Co-constructing an Essay: Collaborative Writing in Class and on Wiki

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ABSTRACT

This paper compares the quality of students' individually written essays resulting from both collaborative writing through wiki and face-to-face collaborative writing. Face-to-face collaborative writing refers to in class meeting of students for writing essays collaboratively. The study employed a counterbalance research design. Participants of the study were thirty tertiary ESL students from one class. They were divided into two experiment groups with each comprising 15 students. Before the experiment, each participant wrote an essay. After that they were given two treatments of collaborative writing through wiki and face-to-face. The order of giving the two treatments was different for the two groups to eliminate any practice effect. After an introduction to the collaborative process, the participants wrote two argumentative essays in groups, and wrote two essays individually. After the experiment, a semi-structured interview was conducted as a triangulation measure. Results suggest that collaborative writing using the wiki software can be more effective, and more enjoyable, than collaboration resulting from face-to-face meeting.

Keywords: wiki; face-to-face interaction; individual essay; collaborative writing; ESL

INTRODUCTION

Writing has been defined by many researchers (Harklau 2002, Hyland 2004, Santoso 2008) as a straight forward act of saying what the writer means, the mental struggles the writer goes through and the interpretations readers make (Flower & Hayes 1980). In addition, writing is an integrative ability and significant, productive and complex learning process (Abdullah 2011). Therefore, writing can be defined as a productive learning process from the generation of ideas and gathering required data to the publication of the finalized text. Writing, among other language skills, is considered as one of the most important skills (Graves 1987, Kellogg 2001, Ratcliffe 2007). It is a means of communicating and a major cognitive challenge and thinking process (Kellogg 2001) because when someone starts to write, his thinking and act of writing are inseparable. Moreover, writing forces a powerful type of learning to take place (Ratcliffe 2007) so that when someone is writing about an idea, he should study about that and repeat it many times to result in learning.

Although in the past writing skill was believed to be an individual task, many researchers have argued for the promotion of collaboration among learners (Knowles & Hennequin 2004). Through collaboration, students receive valuable input from others (Vygotsky 1962) and are given more opportunity for practice (Oxford 1997). Collaborative learning is considered a situation in which learners exchange ideas, experiences and information to negotiate the construction of personal knowledge that serves as a foundation

for common understanding and a collective solution to a problem (Veldhuis-Diermans 2002). Furthermore, collaborative learning has been considered as "a more widely accepted means to encourage active, authentic, student-centered learning" (Knowles & Hennequin 2004, p. 95). It has been declared that collaborative activities "lead learners to reflect on their own language production as they attempt to create meaning" (Swain 1995, p.141).

One form of collaborative learning is collaborative writing. Collaborative writing is a process of negotiating for meaning and content of a text (Lin 2005). It involves several authors to produce a piece of written work, and the authors contribute to all aspects of writing: content, structure, and language (Storch 2005). Reciprocal learning and teaching in a group lead to higher level of developing certain competences meaning that, e.g., in collaborative writing having multiple perspectives and ideas can decrease anxiety about the task difficulty and helps students easily share their knowledge that leads in learning. For developing writing skills, the pre-writing stage of group interaction and dynamics is helpful. Group brainstorming activates the writing process so that it persuades them to write. Group planning engages them to organize content and group discussing provides pros and cons while making a decision (Yu-Chuan & Hao-Chang 2009). Moreover, collaborative writing promotes ownership of text, facilitates learners' awareness of own strengths and weaknesses, and encourages collaborative learning (Tsui & Ng 2000). Several important benefits of multiple peer reviews have been identified in empirical studies (Kwangsu & Schunn 2007). Multiple reviews mean more individual reviews to make possible detecting all errors. Students can come to revise their writing from the multiple readers' points of view. Multiple reviewing can decrease the individual difficulty of giving or receiving criticism. Several comments on a problem can be more encouraging in terms of peers' writing ability (Yu-Chuan & Hao-Chang 2009) that can impact on students' individual writing.

REVIEW OF RELATED STUDIES

Second language writing competence is an important language learning objective and is considered a major need of any language learning process (Siti Hamin Stapa 1998). Collaborative writing activities may include written and spoken brainstorming, outlining, note-taking, organisational planning, drafting, revising, editing, and publishing (Ede & Lunsford 1990). In the process of co-authoring, learners consider not only grammatical accuracy and lexis but also discourse. Furthermore, depending on the kind of group/pair dynamics formed, collaborative writing may encourage a pooling of knowledge about language (Storch 2002). Collaborative writing also contributes to an increased complexity in writing and students' acceptance to make use of peer feedback (Sotillo 2002).

In recent years, the quick spread of computer application in different aspects of life and the authentic need to improve the quality of language learning encourages researcher to concentrate on how to interlace the computer more effectively with language learning so as to enhance language skills (Min Liu, Moore, Graham, & Shinwoong, 2003). Now with the improvement of technology and the Internet, learners can enjoy the benefit of online collaborative writing. Online collaborative writing can be defined as a pedagogical approach that is supported by computer-based applications and is facilitated online by synchronous or asynchronous computer-mediated communication (CMC) tools. It enables a group of learners from the same or different writing classes in local or international schools to work in teams for exchanging ideas, giving feedback and sharing resources (Show-Mei Lin 2009).

