ ). [ $t(17)=-3.59$ ,  $p<0.05$ ] for A1 experimental group. The effect size ( $d=0.85$ ) was very high for 'spelling factor'.

In order to compare the pretest and posttest results of A2 proficiency level, a T-test and Wilcoxon Signed-Rank Test were conducted. The t-test results showed that there is a statistically significant difference between the pre-test and post-test results of the experimental group in terms of grammar, vocabulary, organization, and spelling. The Wilcoxon Signed-Rank Test shows that there is no statistically significant difference in the content factor. The results of the Wilcoxon Signed-rank test for the content factor for A2 level experimental group are presented in Table 8.

**Table 8.** Results of the Wilcoxon Signed-Rank Test conducted for the pre-test and Post-test results of the content factor for A2 Level

End Measurement-Initial Measurement	N	Avarage Rank	Rank Sum	Z	P
Negative Ranks	0	0	1		
Positive Ranks	4	2.5	10	-1.857	0.063
No Difference	16				

According to the Wilcoxon Signed-Ranks test results, there is no statistically significant difference between the pre-test and post-test results of the A2 level experimental group [ $z=-1.857$ ,  $p>0,05$ ] for the 'content factor'.

Table 9 shows the t-test results for associated samples for pre-test and post-test results of grammar factor.

**Table 9.** T-Test Results for Associated Samples for Pre-Test and Post-Test Results of Grammar Factor for A2 Level

	N	X	S	Sd	T	P
Pre-Test	20	16.35	1.843	19	-8.878	0
Post-Test	20	21.4	1.429			

pre-test and post-test results of the A2 level experimental group of 20 students were compared to pinpoint the effect of the treatment. As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=16.35$ ) and Post-test ( $X_{post-test}= 21.4$ ) for 'grammar factor'. [ $t_{(19)}= -9.16$ ,  $p<0.05$ ]The effect size ( $d= 1.98$ ) this difference was very high.

Table 10 shows the t-test results for the associated samples for the pre-test and post-test results of the vocabulary factor for A2 level participants.

**Table 10.** T-Test Results for the Associated Samples for the Pre-test and Post-test Results of theVocabulary Factor for A2 Level



	N	X	S	Sd	t	p
Pre-Test	20	14.39	1.56	17	-8.46	0
Post-Test	20	18.22	1.88			

As a result of the T-Test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=17.22$ ) and Post-test of A2 level for 'vocabulary factor' ( $X_{post-test}= 23.11$ ) [ $t_{(19)}=-8.46$ ,  $p<0.05$ ]. The effect size ( $d=1.99$ ) of this difference was very high.

Table 11 shows the t-test results for the associated samples for the pre-test and post-test results of the organization factor for A2 level participants.

**Table 11.** T-Test Results for the Associated Samples for the Pre-test and Post-test Results of the Organization Factor for A2 Level

	N	X	S	Sd	T	p
Pre-Test	20	14.65	2.96	19	-6.541	0
Post-Test	20	18.95	1.31			

As a result of the t-test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=14.65$ ) and post-test ( $X_{post-test}= 18.95$ ) of A2 level for the 'organization factor'. [ $t_{(19)}=-6.541$ ,  $p<0.05$ ] The effect size ( $d=1.46$ ) for this difference was very high.

Table 12 shows the t-test results for the associated samples for the pre-test and post-test results of the spelling factor for A2 level Participants.

**Table 12.** T-Test Results for the Associated Samples for the Pre-test and Post-test Results of the Spelling Factor for A2 Level

	N	X	S	Sd	T	p
Pre-Test	20	5.15	0.67	19	-8.718	0.
Post-Test	20	6.35	0.49			

As a result of the t-test, a statistically significant difference was observed between the mean of the pre-test ( $X_{pre-test}=75.75$ ) and the Post-test of A2 level for the 'spelling factor' ( $X_{post-test}= 92.55$ ). [ $t_{(19)}=-10.3$ ,  $p<0.05$ ] The effect size ( $d=2.12$ ) for this difference was very high.

