Wiki-based collaborative writing viza-viz face to face instruction

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Abstract: This study was a quasi-experimental one that looked into the effects about wiki-based platforms for group writing on 39 comparison of the writing abilities of students in an online (wiki) classroom with conventional writing. The participants (section L1; 20 students and section L2; 19 students) were first-year engineering students selected 40 sections. The total numbers of students in each section were 20 and 19 respectively. The students were enrolled in a course for no credit called "Essay Writing" for 6 weeks and were randomly assigned into experimental online/wiki group (section L2) and control conventional writing group (section L). Students in the experimental classroom wrote collaboratively on a wiki; in the control classroom, they conversed face-to-face and wrote on notebooks or papers. By comparing the information gathered from a pretest and posttest of individual writing, both groups were evaluated. Descriptive statistics, such as frequency, mean, and standard deviation, and inferential statistics were used to assess these quantitative data (paired samples t-test and independent samples t-test). There are statistically significant changes in the experimental group's writing performance, according to the results of the paired samples t-test analysis of each student's writing on the pretest and posttest. On the other hand, there were no statistically significant differences between the treatment and control groups' posttest scores for the writers' usage of language, organization, content and mechanics. As a result, EFL writing skills teachers should integrate collaborative writing through social media into their curricula cautiously.

Keywords: wiki-based collaborative writing, face-to-face instruction, writing performance

1. Introduction

According to numerous studies conducted in Ethiopia (Taddele, 1990; Tassew, 1993; Awol, 1999; Geremew, 1999; and Italo, 1999), learning how to write well is difficult and time-consuming for many Ethiopian pupils. According to their findings, the learners' poor writing skills are a result of the demands placed on them. Writing is therefore a difficult academic assignment for students, and for many teachers,

teaching writing skills is a source of professional misery because it is typically regarded as a dull chore and a separate job. As was already noted, a student's approach to writing instruction may be a barrier to them developing their writing abilities.

There are now many opportunities for meaningful writing-based interaction because to the development of communication technology, particularly the usage of computers and the Internet in educational contexts (Sun, 2010). According to a research by Warsaucher (2002), technology is crucial for language education programs in general and writing instruction in particular. Therefore, exactly like pens and books, which are invisible to teachers, computer-assisted language learning (CALL) reaches the level of normalcy (Bax, 2003). Bax recommended using Web 2.0 technologies as one option to implement CALL in language classes.

With the transition from Web 1.0 to Web 2.0, there is now the chance to share and interact with a larger audience in addition to publishing content (Wang and Vasquez, 2012). Wiki, Google Docs, and blogs are examples of web-based programs known as Web 2.0 that allow for online interactive and collaborative communication between groups of people (Holtzman, 2009; Motteram and Brown, 2009). Davis, Sprague and New (2008) also supported any digital technology to be used to achieve specific learning objectives.

According to Winder (2007), a wiki is an asynchronous mode that supports collaborative communication and enables individuals to produce knowledge together that can be changed and improved by user contributions. The editing page, discussion page, and history page are the three basic components of a wiki. Individuals can engage in mutual communication and engagement to identify issues, negotiate meaning, and offer solutions in discussion pages (Marandi and Nami, 2013). On the other side, users can use the editing page to add their ideas and remark on others' efforts. The history lesson is also in charge of documenting how the curriculum has evolved and changed through time. Discussion, according to Bruns and Humphreys (2005), served as "a form of ongoing meta-analysis on the part of the writers" (p. 28).

2. Literature Review

What is the function of language instruction in the information technology society? is one crucial question posed by Warschauer (2001). This inquiry is still relevant. According to Warschauer, the answer to this question can help both university students and English language teachers gain fresh perspective on the goal of studying and teaching the language. According to Warschauer, this kind of involvement can be achieved by assigning students projects that require negotiation, teamwork, goal-setting, and meaningful communication. This means that university students must learn to create a new set of English language literacy skills, including new types of written communication using online tools like wikis.

Additionally, Warschauer argued that teachers of English should use learner-centered collaborative writing projects in which students collaborate with their classmates utilizing a range of technology tools, such as wiki. The impact of internet technology on students' writing performance in the Ethiopian setting has not yet been studied, however this can assist students in improving their writing performance on an individual basis.

The majority of the researchers believe that most freshmen students produce written texts that fall short of the required standard when they create term papers, assignments, examinations, and other discourses based on their experience as English language teachers at the university level and informal conversations they had with English language teachers. Additionally, instructors from other departments who instruct courses in science, technology, and engineering are overheard complaining that it is extremely difficult to assess the paragraphs or essays that students write in response to various subjective exam items. How ought this issue to be resolved? This important query needs to be addressed. Students at universities are very reliant on technologies, according to the researchers' experience.

