

A preliminary study of the effect of WebQuests on the writing performance of Saudi female EFL elementary school students

This study investigated how WebQuests, an internet based learning tool, affects fifth grade Saudi female EFL students' writing skills. The students, a total of 63 in three classes, were given a pretest prior to using WebQuests and a posttest six weeks later. Results indicate that the experimental group outperformed the control group. There were significant differences in favor of the experimental group in terms of vocabulary, grammar, organization, content, length, and total overall score. This study suggests the use of technology in foreign language learning can lead to greater writing achievement among students.

1. Introduction

Students who are referred to as the "Net Generation" or the "Millennials" seek new ways to learn (Carlson, 2005), and in response, teachers try to integrate new strategies into their teaching methods, such as Computer Assisted Language Learning (CALL). This has attracted the interest of many educators (Alshumaimeri, 2008). In Saudi Arabia, the use of computers has extended, and the Ministry of Education has prepared many e-learning materials for English courses. King Abdullah has guided a new project called "Tatweer" in his country's educational system, which aims to pre-qualify teachers, develop curriculum, and support schools with data projectors and smart boards in addition to providing teachers with IT training (Alshumaimeri, 2008).

Students are learning fast and educational techniques should be changed accordingly. Today's students do not read much as their predecessors did, but instead prefer interactive media (Carlson, 2005). **373**

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Kern (2006) stated the world is changing rapidly, and this affects the way students learn. In order to facilitate students learning a foreign language, Lee (2001) suggests that teachers integrate IT into their EFL classes. EFL students rarely have the opportunity to speak with English native speakers, the use of CALL can help them to improve their writing, watch videos, listen to audio, and be exposed to authentic and realistic communication. In this way, it provides students the opportunity to learn English in different contexts. There are many ways to apply CALL in classrooms; one such way is by using WebQuests, which are described by Dodge (1997) as an inquiry-oriented activity that allows students to interact with relevant resources on the Internet during class time. WebQuests have a great effect on improving students' skills of writing and critical thinking, but few studies have been conducted on its effect on improving writing skills.

Torres (2007) described WebQuests as task-based and content-based learning. It is a lesson prepared by teachers in the form of a web page with preselected links. It gives students the opportunity to be exposed to authentic materials that improve their language writing. Moreover, it requires collaboration and cooperation among groups, thereby helping students to learn from each other and to develop social skills and critical thinking. However, few studies have investigated its effects on improving writing skills. WebQuests provide the opportunity to integrate technology into teaching and makes students focus on how to use and find quality information on the Internet. Furthermore, it helps students develop autonomy as they do their work, share opinions, discuss, and solve problems (Barros & Carvalho, 2007).

From what has been mentioned above, this study aims at investigating whether WebQuests have a positive effect on students' writing performance. In fact, this study is significant for teachers, students, researchers and professionals in the field of EFL and CALL for several reasons:

1. It provides language teachers with information about how to teach writing skills to elementary school students using technology.
2. It shows that teachers can motivate students to approach writing classes in a positive manner.
3. It improves elementary school students skills in using technology.
4. It contributes to pedagogical theory which supports previous studies that suggest WebQuests may have an influence on learning and EFL education.
5. It encourages the use of technology in classrooms.
6. It is significant to the field of CALL.

2. Literature review

2.1 Overview of WebQuests

As this study will shed the light on the effectiveness of WebQuests on improving the skills of writing, a number of previous studies on WebQuests, EFL and Learning and relevant literature will be reviewed. WebQuests were designed by Bernie Dodge and Tom March in 1995 to integrate the World Wide Web into classrooms. WebQuests expose students to online resources to gather information about a specific topic (Dodge, 1997), such as videoconferencing to enhance understanding (Koenraad, 2002). Dodge (2001) described WebQuests as "... an inquiry-oriented activity in which most or all of the information used

on information rather than just looking at it because this will help the students to enhance levels of evaluation, synthesize and analyse the data.

According to Dodge (2001), WebQuests are for accessing and gathering information as well as triggering meaningful communication. Dodge (1997) recommends that a WebQuest include the following basic structure: introduction, task, process, evaluation, and conclusion. Dodge (2006) writes that WebQuest is like a trip to the library, where students have the better opportunity to be exposed to many resources in order to develop a deeper understanding of content as compared to the usual method of learning. Teachers worldwide have adopted WebQuests promptly as many of them were searching for new methods of learning for students (Dodge, 2006). Most online WebQuests focus on low-level thinking by answering simple questions, but they should focus more on high-level thinking. WebQuests are an implementation of technology that teachers consider an up-to-date strategy that provides knowledge to students in an interesting manner (Vidoni & Maddux, 2002).

WebQuests contextualize learning and gives students the opportunity to choose a learning context through the Internet. Students "travel" through WebQuests to many countries and learn about their cultures. Motivation is considered to be an important psychological element in learning and helps students accomplish long-term goals (Guilloteaux & Dörnyei 2008).