#### 4.2 The Findings of the Data Analysis Relating to the Second Research Question

Is there a statistically significant difference between the pre-test and the post-test results of A1 and A2 proficiency level experiment and control group learners?

This study aimed to examine the effects of collaborative writing activities on L2 writing skills in distance education. To see whether there is a significant difference between the pretest and posttest results of A1 level experimental group and control group, a T-test was conducted. The T-test results for unrelated samples conducted to determine whether there is a statistically significant difference between the pre-test and post-test results of the control and experimental groups of A1 level are given in Table 13 and Table 14.

**Table 13.** T-Test Results for unrelated samples conducted to determine whether there is a statistically significant difference between the Pre-test results of the A1 Level control and experimental groups.

	N	X	S	Sd	t	P
Control Group	18	75.39	7.09	36	-7.787	0.436
Experimental Group	19	77.37	8.13			

According to the T-Test results for the unrelated samples made regarding whether there is a difference between the pre-test results of the control and experimental groups for A1 level, there is no statistically significant difference between the test scores of the students in control group (X=75.39) and the students in the experimental group (X=77.37) [t(36)=-7.787, p>0.05].

**Table 14.** T-Test Results for unrelated samples conducted to determine whether there is a statistically significant difference between the Post-test results of the A1 Level control and experimental groups.

	N	X	S	Sd	t	p
Control Group	18	85.95	6.78	36	-4.192	0
Experimental Group	19	93.39	3.36			

Even though pretests of experimental and control group did not show significant difference, there is however a significant difference between the post test scores of the students in control group (X=85.95) and the students in the experimental group (X=93.39) [t(36)=-4.192, p<0.05] for A1 level.

For A2 proficiency level participants, table 15 shows the t-test results for unrelated samples that was conducted to determine whether there is a statistically significant difference between the pre-test results of the control and experimental groups.

**Table 15.** T-Test Results for unrelated samples conducted to determine whether there is a statistically significant difference between the Pre-test results of the A2 Level control and experimental group

	N	X	S	Sd	T	P
Control Group	19	79.84	4.92	37	2.097	0.043
Experimental Group	20	75.75	7.02			

There is a significant difference between the pre-test test scores of the students in control group (X=79.84) and the students in the experimental group (X=75.75) [t(37)=2.097, p<0.05] for A2 level.

Table 16 below presents the t-test results for unrelated samples that was conducted to determine whether there is a statistically significant difference between the post-test results of the control and experimental group of A2 level.

**Table 16.** T-Test Results for unrelated samples conducted to determine whether there is a statistically significant difference between the Post-test results of the A2 Level control and experimental group

	N	X	S	Sd	T	p
Control Group	19	89.95	3.7	37	-2.066	0.46

Experimental Group	20	92.55	4.14
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Just as there is a statistically significant difference between the pre-test results of the control and experimental groups for A2 level, there is also a statistically significant difference between the posttest scores of the students in control group ( $X=89.95$ ) and the students in the experimental group ( $X=92.55$ ) [ $t_{(36)}=-4.192$ ,  $p<0.05$ ].

#### 4.3 The Findings of the Data Analysis Relating to the Third Research Question

In this section, the attitudes of experimental group participants about online collaborative writing are shown in details in the light of the third research question:

What are the attitudes of experimental group participants about online collaborative writing after having the first-hand collaborative writing experience?

Based on the students' answers for the open-ended questions of the written interview with all experimental group participants and 5 students in the oral interview they indicated no previous online collaborative writing experience. Although they expressed having enjoyed the online collaborative writing experience, they also acknowledged that there were some challenges to it.

#### 4.4 The Findings of the Written Interview about the Benefits of Online Collaborative Writing Experience

Based on the findings of the survey with open ended questions, in both A1 and A2 levels, they mostly found the online collaborative writing tasks to be beneficial. The benefits they observed were divided into 3 main categories such as error correction and awareness of the mistake (a), improvement in L2 and writing (b), gaining different perspectives and creativity (c).