The primary cause, as most of these professors point out, is the sometimes imprecise writing that students submit in answer to the exam items. Therefore, some professors are thinking about getting rid of exam questions that require students to analyze and elaborate their thoughts in writing, as the researchers informally talked and practically saw.

On the other hand, the advent of computers and the internet has altered how students today share information and communicate. As indicated by Warsaucher (2002), learners can converse and share knowledge via the internet rather than face-to-face, which allows them to develop their communication skills. Online collaborative writing is a brand-new idea in the realm of language created by this technological advancement.

At Wayne State University, Anas (2016) conducted research on the effects of wiki-based collaborative writing on ESL students' writing performance. The study's participants were split into two groups: control and experimental. In the control group, there were 14 pupils, while in the experimental group, there were 11 students. Then, before to the start of the treatment, the researcher administered pretests to both groups. Post-tests were administered to both groups six weeks after the start of the treatment. The findings of this study demonstrated that wiki-based collaborative writing enhanced learners' writing abilities.

In a separate study, Ansarimoghaddam and Tan (2013) examined the impact of face-to-face training and collaborative writing on students' writing performance. The study's findings demonstrated that while both face-to-face education and wiki-based

collaborative writing increased learners' writing abilities, the latter method appeared to be more advantageous overall.

In a quasi-experimental study done by Alshumaimeri (2011), 42 first-year undergraduate EFL students were divided into experimental and control groups. The study lasted 20 weeks and the participants were enrolled at King Saud University in Saudi Arabia. The pre- and post-test writing assignments were of a similar genre, but the subjects were different. The agreement between the pre- and post-tests was examined using inter-rater scoring, which revealed a level of 97 percent agreement. The researcher evaluated the students' writing ability using an analytical scoring rubric. According to descriptive statistics and a paired samples t-test, the two groups' writing skills significantly improved over time.

In a related study, the impact of blogs on the success of Turkish EFL authors was investigated using a paired samples t-test. In the ELT Department of Balikesir University, 48 participants were randomly divided into two writing conditions: a traditional group and blog users. The results of the Foreign Language Examination (FLE) were utilized in this study to gauge English competence; a background questionnaire contained information on demographics including age, gender, and academic performance.

Wichadee (2013) also carried out a cluster sample of 80 students from both traditional and wiki-based writing sections, which is consistent with the other findings. For 14 weeks, the students met once a week for two hours, during which time data were gathered using a variety of equipment. First, the validity of the pre- and post-test English summary writing tests that the researchers created was confirmed by three experts. Then, a survey with five rating-scale options was created, with reported validity of.87 and.85, respectively. Last but not least, 100 pieces of summary writing from the two groups were reviewed for accuracy before an open-ended questionnaire was given out.

According to earlier research, wiki could help learners of foreign languages improve their writing abilities. These studies also claimed that further research is needed to determine how wikis affect students' ability to write in foreign languages, particularly a study that compares the impacts of wiki-based collaborative writing to face-to-face education.

In contrast to the aforementioned studies, Arnold et al. (2009), Britcliffe and Walker (2007), Cole (2009), Ebner et al. (2008), Minocha and Thomas (2007), Karasavvidis (2010), Lund and Smordal (2006), and Hadjerrouit (2011 and 2012) found that students rarely edit each other's contributions when using the wiki and do not collaborate when using it. The researchers proposed a number of theories to explain the low degree of collaboration, including little student involvement, aversion

to using the wiki, the predominating paradigm of learning, the ownership issue, and an inadequate pedagogy.

The current study's core premise is that when college students and instructors focus on implementing wikis in writing classes, most university students' writing abilities will advance. The contrasts between current generation and the one from ten years before, as Prensky (2006) noted, are as follows: Our students are no longer "little replicas of us," as they may have been in the past. They are so unlike us that we are no longer able to determine what is best for them academically using our understanding of the 21st century or our training. We won't be able to keep up with our pupils' quick evolution and change because they are digital natives (p. 9).

3. Research Questions

1. Will the experimental group's students' posttest writing performance in terms of content, organization, vocabulary, grammar, and mechanics show a statistically significant improvement?

2. In terms of organization, content, vocabulary, grammar, and mechanics, which group's writing performance the experimental group writing with wiki or the control group writing with face-to-face instruction will show a statistically significant difference, if any?