Applying online learning can be achieved with the available CMC open sources that require no supplementary equipment from the institution (Yu-Chuan & Hao-Chang 2009). CMC can extend the limited time allotted to courses by providing students with the opportunity to continue writing online outside classroom context. Learners are allowed to discuss their ideas collaboratively through CMC tools such as email, discussion forum, and online conferencing. Among the CMC tools, wiki, a relatively new online software, is one of the open sources that can be an effective tool for collaboration in education. Wikis have simple text syntax, allowing users to easily amend pages or to create new pages or hyperlinks between pages (Leuf & Cunningham 2001). Wiki provides a web space for social interaction and collaboration (Godwin-Jones 2003). It allows online communities to edit and modify the text collaboratively. Wikis permit the complete revision of text by any user, anytime, and anywhere with a computer connected to the Internet. In this regard, authorship and ownership of an article once limited to a single student can now belong to a group. Consequently, a contribution by any collaborative partner is not just a comment or response but rather an alteration to the previous contribution. It means that a text written based on wiki is in a constant collaborative change position (Kessler 2009), and these changes help learners to improve their writing skill.

PURPOSE OF THE STUDY

In literature, some studies have focused on face-to-face collaborative writing (e.g., Storch 2005) and collaborative writing on wiki (Franco 2008, Yu-Chuan & Hao-Chang 2009, Kessler 2009, Idoia & Oskoz 2010). However, there may not be any study that compares the effect of two different modes of collaborative writing, wiki and face-to-face, on students' individual writing. Therefore, the present study aims to compare the students' individual essays after they have gone through collaborative writing on wiki and face-to-face collaborative writing to determine which modes of collaborative writing results in producing higher quality individual essays.

METHODOLOGY

PARTICIPANTS

This study was conducted with 30 tertiary ESL students from a single class in their first year of undergraduate program. They were divided into two experiment groups with each comprising 15 students. A sample of 15 subjects per group is reasonable in context of a quasi-experimental research (Creswell 2002, Gay & Airasian 2003). Among the participants, 21 were female (76.7%) and 7 were male (23.3%). The participants' first languages were Malay, Mandarin, Tamil and French. Most of the respondents (76.7%) spoke Malay as their first language, while 13.3% spoke Mandarin, 6.7 % Tamil, and 3.3% spoke French language. Participants' age ranged from 18-23 years old. Most of the participants were in the age range of 21-23(60%).

INSTRUMENTS

Malaysian University English Test (MUET) is to measure the English language proficiency of pre-university students for entrance into tertiary education. It comprises all the four language skills of listening, speaking, reading and writing. The scores banding system ranges from Band 1 to Band 6. The participants who get the score 4 shows that they have

satisfactory ability to function in the language. Most of them (86.7%) had obtained a band score of 4 on the MUET, while the rest (13.3%) had a band score of 5. The MUET score could be roughly used as an indicator of the students' English language proficiency level.

The wiki platform chosen for this project was Wetpaint (www.wetpaint.com). Wetpaint has some advantages that encourage using it. It is a hosted service that allows users to register and create a free wiki website. It includes an easy edit button that is really easy to use. Furthermore, it offers several functional features that can assist users to write collaboratively in a shared website. Thirdly, students can have discussion by posting comments or communicating asynchronously. Having these functional characteristics, wetpaint provides a suitable web-based learning environment for the wiki collaborative writing tasks.

The participants were tertiary students and argumentative writing is very useful for them as they have to write research papers that require argumentative skills. This kind of essay forces them to think critically. Therefore, argumentative essay was chosen for the study.

In addition, the participants' essays written collaboratively through both wiki and face-to-face and also participants individual essays (pre-experiment essay and post-experiments essays 1 and 2) were evaluated and compared based on an ESL Composition Profile developed by Jacobs, Zingraf, Wormuth, Hartfiel and Hughey (1981). It is a generic writing scale (Abbas Zare-ee & Mohammad Taghi Farvardin 2009) that evaluates compositions in terms of five dimensions of writing namely content, organization, vocabulary, language and mechanics (see Appendix). Although this scoring guide shows both methods of scoring namely analytic and holistic, this kind of rating underlies the "ESL Composition Profile" identical to holistic rating. In this Profile, content refers to linguistic features dealing with the effectiveness and relatedness of the text to the assigned topic. Organization refers to the argument structure. High score on organization means that writers state and support their position fully and are inclined to develop their argument by restating their position (Silva 1993). Voice deals with strong personal engagement of the reader. More explicit themes and more real scenes are the sign of more active engagement of the writer and lead to higher score in the scoring process. The last part, the mechanics of the finished form refers to the punctuation, spelling, capitalization, margin, and other face features of the sample (Abbas Zare-ee & Mohammad Taghi Farvardin 2009).

Other than scoring and assessing the participants' pre-experiment essay and post-experiment essays 1 and 2, this study also used a semi-structured interview (see Appendix) to collect the participants' perception of the two methods of collaborative writing. A semi-structured interview is a popular data collection technique since it is flexible enough to provide detailed, accurate, and clear conceptions of what the participants think of the phenomenon under study (Creswell 2008).