2.2. WebQuests and learning

Motivation is an important psychological element in learning; it plays an important role in students' ability to accomplish long-term goals (Guilloteaux & Dörnyei, 2008). WebQuests consist of motivating and authentic tasks (Zheng, Perez, Williamson, & Flygare, 2007) that require students to concentrate (Dudeney, 2003). Students in all grades enjoy learning with technology (Abbit & Ophus, 2008). Moreover, WebQuests are stimulating and useful; students remember lessons far better via WebQuests than through traditional ways of learning (Hassanien, 2006). The teacher's role is to guide students in how to use WebQuests.

According to Torres (2007), using WebQuests in learning has many advantages. Initially, it promotes the effective use of time; students use the links given by the teacher and search for information in a structured, efficient manner. It also creates motivation between students and supports higher-order thinking. Students are required to read, think, analyze, synthesize, and evaluate. The evaluation of students is accomplished through rubrics; the teacher explains what students are supposed to do in the form of a checklist (Strickland, 2005). Chang, Chen, and Hsu (2010), in demonstrating the impact of different teaching strategies on the learning performance of environmental education, found that WebQuests fostered students' critical thinking skills by encouraging different learning tasks and expression of opinions. In a study identifying the underlying constructs of WebQuests as perceived by teachers, Zheng, Perez, Williamson, and Flygare (2007) found three constructs to be critical to WebQuests: constructivist problem solving, social interaction, and scaffolded learning. This finding suggests that instead of focusing on critical thinking skills, emphasis could be placed on constructivist learning that incorporates critical thinking and knowledge application (Zheng et al., 2007).

Segers and Verhoeven (2009) suggest WebQuests can be seen as a method that helps organize the learning process in line with the theory of dialectic constructivism. In their investigation of the effects of WebQuests on learning in elementary school classrooms in the Netherlands, Segers and Verhoeven (2009) found the effect size of learning from a

WebQuest was moderate to high, as it offers a structured method by which students can engage with the Internet. This structure particularly benefited boys who learned more using WebQuests as opposed to a free-search environment.

2. 3. Collaborative and group work

Many studies have found that using WebQuests enhanced vital cooperation and collaboration among students, which are vital for student development (Gorghi, Gorghi, González, & García de la Santa, 2006; Lara & Repáraz, 2007; Murray and McPherson, 2009; Torres, 2007). Murray and McPherson (2009) mentioned that WebQuests support group work. Working collaboratively, students improve speaking skills through verbal interaction with peers. When students work in groups, they discuss assignments and this leads to vocabulary exchange. According to Torres (2007), using WebQuests have the ability to promote collaboration and cooperation among students while using the target language, and this interaction in turn fosters responsible and independent learning and achieves social skills learning.

Pupils displayed greater enthusiasm playing specific roles and relaying information to group partners in the WebQuest team. Working in groups is beneficial; it gives students the opportunity to teach and to correct each other's mistakes. It makes them feel mature and responsible as a whole in addition to building social skills (Strickland, 2005).

2.4. WebQuests and EFL

In completing the WebQuest assignment, students read different materials and then compose their own. This process allows them to explore how the target language is used and then spontaneously use it correctly. Students are provided with interactive opportunities that make the learning experience meaningful (Laborda, 2009); they interact with one another using English in reading materials and group discussions, in addition to presenting their written work in English. These activities, as encouraged by WebQuests, improve the students' level of language ability. WebQuest techniques, with a solid pedagogical foundation (Noordin, Abdulsamad, & Razali, 2007), make use of global communication by sharing information and fostering discussion while contributing to the integration of the internet in EFL learning.

2.5. WebQuests and improving writing skills

As writing is the most difficult skill to learn, educators have been looking for inventive ways to teach writing skills (Hoewisch, 2001). Students sometimes face difficulties in expressing themselves through writing, so the teacher's role is to apply different strategies to assist those students. On the impact of WebQuests on writing skills, studies indicate that web-based language instruction produces better and more writing quantity than traditional classroom instruction (Laborda, 2009; Murray & McPherson, 2009; Torres, 2007).

2.5.1 English writing skills of UAE students. Cozens and Knowling (2008) stated that the (L2) writing of foundation students revealed weak skills. This is what was revealed in a study conducted in United Arab Emirates regarding Tertiary-Level students, especially those at

(L2) was quite weak. This might be due to their limited knowledge of expressing their ideas through writing. In other words, they have difficulty in producing written works. This will probably be exaggerated in ensuring their works to be understandable in written format which enables them to produce good written texts.