4. Research Methodology

This study sought to determine the impact of wiki-based collaborative writing on students' writing abilities. A quasi-experimental design was used in this investigation. The intervention required an experimental method using pre- and post-tests comparing control and experimental groups, which is why this design was adopted. When randomization is not feasible, it is possible to utilize a quasi-experimental method, as indicated by Cohen (2000). The null and alternative research hypotheses are therefore tested using a quasi-experimental methodology.

The firs two major research topics were addressed through a special quasi-experimental design known as the "comparison groups pretest and posttest design" in this study. In order to investigate the impact of wiki-based collaborative writing on students' writing performance, two groups were used: the control group (face-to-face training) and the experimental group (wiki-based collaborative writing). To compare the effects of face-to-face training with wiki-based collaborative writing, pre- and post-tests were given to both the control and experimental groups.

4.1.The Research Participants and Samples

The College of Natural and Social Sciences and College of Applied Sciences were specifically chosen from among the five colleges (College of Biological and Chemical Engineering, College of Architecture and Civil Engineering, College of Electrical and Mechanical Engineering, and College of Applied Sciences). The

reason was students who took the course Communicative English Language Skills II were under these colleges.

The College of Natural and Social Sciences was selected randomly using the lottery method. Under the College of Natural and Social Sciences, there were 40 sections of pre-engineering students. Section L1 and L2 were selected randomly and students in section L1 were assigned as a control group and L2 as an experimental group randomly.

4.2.Sampling Procedure

Since the researcher used the existing sections (L1 and L2), the sample was a naturally occurring group. All students in section L1 (23) and section L2 (21) were asked to fill in the consent form prepared for the study. Three students from L1 and two students from L2 did not express their consent to participate in the study. As a result, section L1 (20 students) was the face-to-face instruction group (control) and section L2 (19 students) was the wiki-based collaborative writing group (experimental). A user name and password was created for the participants of the experimental group to access the wiki workspace, and they wrote collaboratively for five weeks. It is worth mentioning here that one instructor taught both groups; he used similar objectives, topics, modules, activities, and an equal amount of time.

The researcher created a timetable for a non-credit essay-writing course. Essay definitions, essay structure, essay writing techniques, types of essays with examples, and activities for each type of essay are the main elements of the course's structure. Each pupil received a special identification code to maintain privacy. Therefore, the participants in the control group (face-to-face writing instruction) were coded (from A1 to A20), and the experimental group (wiki-based collaborative writing) were also coded (from B1 to B19). Two raters rated the participants' pre and post-tests.

The raters were Communicative English Skills II teachers who have more than 15 years of experience in teaching writing skills and are experienced in the areas of English writing and grammar teaching. Under the English language department, 21 English teachers have more than 10 years of teaching experience. From these 21 teachers, two of them were selected randomly. The raters were given orientation on how they are going to rate participants' essays and about the rubrics used for rating purposes.

4.3.Data Gathering Tools

4.3.1. Tests

The essay is a standardized test in English language institutes to measure the writing performance of students. Participants were provided with a question or multiple questions and will be asked to write an essay on one of these topics within a given time. The essays (compositions) that were used in this study are recommended by researchers like (Alegrıa de la Colina and García Mayo, 2007; Wigglesworth, and

Storch, 2009; Watanabe and Swain, 2007; Storch, 2013). These tests were adapted by considering the context of the current research. Therefore, in the current study, participants of the study were provided with questions in the pre and post-tests. The pre and post-test questions were appropriate to the students' familiarity, and students were able to answer them. What made the essay writing a test was the purpose: it was to test the student's writing performance.

As previously noted, the posttest essays were written by each participant separately at the beginning of the first week and the conclusion of the sixth week. The essays were evaluated using a rubric created by Jacobs, Zinkgraf, Wormuth, Hartfiel, and Hughey (1981). (pre and post-tests). The rubric evaluated students' writing abilities based on five criteria: content, organization, vocabulary, grammar, and mechanics. Each measurement factor has a separate point value: content is worth 30 points, organization is worth 20, vocabulary is worth 20, grammar (language use) is worth 25, and mechanics is worth 5. The researcher then totaled together the average scores for each of these measuring components to arrive at the overall writing performance (100 points).

The rubric had been utilized and validated by few researchers (Anas, 2016; Shehadeh, 2011; Ansarimoghaddam and Tan, 2013). Since there were two raters for these essays, the researcher used inter-rater reliability (IRR) to ascertain how the scores of the two raters should be corrected in order to guarantee the accuracy of the observational rating. The intraclass correlation (ICC) is one of the most often used statistics for evaluating IRR for ordinal, interval, and ratio variables, according to Hallgren (2012). Hallgren clarified that when raters evaluate every participant's essay in a study, ICCs are appropriate for studies with two or more graders. ICC was utilized even though the study's data were ordinal and all of the participants' essays were rated by two raters.