PROCEDURE

Before the experiment began, participants wrote an essay each. These pre-experiment essays were compared to two sets of post-experiment essays. The pre- and post-experiment essays, that were written individually, were compared after the participants had gone through the treatments of collaborative writing on wiki and face-to-face collaborative writing. Before the collaborative writing commenced, a warm-up activity was conducted in a lab to familiarize the students with wiki. Since the study employed a counterbalance research design, participants were randomly divided into two groups, one group wrote collaboratively on wiki and the other group collaborated face-to-face. The number of participants was 30, so, they

were divided randomly into two groups of 15 participants. Each of these two groups was further divided into five smaller groups comprising three participants. Their collaborative writing essays were written in stages, namely planning, drafting, and revising. During the first round of collaborative writing, Group1 wrote on wiki and Group 2 wrote face-to-face. For the first stage, group members of both wiki and face-to-face were required to plan their essay. The face-to-face groups completed planning stage in the class. The wiki groups, on the contrary, continued the discussion on planning until the next class. Then, in the next session both groups wrote the second stage of their collaborative writing (drafting or writing stage). Likewise, face-to-face groups had to complete the drafting stage in the class while the wiki groups kept writing until the next session. One week later, both groups started to collaborate on the third stage of their group writing that is revising stage. The same as planning and drafting stages, face-to-face groups had to finish revision in class. However, wiki groups moved further until the next session.

After completing the first round of collaborative writing on wiki and face-to-face, all the participants wrote their post-experiment essay 1 individually. Besides, three subgroup from both wiki and face-to-face were selected and interviewed. Group 1 was interviewed to find out their perception about wiki and Group 2 was interviewed for their perception about face-to-face. When the first individual essays (post-experimental essay 1) and the interview were completed, both groups of wiki and face-to-face commenced to write the second collaborative essay. For the second round of collaborative writing, the order of the collaboration methods (wiki and face-to-face) were reversed. After that students wrote their post-experiment essay 2 individually. Then, the selected subgroups of wiki and face-to-face were interviewed. Group 1 was interviewed for their perception about face-to-face and Group 2 was interviewed to find out their perception about wiki. One week later, the selected subgroups were interviewed for the last time. The purpose of the Exit interview was to compare the participants' perception about wiki and face-to-face collaborative writing on their individually written essays.

RESULTS AND DISCUSSION

This research study aims to compare the participants' individual essays after collaborative writing on wiki and face-to-face. Before analyzing the data, inter-rater reliability was calculated. Reliability is important in measuring instruments that require ratings of individuals (Ary et al. 2010) to find out whether different judges (raters or scorers) have assigned similar ratings or scores to the individual. A simple way is to get two or more raters to rate an individual and then see the extent to which the two sets of scores obtained correlate with each other. This is referred to as inter-rater reliability. Inter-rater agreement was measured to ensure the reliability and the extent of the agreement between the two raters. Inter-rater agreement (sometimes referred to as inter-rater reliability or concordance) is, indeed, an indicator of the degree of homogeneity or consensus in the rating given by different raters (Gwet 2008). To determine inter-rater reliability, intra-class correlation coefficient (ICC) was calculated. This kind of correlation ranges between 0.0 and 0.1. The higher the ICC, the lower is the degree of variation between the scorers. Such being the case, the two sets of scores received from the two instructors were subjected to ICC to measure the degree of agreement between the two raters. The result from ICC (Table 1) shows perfect agreement between the two raters (ICC = 0.95).

TABLE 1. Inter-rater reliability

Instrument	Intra-class Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Band	Upper Band	Value	df1	df2	Sig
Single Measures	.913	.825	.958	21.955	29	29	.000
Average Measures	.954	.904	.978	21.955	29	29	.000

In order to show the normality of data, a test of Skewness and Kurtosis was run that is shown Table 2. "A skewness and kurtosis value between -1 and +1 is considered excellent for most psychometric purposes, but a value between -2 and +2 is in many cases acceptable" (George & Mallery 2003, p. 98). With this in mind, the data for the present study prove to be distributed normally.

TABLE 2. Normality test for post-experiment essays after collaborative writing on wiki and face-to-face

Instrument	Skewness	Kurtosis
Pre-experiment essay	-.033	-.386
Post-experiment essays after collaborative writing on wiki	-.153	-.140
Post-experiment essays after face-to-face collaborative writing	-.221	-.066

Before the experiment began, participants wrote an essay each (pre-experiment essays). As mentioned earlier, this study employed a counterbalance research design. The thirty participants of a class were divided into two experiment groups with each comprising 15 participants. Group 1 collaborated on wiki followed by face-to-face, and Group 2 went through face-to-face followed by wiki. It is important for the participants to have similar writing knowledge before the experiment, therefore, rather than considering participants' MUET band score, the participants' pre-experiment essays of Group 1 was compared with that of Group 2 through descriptive statistics (Table 3) and an independent sample t-test (see Table 4).