In academic settings, students are exposed to have two main approaches while producing their writing (Tribble, 1996). The first approach is that they are given models consisting of syntax, vocabulary and cohesive devices; i.e., students should produce written texts similar to these features. Similarly, the teacher's role is to evaluate their written works, identifying the mistakes and correcting them accordingly. Yang (2005) and Hyland (2002, p. 7) both expressed the view that successful writing indicates a student's language knowledge while the product of writing is essential as there might be little awareness of the reader beyond the examiner. The perceived limitations from this study of the writing product approach focused on the writer himself/herself and the process used for writing texts (Hyland, 2002); i.e., a special emphasis was given to the nature of writing and how students produce their ideas, the collection of data to be printed as finished text (Dyer, 1996, p. 313; Yang, 2005), the importance of assisting students prior to starting to write, combining of drafting/revision as well as publishing as final destination (Tribble, 1996, p. 39). As research conducted in the 1980s raised a couple of questions about the process approach, Horowitz (1986a) stated that the process approach failed to provide students with skills of academic writing. Swales (1987) also expressed the view that we should not emphasize what is happening to the writer, but should be focused on the interaction between the writer and targeted audience. This might lead to language tasks progress; i.e., students need to learn how to become acquainted with and survive in the academic societies (Dyer, 1996, p. 313) through specific writing instructions.

Al-Issa and Dahan (2008, p. 17) highlighted reasons beyond the weakness of writing of UAE students, is due to their prior limited knowledge in many areas and the text-books published for English class are not known to the region. In addressing this problem, the scholars found three factors that can be built into the educational material design. These are (i) building the learning materials on issues known in the region; (ii) giving students authentic and task-based learning opportunities; (iii) using processing approaches in developing the writing skills.

In identifying the above problems and their solutions, a detailed design of work was created which included: WebQuest materials and electronic journals, interactive and online accessible through Blackboard Vista (a management learning system). The first seven models consisted of an introduction, activities based on picture-matching, WebQuests under writing activity control, and a free writing WebQuest activity that can be made in the student's electronic journal. Finally, students were expected to produce a limited online text guidance focusing on a UAE state. Gagne (1985) also proposed nine events of instruction for the purpose of achieving an effective materials. These might be summarized as follows:

1. Gaining attention: Students were given some iconic symbols and were asked some questions about the icons.
2. Informing learners of the course objectives: Students were given instructions on how to write something.
3. Previous learning stimulation recall: This was an activity based on picture-matching which assisted the student to become acquainted with new information based on previous knowledge. As this was done before starting the writing process, pictures for class

- discussion were organized to stimulate previous knowledge recalling processes of the topics to be written about.
4. Presenting the contents: for better learning, contents of the topics were presented in manageable format as part of WebQuest activities. A series of tasks were done found on the Internet.
 5. Giving a learning guide: As the objective of any model is to encourage students to produce text-writing, they were given activities focusing on how to produce written text; they were not asked to write long writings and paragraphs, but to fill gaps in data obtained from the internet. This indicates that this experiment used product and process approaches to writing where a complete model text was given to the students for the purpose of future use, even though students were interested in applying the process-writing skills to finish the model.
 6. Providing feedback: Students received two kinds of feedback; i.e., one for their self-check from the activities they were practicing and the other from their teachers for correction individually or as group in the class. The teacher's role of correcting the works was to keep students aware of the nature of writing rather than focusing on their mistakes.
 7. Performance assessment: The last model helped to check and evaluate students skills in extracting images and data and putting it into their Web Quests .
 8. Retention and transfer to jobs: This might not be evaluated at the early stage, but might happen during the students' selections of their specializations of study.

The above models addressed the UAE students' weakness of writing skills in English. It indicated that they were asked to perform eight (L2) pieces of writing through their electronic journals. Even though, these were simple texts, yet the tasks showed an improvement in the students writing skills.

2.5.2 Taiwanese EFL learners. Chuo (2007) conducted a similar study of Taiwanese students where an investigation of WebQuests' effects on writing was discussed. The study focused on EFL learners' performance of writing, apprehension of writing as well as understanding the integration of web-resources and language learning. In this study, it was found that WebQuests are an essential tool for learning. For the purpose of evaluating its effectiveness, six writing instructions were designed. Six WebQuest based activities were developed in each lesson for writing purposes. Prior to writing, a description of each lesson was given to the students before starting to search for the information from the Internet sources. This enabled the students to write, analyze and synthesize the data they discovered during their Internet search which they could combine and incorporate within the assignments they wrote. Prior to writing, students shared and discussed with others their written works after reviewing and revising through the WebQuest writing activity.

Obviously, WebQuest writing instructions (**WQWI**) design encourages the learners and enables them to interact, receive input and produce output. These are three main elements for (L2) students' language acquisition (Chapelle, 1997; Pica, Holliday, Lewis, & Morgenthaler, 1989). The process of **WQWI** input originates from the WebQuest towards the intended language. On the other hand, the process of interaction goes through different channels such as the interaction that occurs between the technological tool and students, between the instructor and the students, or within the students themselves. The **WQWI** also enables the incorporation of the "reading to writing" approach. Some scholars believe

that the best way of learning how to write is to get a complete rich input data from ready (Krashen, 1984).