Cicchetti (1994) states that the ICC can be between 0 and 1 and ICC values less than 0.40 represent poor agreement, ICC values between 0.40 and 0.59 show fair agreement, ICC values between 0.60 and 0.74 indicate good agreement, and ICC values between 0.75 and 1 represent excellent agreement.

4.3.1.1. Intra Class Correlation of Pre-tests

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.394[a]	.259	.552	4.893	38	190	.000
Average Measures	.796[c]	.677	.881	4.893	38	190	.000

ICC was used in this study to measure inter-rater reliability and demonstrate the degree of agreement amongst the raters. The researcher used the aggregate mean scores for each of the 39 students' essays that were graded by the two raters in the study for content, organization, vocabulary, grammar, and mechanics. Additionally,

as the researcher employed the two raters' average scores for each component, the emphasis of the ICC was on average measures. The outcome of the ICC study reveals that the two raters' average ICC measures were.796, which demonstrated great agreement between the two raters and strong inter-rater reliability.

4.3.1.2. Intra Class Correlation of Posttests

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.418a	.282	.575	5.303	38	190	.000
Average Measures	.811c	.702	.890	5.303	38	190	.000

The posttest's ICC analysis revealed that the average measures of ICC for the two raters were.811, indicating a respectable level of agreement between them and demonstrating strong inter-rater reliability.

4.4.Data Analysis Procedure

The two raters used the aforementioned writing criteria to evaluate and grade the participants' pre- and post-test essays after they had finished the posttests. The mean scores of each dependent variable were then calculated. Each rater evaluated each participant's essay based on one dependent variable that had five components: overall writing performance with content, organization, vocabulary, grammar, and mechanics.

The average mean scores of each dependent variable from the pre- and post-test essays of each participant were computed after the raters had finished grading the essays, as was described above. An excel spreadsheet was used to enter and organize all of the scores. The average scores of each dependent variable on the pre- and post-tests for the essays were computed, and each participant received a score from each rater. The Statistical Package for Social Science (SPSS) Version (24) was then used to import the data and do analysis. The experimental group and the control group were compared in five distinct ways. Based on the students' overall writing performance in terms of content, organization, vocabulary, grammar, and mechanics, these comparisons were made.

4.4.1. Pretest and Posttest Analyses

Statistics, the information gathered to address the two study issues was examined. To determine if there were statistically significant differences between the experimental and control groups as well as within the experimental group, the results from the pre- and post-tests were compared to the differences between the two groups. Utilizing SPSS, statistical calculations were made. The study's overall alpha level of significance, $p<.05$ (95% confidence), was established prior to data collection. That was due to the consensus that one of the most frequently employed levels of significance in educational research is the alpha level of significance $p<.05$ (95% confidence) (Ary, Jacobs, and Reazavieh, 2002).

5. Data Analysis and Discussion of the Results

Prior to the wiki-intervention, baseline writing performance scores of the children were determined via pretests. These starting points were used for two different things. The first goal was to see if there were any variations in writing performance between the control and experimental groups and to see if they were comparable. In order to ascertain the effects of the treatment, the pretest results were also compared with the posttest findings after the subjects had completed the experiment. Descriptive statistics, the independent samples t-test, and the paired samples test were employed to assess the pretests.

5.1.Analysis of Pretest Results of both Groups

All of the study's 39 participants were required to complete an essay as a pretest during the study's pre-intervention phase. What were the top three reasons you chose to continue your education at AASTU, in no more than five paragraphs? The participants had one hour to respond. The essays of the pupils were graded by two English language instructors with more than ten years of combined expertise instructing English grammar and writing techniques.

The second goal, which is described in the section on collecting post-intervention data, was to compare the results of the pretest with those of the posttest, which consisted of essays that the participants wrote after completing the experiment to ascertain the effects of the treatment. The participants in the experimental group and the control group needed to have similar writing abilities in English prior to the experiment. The findings of this research are given in this part, beginning with an overview of writing performance in terms of the five measuring components.

5.1.1. Overall Writing Performance

Adding up all of the mean scores of the five dependent variables scored by the two raters in terms of the pretest's overall writing ability concentrates the analysis on (content, organization, vocabulary, grammar, and mechanics). Through descriptive statistics and an independent-samples t-test, the writing performance of the experimental group and the control group was compared in terms of overall writing performance.