TABLE 3. Descriptive statistics of pre-experiment essays of individual writing by groups

Groups	N	Mean	Std. Deviation
Group 1	15	77.3000	8.00179
Group 2	15	77.9667	6.16287

Results of the independent sample t-test, obtained from pre-experiment essays, indicated no significant difference between writing scores of Group 1 and Group 2. ($t [28] = .25$, $P > .05$). In addition, the effect size ($r = .04$) was calculated that represent a small effect size. When we measure the size of an effect, it is known an effect size. An effect size is simply an objective and standardised measure of the magnitude of observed effect. The fact that the measure is standardised just means that we can compare effect sizes across different studies that have measured different variables, or have used different scales of measurement. Pearson's correlation coefficient used for this study because as an effect size it is constrained to lie between 0 (no effect) and 1 (a perfect effect). Effect sizes are useful because they

provide an objective measure of the importance of an effect. So, it does not matter what effect you are looking for, what variables have been measured, or how those variables have been measured (Field 2009). Cohen (1992) has made some widely used suggestions about what constitutes a large or small effect. 0.10, 0.30, and 0.50 are called small, medium, and large effect size respectively. Therefore, based on the obtained results, the students of both groups were homogeneous in terms of writing competency before the treatments commenced.

TABLE 4. Independent sample test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Pre-experiment	Equal variances assumed	.600	.445	.256	28	.800	.66667	2.60780

The purpose of the study is to compare the participants' quality of individual essays after they have gone through collaborative writing on wiki and face-to-face. Based on ESL composition profiles (Jacob et al 1981), five elements (content, organisation, vocabulary, language, and mechanics) were taken into consideration in scoring the participants' individual essays. Then, the scores of all five elements were added up together for each participant in order to form a final score. Next, the scores of pre-experiment essays were compared to final scores of individual essays written after collaborative writing on wiki and face-to face.Two repeated measures of ANOVAs were employed to compare participants' pre-experiment essays with post-experiment essays 1 and 2. Here, at first measurement for Group 1 is explained, and then the measurement for Group 2 is discussed.

Group 1: The mean for pre-experiment essays is 77.30, for post-experiment essays 1 is 80.66, and for post-experiment essays 2 is 80.36. Moreover, the assumption of normality is met for the repeated-measures ANOVA. The skewness and kurtosis indices for the three writing tests are between +/- 2 (Table 5)

TABLE 5. Normality of three writing tests

Group 1	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Group 1 (Pre-experiment essay)	15	.335	.580	-.104	1.121
Group 1 (Post-experiment essay 1)	15	-.200	.580	-.055	1.121
Group 1 (Post-experiment essay 2)	15	-.139	.580	.008	1.121

For repeated-measures ANOVA, first the sphericity assumption is considered. Since the Mauchly's test of sphericity is significant (Mauchly's W= .058, P = .000 < .05), it can be concluded that the assumption of sphericity is not met, so, Multivariate test is employed. The multivariate test (Table 6) shows a significant difference between the mean scores of the three essays (F [2, 1]) = 15.18, P = .00 < .05) In addition, the results represent a large effect size (partial $\eta 2 = .70$). The value of 0.01, 0.06, and 0.14 are small, medium, and large effect size respectively for the repeated measurement Anova (Cohen 1992)

TABLE 6. Multivariate tests

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Writing	Pillai's Trace	.700	15.181	2.000	13.000	.000	.700
	Wilks' Lambda	.300	15.181	2.000	13.000	.000	.700
	Hotelling's Trace	2.336	15.181	2.000	13.000	.000	.700
	Roy's Largest Root	2.336	15.181	2.000	13.000	.000	.700

Although the F-value of 15.18 (Table 6) denotes significant differences between the three writing tests, the post-hoc comparison tests should be run to compare the means two by two. Based on the information displayed in Table 7 it can be concluded that there is a significant difference between the mean scores of pre-experiment essays (Mean = 77.30) and post-experiment essays 1 (Mean = 80.66) (mean difference = 3.36, P = .00 < .05) that indicates that students performed better on post-experiment essays 1. The post-hoc comparison tests also show a significant difference between the mean scores of pre-experiment essays (Mean = 77.30) and post-experiment essays 2 (Mean = 80.36) (mean difference = 3.06, P = .000 < .05). This means that students performed better on post-experiment essays 2. Additionally, post-hoc comparison tests reveal a significant difference between the mean scores on post experiment essays 1(Mean = 80.66) and post experiment essays 2 (Mean = 80.36) (mean difference = .30, P = .042 < .05) indicating students performed better on post experiment essays 1. In other words, students performed better on their individual essays after collaborative writing on wiki.

TABLE 7. Post-hoc comparison writing tests

(I) Writing	(J) Writing	Mean difference (I-J)	Std. Error	Sig.[b]
Post experimental essay 1	Pre experimental essay	3.367*	.736	.001
Post experimental essay 2	Pre experimental essay	3.067*	.757	.004
	Post experimental essay 1	.300*	.107	.042

*. The mean difference is significant at the .05 level.

Group 2: The second repeated measures of ANOVAs were calculated for Group 2. The mean for pre-experiment essays is 77.96, for post-experiment essays 1 is 78.66, and for post-experiment essays 2 is 83.56. As the Table 8 shows the assumption of normality is met. The skewness and kurtosis indices for the three writing tests are between +/- 2.

TABLE 8. Normality of three writing tests

Group 2	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Group 2 (Pre-experiment essay)	15	-.712	.580	-.928	1.121
Group 2 (Post-experiment essay 1)	15	-.597	.580	-1.104	1.121
Group 2 (Post-experiment essay 2)	15	-.131	.580	.051	1.121

Repeated-measures ANOVA assume that the differences between any two tests should also have equal variances, the sphericity assumption. Since the Mauchly's test of sphericity is significant (Mauchly's W = .033, P = .000 < .05), it can be concluded that the assumption of sphericity is not met, therefore, Multivariate tests are calculated. The multivariate test (Table 9) shows a significant difference between the mean scores of the three essays (F [2, 13] = 6.07, P = .000 < .05). In addition, the effect size (partial η2 = .48) was calculated that represent a large effect size.