Torres (2007) stated that an improvement in the development of language skills was observed among students who engage with WebQuest technology, as they tend to use reading, writing, listening and speaking when giving a presentation or performing a task. A number of WebQuests on the web talk about various topics that save time for teachers and integrate the use of all of the students' language skills. Students read the material, collect information, increase their vocabulary, discuss in groups, write their reports, and then present orally. WebQuests support learning comprehension by allowing for the practice of skimming and scanning. Also, listening can be integrated into the lessons through the use of short videos. Teachers can improve classroom education by embracing different teaching methods that make their classes interesting and beneficial, as technology is proliferating rapidly. WebQuests' effectiveness for language learning has been studied, as discussed above, but few studies have been conducted in the Saudi context or elsewhere that investigate its impact on the development of the performance of students' writing. For this reason, this study sheds light on WebQuests' influence on fifth-grade students' performance in writing.

Plakans (2010) mentioned that a new writing task has been added in the Test of English as a Foreign Language (**TOEFL**). In this task, students are required to listen and read a text and then write a summary about it. Students' writing skills improve after the students are exposed to any texts through WebQuests, as Murray and McPherson (2009) stated. WebQuests can facilitate the integration of productive and receptive skills; the development of the productive skills of speaking and writing can be achieved through discussion among groups and written work, (Laborda, 2009). Regarding receptive skills, reading is improved by reading many topics, and listening can be achieved by adding multimedia videos. Students receive many benefits by using WebQuests: They develop the skills of using the computer, Internet, and oral communication. Moreover, their fluency and vocabulary increase, and they are motivated to use the target language (Laborda, 2009).

3. Statement of the problem

Although students may speak a foreign language fluently, they may face difficulties in writing it; this is especially true of Arab students (Rababah, 2003; Zughoul, 2003). Studies on the efficacy of WebQuests have shown that there is a significant improvement in students' learning behavior in general and in **EFL**. However, few studies have examined its effect on writing skills.

4. Research questions

1. Are WebQuests effective in enhancing the writing performance of **EFL** students in terms of vocabulary, grammar, organization, content, and length?
2. In a comparison of the experimental group (which employed WebQuests) with the control group (which learned through traditional methods), which group's writing performance will have significantly improved the most in the post writing test in regard to vocabulary, grammar, organization, content, and length?

5. Methodology

5.1 Research approach and design

The research conducted in this study is based on original data obtained from test scores (Brown & Rodgers, 2002). The aim of the study is to explore the effect of WebQuests on students' writing performance. Students' performance can be defined as (a) the students' scores on the pretest given to the experimental group compared with the scores of the control group on the same test, (b) the students' scores on the final posttest, which was administered to both the experimental and control groups, compared with their scores on the pretest, which was given to all groups before implementing the WebQuest treatment, and (c) the students' scores on the posttest given to the experimental group and compared with the control group scores on the posttest.

The design of this study is a quasi-experimental design since it was not feasible to randomly assign participants to treatments. A quasi-experimental design does not include random assignments. It is mostly conducted in educational research as it is not possible to assign participants randomly to groups (Ary, Jacobs, & Razavieh, 2002). That is, the groups were naturally assembled through their class sections.

Participants: The population of this study consists of fifth grade female students at Riyadh Schools. The school is a famous private school in Riyadh, the capital city, and English is taught there beginning in kindergarten. It follows the Ministry of Education curricula with the addition of its own English language curriculum. The total number of students in the fifth-grade is 120 students in five classes.

5.2 Sampling process and participants

A total of 63 students in three classes in fifth grade participated in the study. Two classes with 41 students formed the experimental group, and one class with 22 students served as the control group. All three classes were used for a total of 12 (45-minute) lessons over a six-week period in the second term in the academic year 2009–2010. First, while teaching this level, the researchers noticed that the students face difficulties in writing although they are excellent in speaking. Second, fifth-grade students are required to write paragraph compositions, whereas fourth-grade students are required only to write individual sentences.

It was important to ensure that the two groups were at the same proficiency level in order to minimize any effects that might result from differential proficiency levels. The pretest, given to both groups, consisted of asking students to write a short paragraph about an endangered animal. The results of the pretest show that the mean averages of the participants' grades on the pretest were very similar between the groups (see Table 1). In addition, there was no statistically significant difference among the two groups' results in the pretest measuring vocabulary, structure, organization, content, and length in their writing skills. These statistical results were computed through an Independent Samples Test (t-test) and revealed that there were no statistical differences at the $p < .05$ level in total scores for the two groups ($T = -1.88$, $p = 0.07$).