- **Category 1-** Error correction and awareness of the mistake

In A1 level, 15 out of 18 students and in A2 level, 10 out of 20 students claimed that online collaborative writing was effective since their mistakes were always corrected by their peers. Therefore, they expressed that they did not repeat the same mistakes again. Some of the data were shown as the following to better illustrate their views:

*'I think, this activity was very effective because we can correct each other's grammar, spelling and many other different mistakes.'* (A1 level student)

*'When someone makes a mistake in a group writing, another person corrects it immediately, so we keep the right things in mind not the wrong sentences or words.'* (A1 level student)

*'Two heads are better than one. We learn our mistakes together.'* (A1 level student)

*'I found group writing very useful because when we write individually, the things we believe as correct can be wrong. When we write together, there is always someone who realizes the mistakes so that we can learn it immediately.'* (A1 level student)

*'I was not very good at punctuations before, but thanks to my friends' corrections, I am better now.'* (A2 level student)

*'I found this group activity useful; we find each other's mistakes and help each other in this way. Therefore, we learn faster.'* (A2 level student)

*'At the beginning, I really did not like collaborative writing activity. I still prefer to write individually. However, after seven weeks of collaborative writing activities, I can say that even while correcting our friends' mistakes, in fact, we were revising our own knowledge.'* (A2 level student)

- **Category 2:** Improvement in L2 and writing

In A1 level, 15 out of 18 students, in A2 level 17 out of 20 students claimed that they improved both their L2 knowledge and their writing skills because they said that they could make a revision of the units covered in the classroom. In A1 level, 8 students specifically indicated that they have improved themselves in terms of grammar, 7 students claimed that they improved their spelling, 6 students specified that they improved themselves in terms of vocabulary. In A2 level, 8 students claimed that they have improved in terms of grammar, 11 students claimed that they improved their vocabulary knowledge, 5 students indicated that they improved

their spelling while 2 students claimed that they improved their organization and content. Some of the data are shown below to better illustrate their views:

*'I prefer to write in a group because it increases my English knowledge.'* (A1 level student)

*'I usually wrote with the words I already knew before the group work. When we write together, we tried to use different words.'* (A1 level student)

*'My English was very bad before. However, after the group writings, I improved it a lot.'* (A1 level student)

*'I believe that I can write faster now. I used to write the sentences in Turkish and translate them. Now, I can write my sentences in English directly.'* (A1 level student)

*'I improved myself on how to write a paragraph and learned a lot of words. I understand how to write a good paragraph very well.'* (A2 level student)

*'When I write alone, I always used to check whether my sentences are correct or not on the internet. When I write with my friends, everything becomes clearer in my head.'* (A2 level student)

*'I normally have difficulty in vocabulary usage. One word may have different meanings. When I write with my friends, we can find the correct usage of a word.'* (A2 level student)

- **Category 3-** Gaining different perspectives and increasing creativity

In A1 level, 9 out of 18, in A2 level 9 out of 20 students claimed that they enjoyed exchanging ideas with each other. Sharing their opinions with each other encouraged them to come up with creative ideas. Some of the data are shown below to better illustrate student views:

*'I think, it is very useful to work with a group because we all come up with different ideas. While talking about these ideas, we find ourselves in a fun environment.'* (A1 level student)

*'My friends helped me gain different opinions and perspectives. Therefore, they increased my potential to talk in English.'* (A1 level student)

*'I believe that brainstorming, arguing about some ideas and coming up with a common solution improves me more.'* (A1 level student)

*'I think that thanks to online collaborative writing activity, I can share my opinions clearly, I am also better at my communication with my friends. Therefore, I believe that collaborative writing is better than individual writing'* (A2 level student)

*'I used to have difficulty in creating ideas. I was unable to write with the new structures we have learned in the classroom. In that sense, I believe that collaborative writing was effective.'* (A2 level student)

#### **4.5 The Findings of the survey related to challenges of Online Collaborative Writing**

In A1 group, 2 students expressed that they did not enjoy writing as a group. They claimed that there is not equal participation and there are sometimes limitations and arguments in the group. In A2 level, only one student stated that she did not find the online collaborative activities useful because her native language was not Turkish. Also, some students stated there were some negative aspects of online collaborative writing which is illustrated in the following excerpt:

*'If we had not been in a group of same people throughout the quarter, it could have been better to avoid the disagreements'* (A1 level student)

*'Some people were very active while the others were very quiet. It would have been better if we had done the same activity in pairs.'* (A1 level student)

*'I would like to write individually because everyone has his own opinion that he wants to write about.'* (A2 level student)

*'While some topics can be written better with a group, some should be written individually. For example, I prefer to write individually if the topic is something personal like family.'* (A2 level student)

*'I like collaborative writing better than individual writing. However, there should be equality between them. They both have benefits.'* (A2 level student)

*'I sometimes feel exhausted while deciding on what to write and how to write with a group. Everyone needs to contribute to the paragraphs, and we need to say ok even if we don't like the sentence.'* (A2 level student)

*'I am mostly the one who corrects others' mistakes. Even if I correct them constantly, I get no reaction from them. That is why, I hesitate to correct them.'* (A2 level student)

*'Since my group members mostly spoke Turkish, I do not understand properly.'* (A2 level student)

#### **4.6 Findings of the interview related to the students' positive attitudes**

In addition to the written interview with all experimental group participants through open ended questions, also voluntarily selected 5 students from the experimental group (A1 and A2) orally interviewed to have a deeper understanding of the students' perceptions towards online collaborative writing. Based on the students' responses of the interview questions, it can be said that they mostly had positive attitudes towards online collaborative writing, findings of the oral interview can be categorized into 3 main categories as positive reflections on collaborative writing: Error correction- awareness of the mistake (1); improvement in L2 and writing (2); gaining different perspectives and creativity(3).

##### **Category 1. Error correction**

4 out of 5 students stated that they really find error correction very useful for their L2 improvement during the online collaborative writing activities. They asserted that when their mistakes were corrected by their friends, the knowledge then became more permanent for them. According to the responses, they error correction in groups enabled them to write faster with minimum mistakes.

*'When I said something wrong, my friends could correct it or when I use some words wrongly my friends could tell a better one. Therefore, the final work became much better.'* (A2 level student)

*'Thanks to my friends' corrections, I improved myself to a great extend in terms of spelling.'* (A2 level student)

##### **Category 2. Improvement in L2 and writing**

4 out of 5 students stated claimed that they observed an improvement in writing and in the target language. Based on the responses, they improved themselves in content, grammar, and spelling. Some students also emphasized that they also got better in vocabulary and organization. Another frequent response was that they had difficulty in creating a sentence before online collaborative writing participation.

*'We were not very bad at grammar, but we improved it more. After some time, we even started to speak English during the writing activity.'* (A2 level student)

*'I had no idea about how to start the paragraphs and how to continue to the paragraphs. I was lack of the necessary grammar and vocabulary knowledge. While working in a group, I realized the improvement of myself.'* (A1 level student)

##### **Category 3. Gaining different perspectives and creativity**

Many of the interviewees stressed that sharing their ideas with each other enabled them to have more opinions about the writing topic. These different perspectives help them create more ideas instead of repeating themselves and they acquired more words while writing.

*'The topics were always related to the ones we covered in the classroom. Before we start writing, we brainstormed our ideas. There were too many ideas eventually. Therefore, we could force ourselves to expand our vocabulary knowledge.'* (A1 level student)

*'Formerly, I used to think very simple. However, when we worked as a group, we improved ourselves in terms of content because everyone gave different opinions. We were combining these ideas so at the end, we could create better and more creative paragraphs.'* (A2 level student)

#### **4.7 Findings of the interview related to the students' negative attitudes**

Based on students' responses to the interview questions, there were also some disadvantages to the online collaborative writing experience. The most frequent complaint of the students was related to their peers. They claimed that when they interacted well with their peers, they enjoyed the task very much. The problems related to the peers during the online collaborative tasks were as the following: Hesitation of error correction (1), Inactive group members (2), The feeling of discomfort with others (3), Preference of pair work instead of a group (4), The unequal distribution of responsibility in the group (5).