TABLE 9. Multivariate tests

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Writing	Pillai's Trace	.483	6.074[b]	2.000	13.000	.014	.483
	Wilks' Lambda	.517	6.074[b]	2.000	13.000	.014	.483
	Hotelling's Trace	.934	6.074[b]	2.000	13.000	.014	.483
	Roy's Largest Root	.934	6.074[b]	2.000	13.000	.014	.483

Although the F-value of 6.07 (Table 9) denotes significant differences between the three writing tests, the post-hoc comparison tests should be run to compare the means two by two. Based on the information displayed in Table 10 it can be concluded that there is a significant difference between the mean scores on pre-experiment essays (Mean = 77.96) and post experiment essays 1(Mean = 78.66) (mean difference = .70, P = .032 < .05) which indicates that students performed better on post-experiment essays 1. The post-hoc comparison tests also show a significant difference between the mean scores on pre-experiment essays (Mean = 77.96) and post-experiment essays 2 (Mean = 83.56) (mean difference = 5.60, P = .000 < .05). This shows that students performed better on the post-experiment essays 2. Additionally, post-hoc comparison tests reveal a significant difference between the mean scores on post-experiment essays 1 (Mean = 78.66) and post-experiment essays 2 (Mean = 83.56) (mean difference = 4.90, P = .000 < .05) indicating that students performed better on the post-experiment essays 2. In other words, students made better performance on their individual essays after collaborative writing on wiki.

TABLE 10. Post-hoc comparison writing tests

(I) Writing	(J) Writing	Mean difference (I-J)	Std. Error	Sig.[b]
Post-experimental essay 1	Pre experimental essay	.700[*]	.238	.032
Post-experimental essay 2	Pre experimental essay	5.600	2.249	.078
	Post experimental essay 1	4.900	2.229	.136

*. The mean difference is significant at the .05 level.

What is more, to compare the participants' quality of individual essays (post-experiment essays 1 and 2) after they have gone through collaborative writing on wiki and face-to-face, paired-samples t-test was run. Table 11 shows the relevant descriptive statistics. It is believed that the averaged posttest scores for all groups for treatment 1 can be compared with the averaged posttest score for all groups for treatment 2, and so on, for how many treatments there are (Fraenkel & Wallen 2009). Referring to this, the mean for post-experiment essays 1 and 2 after collaborative writing on wiki and face-to-face are 82.11and 79.51 respectively. This shows the higher mean for the groups who wrote on wiki.

TABLE 11. Descriptive statistics of students' individual essays after collaborative writing on wiki and face-to-face

Post-experimental essays	N	Mean	Std. Deviation	Std. Error Mean
Group 1 and 2 (after collaborative writing on wiki)	30	82.1167	7.47488	1.36472
Group 1 and 2 (after collaborative writing face-to-face)	30	79.5167	6.91012	1.26161

The paired-samples t-test (t [29] = 1.98, P > .05) indicates that although the mean score for wiki groups is higher than face-to face groups, there is not any statistically significant difference between the mean scores of the students individual essays after collaborative writing on wiki and face-to-face groups (Table 12). Moreover, the effect size (r = .34) was calculated that represent a moderate effect size.

TABLE 12. Paired-samples t-test wiki and face-to-face group's Individual essays

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
W1 W2	2.60000	7.18883	1.31250	-.08435	5.28435	1.981	29	.057

The most significant finding obtained through post-hoc comparisons. It was found that comparing participants' individual essays through post-experiment essay 1 with post-experiment essay 2 participants performed better on their individual essays after collaborative writing on wiki for both Groups 1 and 2. Comparing quantitative results highlights that wiki proved to be more effective than face-to-face collaboration in improving the participants' writing skills through a final score that is total score containing content, organisation, vocabulary, language, and mechanics of writing for each participants.

Furthermore, one-to-one semi-structured interviews were conducted with 18 participants (six groups). Three sub-groups from Group 1 and three sub-groups from Group 2. Each of these sub-groups consisted of three participants. The qualitative analysis of the interview data was conducted to shed more light on the quantitative findings. The obtained results were in line with students' responses to semi-structured interview. Among them, 61.10% verified that wiki is more useful for improving their individual essay because there is no limitation for collaboration as far as time is concerned. Therefore, they have enough time to think about what they want to write. Moreover, they mentioned everything is recorded on wiki and if something is forgotten it can be easily accessible on wiki. Some participants' response are as follows.

> Sh: I would prefer wiki because there is not any time limitation for you to have a collaborative writing. In face-to-face collaborative writing you need meet the group members, to set your time and learn from your friends but in wiki everything is just online and any time that a point comes to your mind you can post it as a comment for your group members.