Table 1: Groups' equivalence t-test results

Group	No.	Mean	St. Deviation	T Value	Sig
Control	22	6.3977	2.47326		
Experimental	41	7.3963	1.71662	-1.88	0.07

5.3 Material

The WebQuest used in this study was an online free WebQuest designed for fifth-grade students (<http://www.besd61.k12.il.us/webquests/5th%20Grade/denoyer/safari/esstudent.html>). The topic of the WebQuest is animals that are in danger of extinction.

5.4 Instruments

The aim of this study was to examine the impact of the WebQuest technique, the independent variable, on the students' performance in the writing posttest (dependent variable).

A pretest was used to measure the participants' performance in writing before the treatment. In addition, it was used to ensure that any differences in the writing performance would be due to the experimental conditions rather than preexisting knowledge. The pretest also revealed whether all groups were at the same proficiency level in their EFL writing. Then, the posttest was used to measure the students' performance in comparison to the pretest results.

In both the pre and posttests, students were required to write a short paragraph about endangered animals. They were supposed to support their paragraph with reasons, examples, and ways to save the animals. The results showed that the pre and posttests had the same level of difficulty.

6. Analysis of data and discussion of results

6.1 Testing question one

To answer the first question of this study, a paired samples t-test was used to investigate any statistically significant differences in the posttest findings and compare them with the pretest results. Table 2 and the description below present the inferential statistics computed for the pre and posttests for the two groups.

Table 2 shows that the participants in the control group performed better on the posttest in terms of vocabulary ($M = 1.4$) than they did on the pretest ($M = 1.2$). Despite this, there was no statistically significant difference at the $p < .05$ level in vocabulary test scores for the pre and posttests.

A paired samples t-test conducted on the posttest scores of the control group in terms of grammar showed worse performance on the posttest ($M = 1.4$) than on the pretest ($M = 1.5$). However, there was no statistically significant difference at the $p < .05$ level in test scores for the two tests.

In terms of organization, the participants in the control group performed better on the

Table 2: Paired t-test results for control group (differences between pre and posttests)

Group	Variable	Test	No.	Mean	St. Deviation	T value	Sig.
Control Group	Vocabulary	Pre	22	1.2273	0.69825	-1.877	0.074
		Post	22	1.3864	0.53856		
	Grammar	Pre	22	1.5455	0.53249	1.156	0.261
		Post	22	1.4318	0.55732		
	Organization	Pre	22	0.7955	0.70134	-2.507	0.020*
		Post	22	1.0341	0.66947		
	Content	Pre	22	1.1591	0.67940	-1.427	0.168
		Post	22	1.2955	0.59078		
	Length	Pre	22	1.7045	0.53805	0.891	0.383
		Post	22	1.6023	0.49195		
	Total	Pre	22	6.3977	2.47326	-2.503	0.021*
		Post	22	6.7500	2.38298		

*Significant at 0.05 level

posttest ($M = 1.0$) than on the pretest ($M = 0.8$). There was a statistically significant difference at the $p < .01$ level in organization test scores for the two tests.

As seen in Table 2, even though participants in the control group performed better on the posttest ($M = 1.3$) than on the pretest ($M = 1.1$) in terms of content, there was no statistically significant difference at the $p < .05$ level in test scores for the two tests.

In terms of length, even though participants in the control group performed worse on the posttest ($M = 1.6$) than on the pretest ($M = 1.7$), there was no statistically significant difference at the $p < .05$ level in test scores for the two tests.

In terms of the total score, as seen in Table 2, participants in the control group performed better on the posttest ($M = 6.8$) than on the pretest ($M = 6.4$). There was a statistically significant difference at the $p < .01$ level in test scores for the pre and posttests.

An overview of the results of the control group is shown below in Figure 1. The total mean in the posttest was the highest. Students only showed significant differences in the total posttest score and the organization posttest score. They showed worse performance in grammar and length, but the difference was not significant.

For the experimental group, as seen in Table 3, a paired samples t-test was conducted on the posttest scores in terms of vocabulary. Participants in the experimental group showed better performance on the posttest ($M = 1.7$) than on the pretest ($M = 1.3$), and there was a statistically significant difference at the $p < .01$ level in test scores for the two tests.

In terms of grammar, the experimental group performed better on the posttest ($M = 1.9$) than on the pretest ($M = 1.6$), and there was a statistically significant difference at the $p < .01$ level in test scores for the two tests.

Table 3 shows that the experimental group showed better performance in terms of organization on the posttest (logical flow; logical structure) ($M = 1.8$) than on the pretest ($M = 1.3$). There was a statistically significant difference at the $p < .01$ level in test scores for the two tests.