Table 1

Results of the Descriptive Statistics and Independent Samples t-test of both Groups in terms of Overall Writing Performance (pretests)

Overall writing performance	Group	N	Mean	T-value	Sig. Value	Significance
	Control	20	77.7	.783	.439	Not significant
	Experimental	19	75.1			
	Total	39				

As the average mean score in the above table shows, in terms of the overall writing performance, the participants of the control group (N= 20) had an average mean score of 77.7, while the participants of the experimental group *(N=19)* had an

average mean score of 75.1. The analysis of the descriptive statistics indicated that the control group outperformed the experimental group.

The results of the independent samples t-test indicated no statistically significant differences at the point $p<0.05$ in the overall writing performance between the control and the experimental groups ($t= .783$, $p= .439$) even though the average mean score of the control group is slightly higher than that of the experimental group.

5.1.2. Writing Effectiveness in Content

"Knowledge of the subject, covering of a topic, the significance of information, substance, and the amount of details" were the main topics of the content analysis of the essays (Shehadeh, 2011, p. 291). A participant might receive a maximum of 30 and a minimum of 15 for this variable. Through descriptive statistics and the independent-samples t-test, the content writing abilities of the experimental and control groups were compared.

Table 2

Results of the Descriptive Statistics and Independent Samples t-test of Both Groups in terms of Content (Pretests)

Writing performance in terms of content	Group	N	Mean	T-test value	T-test sig. value	Significance
	Control	20	22.6	.172	.865	Not significant
	Experimental	19	22.4			
	Total	39				

According to the above table, participants in the experimental group (N=19) had an average mean score of 22.4 while participants in the control group (N=20) had an average mean score of 22.6. The results of the descriptive statistics analysis show that the control group's mean score is higher than the experimental group's in terms of content. The independent samples t-test findings from the pretest, however, showed no statistically significant difference between the experimental and control groups' writing performance ($t=.172$, $p=.865$).

5.1.3. Writing Effectivness in Organization

"Fluency of expression, clarity in the assertion of ideas, support, organization of ideas, sequencing, and development of ideas" were the main areas of attention for the analysis of the essays' organizational structure (Shehadeh, 2011: 291). A participant might receive a maximum score of 20 and a minimum score of 9.5 for this variable. Descriptive statistics and an independent-samples t-test were used to examine the writing abilities of the experimental and control groups in terms of essay structure.

Table 3

Results of the Descriptive Statistics and Independent Samples t-test of Both Groups in terms of Organization (Pretests)

Writing performance in terms of organization	Group	N	Mean	T-test value	T-test sig. value	Significance
	Control	20	15.8	-.347	.731	Not significant
	Experimental	19	15.9			
	Total	39				

The participants in the experimental group (N=19) received an average mean score of 15.9 in the arrangement of the essay, compared to the participants in the control group (N=20), who received an average mean score of 15.8. The independent samples t-test findings showed no significant difference between the two groups' organization writing performance (t=-.347, p=.731) even though the experimental group's average mean score was marginally higher than the control group's.

5.1.4. Writing Effectivness in Vocabulary

The essays' vocabulary was examined in terms of "ranging, the accuracy of word/idiom choice, mastery of word forms, appropriateness of register, and efficacy in transmitting message" (Shehadeh, 2011: 291). A participant's score in this variable ranged from 10.5 to 20, with 20 being the highest possible value. Through descriptive statistics and the independent-samples t-test, the language usage of the experimental and control groups' writing performances was compared.

Table 4

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Vocabulary (pretests)

Writing performance in terms of vocabulary usage	Group	N	Mean	T-test value	T-test sig	Significance
	Control	20	15.9	1.285	0.207	Not significant
	Experimental	19	14.8			
	Total	39				

The participants in the control group (N=20) had an average vocabulary score of 15.9, while the participants in the experimental group (N=19) had a vocabulary score of 14.8, as shown in the above table. The control group outperformed the experimental group in terms of word usage, according to the average mean score. Based on the data in the aforementioned table, the independent samples t-test findings showed that there were no significant differences between the experimental and control groups' writing ability in terms of vocabulary usage (t=1.285, p=0.207).

5.1.5. Writing Effectivness in Language Use (grammar)

The use of sentence structures and constructions, precision and correctness in the usage of the agreement, number, tense, word order, articles, pronouns, prepositions, and negation were the main areas of focus in the grammar analysis of the essays (Shehadeh, 2011: 292). In this variable, a participant might receive a minimum score of 12 and a maximum score of 25. Descriptive statistics and an independent-samples t-test were used to compare the grammatical writing abilities of the experimental and control groups.