> N: Of course wiki is my choice. Because of time. I mean I had enough time to think and go to my group members' page. You know everything is recorded on wiki and once I come back to the comments I can remember my mistakes. There is enough space for my group members and I can post my comments and we can discuss with each other. Any time a comment comes to my mind I can write on my friends' page but in face-to-face there is a limitation of time and whatever wants to be discussed should be in a specific time I mean in the class time.
>
> H: Wiki. Because if you forget anything you just go back and check to see what is was. You know face-to-face collaborative writing help us mostly to improve our communication skill, but on wiki we have more concentration of what we write.
>
> W: I think wiki because we just type to show each other's' passage and then our group members really easy edit our work and highlights the points. I mean our discussion all are recorded there and we can have access any time that we want but in face-to-face we may forgot our discussion and we should write on papers. We should just check on what they have written and it's quite messy and it is not easy to see. So, we have to rewrite all the materials and it would be time-consuming.

However, some participants (38.89%) mentioned that they prefer face-to-face collaborative writing mostly because of the discussion on the spot that makes learning easier.

> T: I like face-to-face collaborative writing because if I had any questions or problems I could ask on the spot. It was effective for me because I could learn easier.
>
> D: I prefer face-to-face collaborative writing because we can share our points very easy in comparison with wiki that we should just type it up and post it. You know points are there in face-to-face and we only should think about it and elaborate our purpose.

Moreover, some of the participants believed that these two modes of collaborative writing should be combined in order to get the best results mostly because planning is easier in face-to-face collaborative writing and drafting and revising is more effective on wiki.

> H: Some stages should be carried out face-to-face while wiki is needed for other stages. For instance, the planning stage which is the first and the most important stage of writing requires more discussion. So, it should be carried out face-to-face. Other stages namely drafting and revising are easier done on wiki.
>
> A: Combination of these two kinds of collaborative writing leads to improve our individual writing better.
>
> D: To gain more benefits from collaborative writing it seems better to use advantages of both collaborative writing. I mean it's better to combine them. Because each of them is useful for some subsections of writing skill.

From what was discussed, it can be concluded that quantitative and qualitative results are along the same line. In other words, the results obtained through quantitative analysis are supported by qualitative results obtained from the participants' interview. Results show that both wiki and face-to-face collaborative writing are helpful for improving the participants' individual essay. Moreover, results of post-hoc comparison show that although both wiki and face-to-face collaborative writing are fruitful in improving the participants' individual essays, participants performed better on their individual essays after collaborative writing on wiki for both Groups 1 and 2.

CONCLUSION AND IMPLICATIONS

Literature shows that collaborative writing can be useful to develop participants' writing (Danielewicz & McGowan 2007) which is compatible with the results of this study. The obtained results show that both wiki and face-to-face collaborative writing improved participants' individual essay. However, comparison between wiki and face-to-face collaborative writing shows that for this particular context collaborative writing on wiki seems to be more helpful than face-to-face collaborative writing. This is because the gain from the former is higher than the latter. In addition, in the interview some of the participants proposed that these two modes of collaborative writing be combined to get results that are more effective in writing. In other words, students' interview responses support a blended learning mode. Blended learning can be classified in three different ways: media-based, method incorporation or a combination of online and traditional education methods (Usta 2007). Media-based definitions generally highlight the need to combine instructional media and techniques to create educational output (Bersin 2004). Moreover, it is believed that blended learning is an environment in which different methods and strategies are used together (Driscoll 2002) and it might combine the power of online environments with that of classical face-to-face environments (Korkmaz & Karakuş 2009). Certain methods have been proposed to design blended learning environment. These methods include combination of face-to-face and online elements for a particular course, which familiarize students with face-to-face sessions, online courses defined by students and supported by the teacher in class (Horton 2000). Furthermore, blended education environments are regarded as a way of facilitating learning while maintaining and balancing personal communication at the same time (Collis et al. 2003).

During the process writing, face-to-face collaboration is more useful for planning stage. In planning stage, generating ideas and decision-making can be facilitated using face-to-face collaboration. On the other hand, wiki has more of an impact on second and third stages of writing namely drafting and revising. In drafting stage on wiki, students are provided with more time to think and develop ideas. In revising stage, students can give comments on each other's work more easily. They can also use wiki amenities to bold, italicize and change color and fonts and prevent their writing from being sloppy. These factors could help to improve writing quality. Therefore, blended learning mode can be more useful than single mode in certain situations.

The findings of the present study can be useful for teachers and students. In other words, it is more effective if these two modes of collaborative writing are combined in order to obtain desired outcomes from collaborative writing on different topics, especially for writing individual essays. Future studies can be conducted with larger groups of participants. Moreover, Gender can be considered in order to find out whether female or male students

work better in wiki collaboration or they respond better to face-to-face situations. Additionally, the differences in approaches taken by male and female students towards using wiki and face-to-face collaboration in writing can be subject to further investigation. More studies with pre- and post-tests should be conducted in order to compare the effectiveness of these two modes of collaborative writing on the students' writing skill.

REFERENCES

Abbas Zare-ee & Mohammad Taghi Farvardin. (2009). Comparison of university level EFL learners' linguistic and rhetorical patterns as reflected in their L1 and L2 writing. *Novitas-ROYAL. Vol.3.* No.2, 143-155.

Abdullah, M. Y. (2011). An investigation on the effects of C.M.C applications on ESL/EFL writing anxiety among postgraduate students at UKM. Unpublished M.A. thesis, Universiti Kebangsaan Malaysia, Bangi, Malaysia.

Ary, D., Jacobs, L., & Sorensen, C. (2010). *Introduction to research in education* (8th ed.). Canada: Thomson Wadswort.