The experimental group showed better performance on the posttest in terms of content

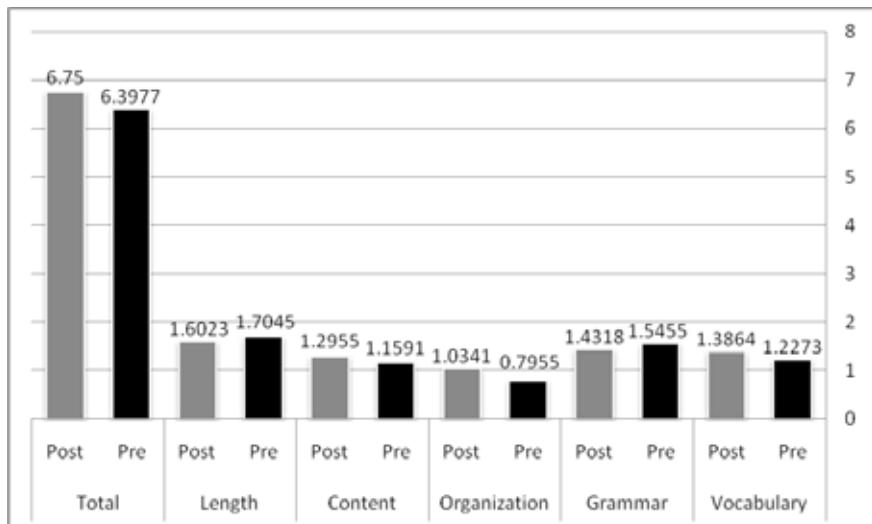


Figure 1. Mean scores of the control group's performance on the pre and posttests

Table 3: Paired t-test results for experimental group (differences between pre and posttests)

Group	Variable	Test	No.	Mean	St. Deviation	T value	Sig.
Experimental Group	Vocabulary	Pre	41	1.2927	0.46738	-6.782	0.00**
		Post	41	1.7378	0.34889		
	Grammar	Pre	41	1.5549	0.30879	-8.147	0.00**
		Post	41	1.9024	0.20825		
	Organization	Pre	41	1.3354	0.54661	-6.441	0.00**
		Post	41	1.8171	0.31635		
	Content	Pre	41	1.4573	0.59661	-5.175	0.00**
		Post	41	1.8841	0.27442		
	Length	Pre	41	1.7317	0.42716	-3.466	0.001**
		Post	41	1.9329	0.25015		
	Total	Pre	41	7.3963	1.71662	-9.205	0.00**
		Post	41	9.2317	1.04192		

**Significant at 0.01 level

(suitability of points; examples; reasoning) ($M = 1.9$) than on the pretest ($M = 1.4$). There was a statistically significant difference at the $p < .01$ level in test scores for the two tests.

In terms of length, participants in the experimental group performed better on the posttest ($M = 1.9$) than on the pretest ($M = 1.7$). There was a statistically significant difference at the $p < .01$ level in test scores for the two tests .

As seen in Table 3, the experimental group performed better on the posttest ($M = 9.2$) than on the pretest ($M = 7.3$) in terms of total score. There was a statistically significant 383

difference at the $p < .01$ level in test scores for the pre and posttests. An overview of the results of the experimental group is shown below in Figure 2. The total mean in the posttest was the highest. Students showed a significant difference in all posttests.

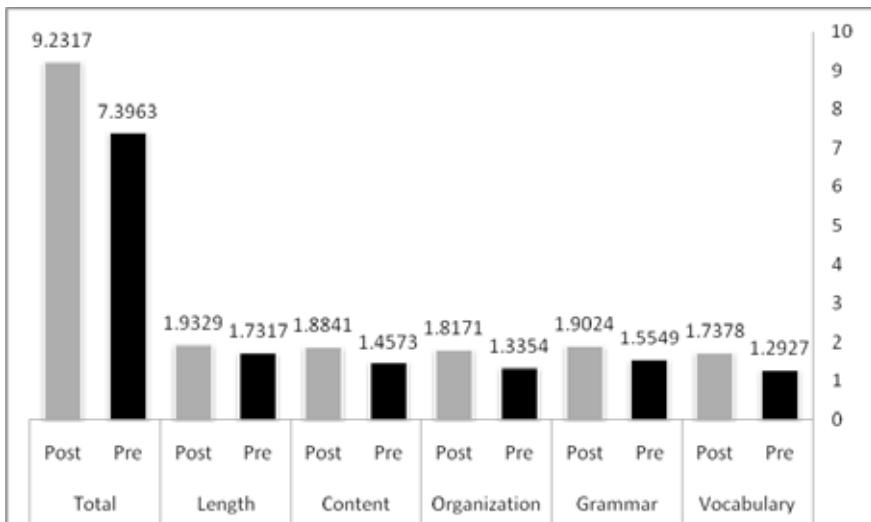


Figure 2. Mean scores of the experimental group's performance on the pre and posttests

6.2 Testing question two

"Which group's performance (experimental group with WebQuest or control group with traditional learning) will have significantly improved the most in the post writing test?" To answer the second question of this study, a t-test was used to investigate any statistically significant differences in the posttest findings of the control and experimental groups. Since the pretest yielded no significant differences between the two groups at the beginning of the study, it is reasonable to consider that any significant differences in their mean scores on the posttest were due to the treatment. Below (Table 4) is a presentation of the inferential statistics computed for the pre and posttests for the two groups.