According to the aforementioned data, participants in the control group (N=20) had an average mean score of 19.3 while participants in the experimental group (N=19) had an average mean score of 18.5. Additionally, the independent samples t-test findings from the pretest showed no evidence of a significant difference between

the control and experimental groups' writing ability in terms of grammar (t=.834, p=.410).

Table 5

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Grammar (pretests)

Writing performance in terms of grammar	Group	N	Mean	T-test value	T-test sig. value	Significance
	Control	20	19.3	.834	.410	Not significant
	Experimental	19	18.5			
	Total	39				

5.1.6. Writing Effectivness in Mechanics

On "conventions of spelling, punctuation, capitalization, paragraph indentation, etc.," the mechanics of the essays were examined. (2011) Shehadeh, p. 292. A participant might receive a maximum score of 5 and a minimum score of 1.5 for this variable. Descriptive statistics and an independent samples t-test were used to compare the mechanics of the writing performance of the experimental and control groups.

Table 6

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Mechanics (pretests)

Writing performance in terms of mechanics	Group	N	Mean	T-test value	T-test sig	Significance
	Control	20	4.1	4.085	.0008*	Significant
	Experimental	19	3.1			
	Total	39				

According to the aforementioned data, participants in the experimental group (N=19) had an average mean score of 3.1 whereas participants in the control group (N=20) had an average mean score of 4.1. The control group outperformed the experimental group in mechanics, according to the two groups' average means. A significant difference in writing ability in terms of mechanics between the control and experimental groups was also revealed by the independent samples t-test findings, as shown in the preceding table (t=4.085, p=. 0008).

5.2.Analysis of the Post-intervention Data

After six weeks of teaching, the post-tests were used to compare the writing abilities of the two groups. The data were analyzed using descriptive statistics, paired-samples t-tests, and independent-samples t-tests.

5.2.1. Analysis of the Posttests

The posttests for the two groups were scored by the two raters. The average mean scores for each dependent variable were calculated after the raters had finished grading. An excel spreadsheet was used to enter and organize all of the mean scores for the different factors. After that, the data were imported into SPSS for evaluation. The researcher used the two raters' combined average scores on the post-test results

for all 39 students. Each study topic is examined in the parts that follow in relation to the information gathered.

5.2.1.1. Research Question One

Will there be a statistically significant improvement in the experimental group's students' writing ability in terms of content, organization, vocabulary, grammar, and mechanics in the post-writing test? The goal of this study question was to determine whether the experimental group's writing ability had improved overall in the posttest compared to the pretest in terms of content, organization, vocabulary, grammar, and mechanics.

Descriptive analysis and paired samples t-tests (paired t-tests) were employed to look for any statistically significant differences between the experimental group's posttest results and pretest outcomes in order to address the aforementioned research topic. The control and experimental groups' final scores on the posttest compared with the pretest on their overall writing performance are presented in the following as descriptive and inferential statistics (content, organization, vocabulary, grammar, and mechanics).

Table 7

Results of the Descriptive Statistics and Paired samples t-test of the Experimental Group in terms of overall Writing Performance (posttests)

Experimental group	Tests	Mean	Standard Deviation	T value	Sig value	Significance
Content	Pretest	22.4	3.8	-4.4	.000	Significant
	Posttest	26.2	2.1			
Organization	Pretest	15.9	3.4	-2.4	.025	Significant
	Posttest	17.8	1.2			
Vocabulary	Pretest	14.8	2.5	-4.2	.000	Significant
	Posttest	18.1	1.8			
Language use (grammar)	Pretest	18.5	2.5	-5.6	.000	Significant
	Posttest	21.9	1.8			
Mechanics	Pretest	3.1	0.9	-4.8	.000	Significant
	Posttest	4.2	0.4			

According to the results of the descriptive analysis, participants' posttest average mean scores indicated an improvement in all five aspects of writing. This demonstrated that employing wiki-based collaborative writing could give participants the chance to use their resources to scaffold one another, which helped them enhance their writing performance in the posttest.

A paired samples t-test (paired t-test) was conducted to explore the impact of wiki-based collaborative writing on students' writing performance in content (out of 30%), organization (out of 20%), vocabulary (out of 20%), language use (out of 25%), and mechanics (out of 5%) in the posttests. Participants in the post-tests showed better performance in all variables in their post-tests. Then, there were statistically significant differences at the $p<.05$ level in scores of the posttest and the pretest in all components as shown in the above table.