Bersin, J. (2004). *The Blended Learning Book. Best Practices, Proven Methodologies, and Lesson Learned*. San Francisco: Pfeiffer

Cohen, J. (1992). Quantitative methods on psychology. *A Primer Psychological Buletin, 112* (1), 155-159.

Collis, B. Bruijstens, H. der van Veen, J.K. (2003). Course redesign for blended learning: Modern Optics for Technical Professionals. *International Journal of Continuing Engineering Education and Lifelong Learning. Vol 13*(1/2), 22-38.

Creswell, J. W. (2002). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Ohio: Upper Saddle River.

Creswell, J. W. (2008). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. New Jersey: Upper Saddle River.

Danielewicz, J. & McGowan, J. (2007). Collaborative work: A practical guide. *Symploke, Vol. 13*. No. 1, 168-191.

Driscoll, M. (2002). Blended Learning: Let's Get Beyond the Hype (Brief Article). *E-learning, 54.*

Ede, L.S., & Lunsford, A. A. (1990*). Singular texts/plural authors: Perspectives on Collaborative writing.* Carbondale: Southern Illinois University Press.

Field, A. (2009). *Discovering statistics using SPSS* (3th ed). London: Sage Publication.

Flower, L. & Hayes, J.R. (1980). The cognition of discover: defining a rhetorical problem. *College Composition and Communication. Vol. 31*, 21-32.

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education.* New York: McGraw-Hill.

Franco, C.P. (2008). Using wiki-based peer-correction to develop writing skills of Brazilian EFL learners. *Novitas-Royal. 2*(1), 49-59.

Gay, L., & Airasian, P. (2003). Educational research: competencies for analysis and application. (6th ed). Ohio: Merrill.

George, D. & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.

Goodwin-Jones, R. (2003). Blogs and wikis: Environments for on-line collaboration. *Language Learning & Technology. 7*(2), 12-16.

Graves, D. (1978). *Balance the Basics: Let them Write*. Durham, New Hampshire: University of New Hampshire.

Gwet, K. L. (2008). Computing inter-rater reliability and its variance in the presence of high agreement. *British Journal of Mathematical and Statistical Psychology. 61*, 29-48.

Harklau, L. (2002). The role of writing in classroom second language acquisition. *Journal of Second Language Writing. 11*(4), 329-350.

Horton, W. (2000). *Designing Web Based Training*. NY, Toronto: John Wiley.

Hsiao-ping Lin (2005). *Online collaborative writing with wiki technology: A pilot study.* International conference on e-learning. Retrieved March 22, 2010, from http://learning.edu.tw/conference/2005IceL/paper_paper/E002/E5.pdf

Hyland, K. (2004). Disciplinary interactions: Metadiscourse in L2 postgraduates writing. *Journal of Second Language Writing. 13*(2), 133-151.

Idoia, E. & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology. Vol.14. No.*3, 51–71.

Jacobs, H. L., Zinkgraf, S. A., Wormuth, D. R., Hartfiel, V. F. and Hughey, J. B. (1981). *Testing ESL composition: A practical approach*. Rowley, MA: Newbury House.

Kellogg, R. T. (2001). Long-term working memory in text production. *Memory & Cognition*, 29(1), 43-52.

Kessler, G. (2009). Student-initiated attention to form in wiki-based collaborative writing. *Language Learning & Technology*. *13*(1), 79-95.

Knowles, N & Hennequin, M.W. (2004). New technology, newer teachers: Computer resources and collaboration in literature and composition. In James Inman, Cheryl Reed & Peter Sands (Eds.). *Electronic collaboration in the humanities: Issues and options (pp 91-110).* Mahwah, NJ: L. Erlbaum Associates.

Korkmaz, O & Karakuş, U. (2009). The impact of blended learning model on student attitudes towards Geograpy Course and their criticial thinking dispositions and levels. *The Turkish Online Journal of EducationalTechnology (TOJET). Vol.8.* No. 4, 51-63.

Kwangsu, C. & Schunn, C.D. . (2007). Scaffolded writing and rewriting in the discipline: A webbased reciprocal peer review system. *Computers and Education. Vol. 48.* No.3, 409–426.

Leuf, B., & Cunningham, W., 2001. *The wiki way: quick collaboration on the web.* Boston: Addison-Wesley.

Min Liu, Moore, Z., Graham, L., Shinwoong. (2003). A look at the research on computer-based technology use in second language learning: A review of the literature from 1990-2000. *Journal of Research on Technology in Education. Vol.34*(3), 250-273.

Oxford, R. (1997). Cooperative learning, collaborative learning, and interaction: Three communicative strands in the language classroom. *The Modern Language Journal. 81*(6), 443-457.

Ratcliffe, J. (2007). *Essay writing guide*. Retrieved February 25, 2011, from http://www.jratcliffe.net/papers/essaywriting.pdf.

Santoso, A. (2010). Scaffolding an EFL effective writing class in Hybrid learning community. Unpublished PhD dissertation. Queensland University of Technology.

Show-Mei Lin (2009). How computer-mediated communication affects ELL students' writing processes and writing performance. Unpublished PhD, University of Oklahoma, Norman, Oklahoma.

Silva, T. (1993). Toward an understanding of the distinct nature of L2 writing: The ESL research and its implications. *TESOL Quarterly*. *27* (4), 657-677.