Table 4 shows the results of the t-test conducted on the posttest scores in terms of vocabulary. The experimental group performed better on this test ($M = 1.7$) than the control group did ($M = 1.4$). There is also a statistical difference at $p < .01$ in test scores for the two groups. In terms of grammar, the experimental group performed better on the posttest ($M = 1.9$) than the control group did ($M = 1.4$). There is also a statistical difference at $p < .01$ in test scores for the two groups. The experimental group performed better on the posttest in terms of organization ($M = 1.8$) than the control group did ($M = 1.0$). There is also a statistical difference at $p < .01$ in test scores for the two groups.

As seen in Table 4, in terms of content, the experimental group performed better on the posttest ($M = 1.9$) than the control group did ($M = 1.3$). There is also a statistical difference at $p < 0.01$ in test scores for the two groups. In terms of length, the experimental group

Table 4: Independent sample t-test results for the differences between the two groups in the posttest

Variable	Group	No.	Mean	St. Deviation	T value	Sig.
Vocabulary	Control	22	1.3864	0.53856	-2.947	0.005**
	Experimental	41	1.7378	0.34889		
Grammar	Control	22	1.4318	0.55732	-3.671	0.000**
	Experimental	41	1.9024	0.20825		
Organization	Control	22	1.0341	0.66947	-5.026	0.000**
	Experimental	41	1.8171	0.31635		
Content	Control	22	1.2955	0.59078	-4.064	0.000**
	Experimental	41	1.8841	0.27442		
Length	Control	22	1.6023	0.49195	-2.711	0.011**
	Experimental	41	1.9329	0.25015		
Total	Control	22	6.7500	2.38298	-4.375	0.000**
	Experimental	41	9.2317	1.04192		

**Significant at 0.01 level.

difference at $p < 0.01$ in test scores for the two groups. In terms of the total score, the experimental group performed better on the posttest ($M = 9.2$) than the control group did ($M = 6.8$). There is also a statistical difference at $p < 0.001$ in test scores for the two groups.

Figure 3 below gives an overview of the inferential statistics computed for the pre and posttests for the two groups.

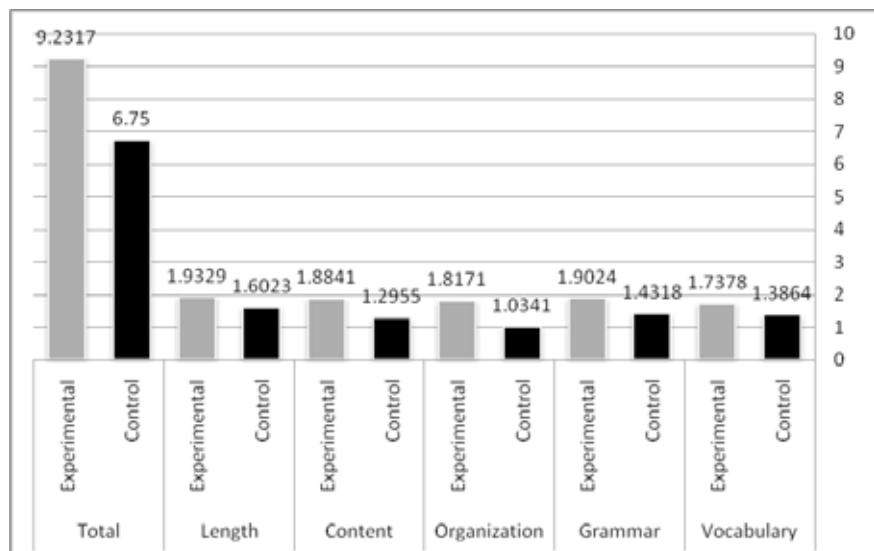


Figure 3. Independent samples t-test results for the differences between the two groups in the post test 385

6.3 Discussion of results

In reference to the first research question, which sought to discover whether or not there would be a significant improvement in the participants' performance in the posttest compared with the pretest, the control group results reveal that there were no significant differences in the participants' performance in term of length, content, grammar, or vocabulary. However, there were significant differences in terms of organization and total score. The experimental group results are statistically positive. There was a significant difference in the participants' performance in terms of vocabulary, grammar, organization, content, length, and total score.