As a result, on the posttest, participants in the experimental group demonstrated statistically significant gains in all areas (content, organization, vocabulary, grammar, language use, and mechanics). At the p.05 level, there were statistically significant differences between the posttest and pretest scores for every variable. Wiki gave participants the chance to edit, remark, discuss, and rewrite their peers' writing without being constrained by time or place, which is one primary rationale for the experimental group's improvement in their overall writing skill compared to their pretest findings. Studies by Kahany and Khosravian (2014) and Hosseinpour and Biria (2015) support this conclusion (2014).

5.2.1.2. Research Question 2

Which group's writing performance that of the experimental group using wiki or the control group writing with face-to-face instruction—will demonstrate statistically significant improvement in the posttest in terms of organization, content, vocabulary, grammar, and mechanics? The purpose of this question was to compare the post-test writing performance of students in the experimental group (wiki-based collaborative writing) and the control group (face-to-face writing training) in terms of content, organization, vocabulary, language use (grammar), and mechanics.

To answer the second question of the study, descriptive statistics and an independent samples t-test were used. Since the pretest yielded no significant difference between the two groups at the beginning of the study, it seems reasonable to consider that any significant difference in their mean scores on the posttest would be due to the intervention. The following is a presentation of the descriptive and inferential statistics computed for the final scores on the posttest for both groups.

5.2.1.2.1. Overall Writing Performance (Posttests)

This section shows the average mean scores and independent samples t-test results of both groups in terms of content, organization, vocabulary, language use, and mechanics.

Table 8

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Content (posttests)

Groups	Mean	Standard Deviation	T-test value	T-test sig	Significance
Control n=20	26.6	2.2			
Experimental (N=19)	26.2	2.1	.483	.632	Not significant

The above table reveals that participants from both groups showed almost similar writing performance in content (m=26.2 of the experimental group and m=26.6 of the control group).To see whether there was a statistically significant difference between the two groups in terms of content, an independent samples t-test was conducted. Results of the analysis showed that participants in the control group performed better (m = 26.6) compared to participants in the experimental group (m =

26.2), but there was no statistically significant difference at the p<.05 level in both groups' scores (t= .483, p=.632) as shown in the table above.

Table 9

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Organization (posttests)

Groups	Mean	Standard deviation	T-test value	T-test sig	Significance
Control n=20	18.1	1.3	.630	.532	Not significant
Experimental (N=19)	17.8	1.2			

The above table shows that the control group performed better (m=18.1) than the experimental group (m=17.8) in essay organization. The average mean scores of the two groups showed that the two groups had similar performance. An independent samples t-test was conducted to explore the impact of wiki-based collaborative writing on the students' writing performance in the organization of the essay (m=17.8) in the posttest. Though the mean scores of the two groups showed different results (M=17.8 and 18.1), there was no statistically significant difference at the p<.05 level in both groups' scores in an organization of the essay (t=.630, p=.532).

Table 10

Results of the Descriptive Statistics and Independent Sample t-test of both Groups in terms of Vocabulary (posttests)

Groups	Mean	Standard Deviation	T-test value	T-test sig value	Significance
Control (N=20)	18.1	1.4			
Experimental (N=19)	18.2	1.8	.229	.820	Not significant

Table 10 shows that the two groups had almost similar writing performances in vocabulary (m= 18.1 and m=18.2). The independent samples t-test which was conducted to explore the impact of wiki-based collaborative writing on students' writing performance in vocabulary in the posttest showed that participants in the experimental group showed better performance in vocabulary (m=18.2) than participants in the control group (m=18.1). However, there was no statistically significant difference at the p<.05 level between the groups in vocabulary (t =.229, P= .820). The reason for the slight mean difference might be that wiki provided the participants with an opportunity to exchange correct words during collaborative writing, which helped them to improve their vocabulary skills.

Table 11

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Language use (posttests)

Groups	Mean	Standard deviation	T-test value	T-test sig. value	Significance
Control n=20	22.2	1.6			
Experimental (N=19)	21.9	1.8	.462	.820	Not significant

The above table shows that the control and experimental groups had almost similar performance in grammar (m=22.2 and m= 21.9 respectively). An independent

samples t-test was conducted to explore the impact of wiki-based collaborative writing on the students' writing performance in language use (out of 25%) in the posttest. Participants in the control group showed better performance in language use (m= 22.2) than participants in the experimental group (m=21.9). However, there was no statistically significant difference at the p<.05 level in terms of language use (t= .462, p=.820).