Siti Hamin Stapa. (1998). *The process approach to ESL writing*. Bangi: University Kembangsaan Malaysia.

Sotillo, S. (2002). Constructivist and collaborative learning in a wireless environment. *TESOL Journal. 11*(3), 16-20.

Storch, N. (2002). Patterns of interaction in ESL pair work. *Language Learning. 52*(1), 119–158.

Storch, N. (2005). Collaborative writing: Product, process, and students' reflections. *Journal of Second Language Writing. 14*(3), 153–173.

Swain, M. (1995) Three functions of output in second language learning. In Guy Cook & Barbara Seidlhofer (Eds.). *Principle and practice in applied linguistics: Studies in honor of H.G. Widdowson (pp 125-144).* Oxford: Oxford University Press.

Tsui, A. & Ng, M. (2000). Do secondary L2 writers benefit from peer comments? *Journal of Second Language Writing Vol.9.* No. 2, 147-170.

Usta, E. (2007). *Harmanlanmış Öğrenme ve Çevrimiçi Öğrenme Ortamlarının Akademik Başarı ve Doyuma Etkisi.* Yayınlanmamış Doktora Tezi. Ankara: Gazi Üniversitesi Eğitim Bilimleri Enstitüsü.

Veldhuis-Diermanse A.E. (2002). *CSCLearning? Participation, learning activities and knowledge construction in computer-supported collaborative learning in higher education.* Unpublished PhD Thesis, Wageningen University, Wageningen.

Vygotsky, L.S. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Yu-Chuan, J. C. & Hao-Chang, L. (2009). Students' perception of wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environment. Vol. 1*, 1-17.

APPENDIX

INTERVIEW QUESTIONS

1. Was face-to-face collaborative writing useful for your individual writing? Why?
2. How did collaborative writing help you to improve your own writing skill?
3. Was collaborative writing through wiki useful for your individual writing? Why?

4. How did collaborative writing help you to improve your own writing skill?
5. What kinds of collaborative writing do you prefer? Why?
6. Which kind of collaborative writing is more effective in terms of improving your writing skill? Why?
7. How do you compare the process of face-to-face collaborative writing versus collaborative writing on wiki? What were the principle differences? (planning, drafting, and revising).

ESL Composition Profile
Jacobs et al., (1981)

ESL COMPOSITION PROFILE

STUDENT DATE TOPIC

	SCORE	LEVEL	CRITERIA	COMMENTS
CONTENT		30-27	EXCELLENT TO VERY GOOD: knowledgeable, substantive, thorough development of thesis, relevant to assigned topic	
		26-22	GOOD TO ADVANCE: some knowledge of subject, adequate range, limited development of thesis, mostly relevant to topic: but lacks detail	
		21-17	FAIR TO POOR: limited knowledge of subject, little substance, inadequate development of topic	
		16-13	VERY POOR: does not show knowledge of subject, non-substantive, not pertinent, OR not enough to evaluate	
ORGANIZATION		20-18	EXCELLENT TO VERY GOOD: fluent expression, ideas clearly stated/supported, succinct, well-organized, logical sequencing, cohesive	
		17-14	GOOD TO ADVANCE: somewhat choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing	
		13-10	FAIR TO POOR: non-fluent, ideas confused or disconnected, lacks logical sequencing and development	
		9-7	VERY POOR: does not communicate, no organization, OR not enough to evaluate	
VOCABULARY		20-18	EXCELLENT TO VERY GOOD: sophisticated range, effective word/idiom choice and usage, word form mastery, appropriate register	
		17-14	GOOD TO ADVANCE: adequate range, occasional errors of word/idiom form, choice, usage but meaning not obscured	
		13-10	FAIR TO POOR: limited range, frequent errors of word/idiom form, choice, usage , meaning confused or obscured	
		9-7	VERY POOR: essentially translation, little knowledge of English vocabulary, idioms, word form, OR not enough to evaluate	
LANGUAGE USE		25-22	EXCELLENT TO VERY GOOD: effective complex constructions, few errors of agreement, tense, number, word order/function, articles, pronouns, prepositions	
		21-18	GOOD TO ADVANCE: effective but simple constructions, minor problems in complex constructions, several errors of agreement, tense, number, word order/function, articles, pronouns, prepositions but meaning seldom obscured	
		17-11	FAIR TO POOR: major problems in simple/complex constructions, frequent errors of negation, agreement , tense, number, word order/ function, articles, pronouns,	

			prepositions and/or fragments, run/ons, deletions, meaning confused or obscured
		10-5	VERY POOR: virtually no mastery sentence construction rules, dominated by errors, does not communicate, Or not enough to evaluate
MECHANICS		5	EXCELLENT TO VERY GOOD: demonstrate mastery of conventions, few errors of spelling, punctuation, capitalization, paragraphing
		4	GOOD TO ADVANCE: occasional errors of spelling, punctuation, capitalization, paragraphing but meaning not obscured
		3	FAIR TO POOR: frequent errors of spelling, punctuation, capitalization, paragraphing, poor hand writing, meaning confused or obscured
		2	VERY POOR: no mastery of conventions, dominated by errors of spelling, punctuation, capitalization, paragraphing, handwriting illegible, Or not enough to evaluate
Total Score	Reader	Comments	