As suggested by previous studies, Web-based language instruction can produce better writing quality and more writing quantity than traditional classroom instruction can (Laborda, 2009; McPherson & Murray, 2009; Torres, 2007). The findings of this study suggest that WebQuests can improve students' writing skills. These results are in agreement with the majority of studies which found significant differences in student performance when students were exposed to WebQuests (Chuo, 2007; Laborda, 2009; Torres, 2007). Reasons for this positive finding include student exposure to different resources that help to increase their vocabulary. In addition, students come across different structures in writing that are designed to convey more diverse types of information. As discussed by Chang, Chen, and Hsu (2010), WebQuests encourage critical thinking skills by requiring students to engage in varied higher-order learning tasks.

Analysis of the results of the pre and posttests of the control group reveal that the students only improved in organization and total score. These students, taught traditionally, were only instructed in how to write a good paragraph. They were not exposed to varied materials as in WebQuests. As such, the students have limited information and knowledge with which to complete assigned writing tasks in terms of vocabulary, grammar, content, and length.

The second research question explored which group's performance (the experimental group with the WebQuest or the control group with the traditional method) significantly improved the most in the post writing test regarding vocabulary, grammar, organization, content, length, and total score. Analysis shows the relationship was statistically positive. In the posttest, the performance of the students in the experimental group showed significant differences in terms of vocabulary, grammar, organization, content, length, and total score.

The above findings indicate that the WebQuest had a strong influence on the experimental group. The experimental group, which improved its writing when the control group did not, was exposed to various word expressions via the internet. As discussed by Torres (2007), an improvement in the development of language skills among students using WebQuest can be the result of greater integration of reading, writing, listening, and speaking tasks. Students in this study also improved in terms of structure, as they engaged with a greater variety of structures available on the internet as opposed to traditional learning materials.

As for content, participants of the study read web-based information about the assigned topic, which helped in enriching the content and length of the posttest writing assignment. The experimental group performed better in organization than the control group did. Students in the experimental group were exposed to numerous texts written to communicate a clear, logical message to readers which helped them in terms of organization in the posttest. Although they were taught the same writing procedures, the experimental group benefited more by learning through WebQuests.

This study was motivated by the growing interest in integrating technology in learning, especially via WebQuests. The primary aim of this study is to determine whether WebQuests affect the participants' writing performance. The findings reveal positive results. As stated by Segers and Verhoeven (2009), WebQuests offer a structured method by which students can engage with written materials that are more varied than those traditionally available. The experimental group showed greater improvement in terms of vocabulary, grammar, organization, content, and length in writing when compared to the control group. Additionally, as found in previous studies, students were very motivated and reported enjoying the experience (Abbitt & Ophus, 2008; Hassanien, 2006; Gaskill, McNulty, & Brooks, 2006). Integrating technology in learning can facilitate educational outcomes by appealing to students' attraction to technology and improving student performance in writing via exposure to varied types of texts.

7. Conclusion

Several theoretical and pedagogical implications for second language learners and teachers can be derived from the current study. Theoretically, the results of this study indicated that WebQuests can bring about educational learning outcomes in terms of improving writing skills, and this is in agreement with Chuo's (2007) suggestion that using WebQuests improve writing skills. In the experimental group, student performance showed a significant difference in terms of writing. The pedagogical implications of these findings call for the use of WebQuests in teaching; WebQuests engage students in greater classroom interaction. Students worked collaboratively while using WebQuests, and, in addition, they were very motivated to learn. In contrast, in response to the traditional method, students demonstrated little to no excitement. In viewing the two studies made in UAE students language skills and Taiwanese EFL learners, it was highlighted that the major challenging issues against the UAE students were due to their lack of knowledge in the process-writing skills to improve their language. The study also pinpointed the importance of using WebQuests and electronic journals to improve their writing skills. It was reported that students writing improved through incorporating the program with WebQuests practices. Significant improvements were shown by the end of the semester for both linguistic knowledge and writings skills and especially after displaying these improvements through digital storybooks and viewed by many students. By the same token, the Taiwanese study conducted by Chuo (2007) also indicated that the Web is an effective and essential tool for improving language learning. The effect of Web resources integration with the learning materials enabled the students to increase their writing and reading capacity.

Although WebQuests have a positive influence on writing performance, before teachers and researchers accept or reject WebQuests, there are several areas worth investigating further. Initially, the current study was applied to Saudi female elementary school students. It should be applied to other groups which include both males and females. Secondly, this study is quantitative but we suggest it be conducted to add greater depth through the use of interviews and other means of eliciting more personal information.

In concluding this research and after reviewing the above literature, it seems that students' writing skills will improve if technology is incorporated with traditional writing. WebQuests and electronic journals might help in improving students' writing skills. A good example might be following the learning theory of writing proposed by Gagné's (1985). The findings of these studies showed the relationship between learning and the tools used **387**

in the learning materials; i.e., technology such as WebQuests might multiply the writing skills of the students compared to the traditional way of learning. While results remain inconclusive, the current study provides some preliminary evidence that WebQuests can have a positive impact on Saudi female elementary students.

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