Table 12

Results of the Descriptive Statistics and Independent samples t-test of both Groups in terms of Mechanics (posttests)

Groups	Mean	Standard Deviation	T-test value	Sig value	Significance
Control n=20	4.2	0.6	.096	.636	Significant
Experimental (N=19)	4.2	0.4			

The above table reveals that the experimental and control group had similar performance as regards mechanics (m=4.2). An independent samples t-test was conducted to explore the impact of wiki-based collaborative writing on the students' writing performance in mechanics in the posttest. Participants in the experimental and control group showed similar performance in mechanics (m=4.2). As a result, there were no statistically significant differences at the p<.05 level in both groups' scores in mechanics (t=.096, p=.636).

6. Discussion of the Results of the Study

The pre-test findings showed that there were no statistically significant variations in the dependent variables-general writing ability in terms of content, organization, vocabulary, and grammar-between the control group and the experimental group. However, the outcome showed that there was a statistically significant difference between the two groups in terms of mechanics. Additionally, in five dependent variables (total writing performance in terms of content, vocabulary, grammar, and mechanics), the mean score of the control group appears to be marginally higher than that of the experimental group.

The first study question asked participants in the experimental group whether they had improved overall in terms of content, organization, vocabulary, grammar, and mechanics between the pretest and posttest. In terms of content, organization, vocabulary, language use, and mechanics, the experimental group's overall writing performance was measured by means, and it revealed that students' overall writing performance had improved. This suggests that wiki-based collaborative writing can aid students in raising their level of writing proficiency in terms of the aforementioned elements.

The study's conclusions showed that using wikis for writing helped pupils perform better in all areas of writing. This was anticipated because research demonstrates that students' writing performance is improved by collaborative writing

in general and collaborative writing using social media, such as a wiki, in particular (Ansarimoghaddam and Tan, 2013; Lin, 2014; Khany and Khosravian, 2014).

Which group's performance the experimental group writing with wiki or the control group writing with face-to-face instruction will demonstrate statistically significant improvement in the posttest for organization, content, vocabulary, grammar, and mechanics?

For content, organization, vocabulary, language use, and mechanics, the results showed that there were no statistically significant differences at the $p< 0.05$ in both group's scores. However, the average mean scores showed that the control group performed better in the content area whereas the experimental group performed better in vocabulary. Even if there were no statistically significant differences at $p < 0.05$ level in both groups in terms of content, organization, vocabulary, grammar, and language use on the posttest and with the pretest, it is worth mentioning that failing to find statistically significant results does not mean that the results of wiki-based collaborative writing in all components are unimportant or negative.

Therefore, from the results mentioned above, writing using wiki has improved the participants' overall writing performance in terms of content, organization, vocabulary, language use, and mechanics.

7. Conclusions and Recommendations of the Study

7.1.Conclusions

Social media use in educational contexts has rapidly increased, particularly in the EFL field, and many English language teachers are attempting to include social media into their syllabi. The purpose of this study was to respond to two research questions about the impact of wiki-based collaborative writing on students' writing abilities. Even though there are no statistically significant differences between the two groups in terms of their general writing abilities, the study's conclusions offer useful information for those working in the domains of instructional technology and English language teaching. The effectiveness of the students will increase across the board if wiki-based collaborative writing is incorporated into EFL writing sessions.Writing collaboratively through wiki seems to be valuable and beneficial in 1) improving the writing accuracy of students, 2) increasing vocabulary acquisition, 3) decreasing mechanics errors, and 4) promoting overall writing performance.

As a result, EFL teachers should integrate collaborative writing through social media into their curricula cautiously. While wiki-based collaborative writing proves to be useful, incorporating it without caution could harm the learning process. This study may help future researchers as well as EFL teachers to better understand and incorporate social media in collaborative writing at different educational levels.

7.2.Recommendations

At Addis Ababa Science and Technology University, first-year engineering students were the subjects of this quasi-experimental investigation. The study looked at how wiki-based collaborative writing might affect students' ability to write better (writing performance). Future scholars who are interested in wiki-based collaborative writing and in-person training can take a number of ideas from the findings.

The following are suggestions generated from the current study

1. According to the study's findings, more research is needed to evaluate face-to-face education methods and wiki-based collaborative writing techniques used in diverse circumstances in order to confirm or deny the findings of the present study.

2. In order to clearly evaluate the distinction between the two writing styles, researchers are urged to lengthen the experiment's duration, include more participants, and include a sufficient number of collaborative writing tasks.

3. To better understand the relationship between these variables and writing progress through wiki-based collaborative writing and one-on-one writing training, researchers may include additional variables such as gender, age, technological experience, and writing performance.

4. Future studies could look into how teachers and students feel about the usefulness of wiki-based collaborative writing.

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