*'I was the one who always corrected the others. When I needed to correct my friends too many times, I usually felt nervous about offending them'* (A2 level students)

*'There were some friends who were not as enthusiastic as I was. They usually preferred to be quiet even if some of us warned them not to. I really enjoyed the same activity in A1 level with my group members. However, in A2 level, I really didn't enjoy working with my friends.'* (a student that involved in the study in both A1 and A2 level)

*'I never enjoy the social interactions. This is my personality. That is why, I felt a little nervous while working in a group.'* (A2 level student)

*'During the collaborative writing activity, some of my friends did not attend the work. If it had been a pair work, everyone would have attended.'* (A2 level student)

*'There was always one person who took the responsibility of writing.'* (A2 level student)

**Table 17.** Benefits and Challenges of Online Collaborative Writing

BENEFITS	CHALLENGES
Error Correction	Discrepancy between group members
Awareness of mistakes	Some students remain passive
Improvement in L2 and Writing (Grammar-Content-Vocabulary-Organization-Spelling)	The feeling of limitation
Gaining different perspectives and increasing creativity	Difficulty in writing about personal topics with a group
Social Environment	Hesitation of correcting others
Increased self-confidence	Language differences
Enjoying the lessons	Feeling discomfort with others
	The unequal distribution of responsibility

To measure the inter-rater reliability, Cohen's Kappa Coefficient was used for the comparison of the pretest and the posttest scores of both raters. 9 exact fit, 21 very good fit and 9 good level Kappa coefficients in A1 and A2 level assessment confirm that there is a reliability between two raters.

## 5. CONCLUSION

In the study, the first research question investigated the difference between the pretest and the posttest of the A1 and A2 level experimental group in terms of content, grammar, vocabulary, organization, and spelling. According to the findings, there is a significant difference between the pretest and posttest results of both A1 and A2 proficiency level students in terms of all the sub-factors -content, grammar, vocabulary, organization, and spelling- which means that they had different proficiencies in the second language in general and in second language writing specifically.

Second research question addressed if the pretest and posttest results of both experimental and control groups of A1 and A2 levels showed a significant difference. The findings revealed that there was not a statistically significant difference in the pretest results of A1 level experimental and control groups. However, there was a statistically significant difference in their posttest results. Thus, the results prove that online collaborative writing were effective in improving writing skills in L2 for A1 level. As for the A2 proficiency level participants, the results showed a statistically significant difference between the pretest results of control and experimental group. Despite having the same the proficiency level, control group's writings were slightly better in the pretest results when compared to the experimental group. In contrast, this difference in pretest altered notably in the posttest results in favor of the experimental group. Posttest results showed that online collaborative writing participants performed much better at the end. These results indicate that online collaborative writing is useful for the advancement of L2 writing skills for A2 level, also.

The third question was aimed to understand student's attitudes towards online collaborative writing tasks. The most frequent oral and written exam responses of the experimental group members were identified through categorization. The results showed that, most of the students were in favor of online collaborative writing activities and expressed the most important benefit to be the provision of knowledge through error correction of their peers. Also, they expressed an improvement in the target language (L2) in addition to the writing skill. Another highlighted point for the collaborative writing was the chance to revise the grammar topics covered in the classroom teaching sessions.

According to participant responses, they were able to understand the sentence structure more thoroughly while improving the subskills of writing such as organization, grammar, and vocabulary. Gaining different perspectives is stated to be another benefit of online collaborative writing. Participants indicated that when they worked with their peers, they heard different perspectives on the same topic which enabled them to think outside of the box and achieve creative thinking skills.

Surprisingly, according to few responses, equal participation requirement made some students feel sensitive about the amount of their sharing. Another claim was that some students believe that some personal topics like family description could be written better individually. Some students also hesitated to correct their peers repeatedly in order not to offend them or make them uncomfortable. Since there were few foreign students in the classroom, L1 usage at times was considered as a challenge. To conclude online collaborative writing experimentation improved L2 writing performance of language learners and created positive attitudes towards L2 writing. With this in mind, despite the prevalence of challenges to collaborative writing, positives of collaborative writing outweigh the negatives, and that's why L2 writing classes should clearly include collaborative writing in their teaching practices.

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