THE EFFECTS OF USING WEBQUESTS ON READING COMPREHENSION PERFORMANCE OF SAUDI EFL STUDENTS

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ABSTRACT
This paper is a report on the effects of using WebQuest on Saudi male EFL students reading comprehension performance. WebQuests expose students to several online resources and require them to gather information about a specific topic. The experimental group received traditional teaching plus WebQuests as supplementary activities. The control group received the traditional teaching only. The students' comprehension performance in the post-test was compared for both groups in order to determine whether there were significant differences between the groups in relation to the treatment. Significant differences occurring in the experimental group's post-test comprehension performance when compared to the pre-test indicate that using WebQuest can improve students' reading comprehension performance. The results indicate WebQuests have potential for use in promoting reading comprehension. Teachers and students do, however, need to be trained in order to use WebQuests more effectively.

INTRODUCTION
Computer Assisted Language Learning (CALL) has attracted the interest of many educators and researchers in order to facilitate learning a foreign language (Alshumaimeri, 2008; Kern, 2006). Many educational institutions use computers and the internet as part of a language classroom. Computers provide students with access to a large number of authentic learning resources and opportunities to interact with other speakers of the language (Alshumaimeri, 2008; Kern, 2006). In order for students to find useful information on the Web, they need to read extensively, evaluate content of texts, select relevant information, and synthesize materials to construct meaning (Crawford & Brown, 2002). They also have opportunities to use the target language through reading, writing presentations, listening to peers' opinions, and discussing ideas on interesting issues.

However, EFL teachers may find difficulties in designing a web-based syllabus that promotes language learning skills. A well-structured web-based activity, such as WebQuest, provides teachers with a pre-defined activity that they can adapt to suit their students and syllabus objectives. The effect of WebQuest on promoting language skills is little researched through empirical study (Abbitt & Ophus, 2008). This study focuses on investigating the use of WebQuest in an EFL reading class in terms of its potential to enhance students reading skills.

Abbitt and Ophus (2008) indicated that although WebQuests have been around for more than ten years and received popular reception among K-12 teachers, little research has been conducted on the effects of this technology-based activity on learning. Many studies focus on the design of WebQuest rather than curricular aspects of the design (Sox & Rubinstein-Avila, 2009). Most of these studies focus on students in first language (L1) settings while research on the second language (L2) learning context is limited. Those studies that have been conducted are often more theoretical than empirical (Laborda, 2009; Luzon, 2007). Other studies focused on the perceptions of WebQuest users (Noordin, Samed, & Razali, 2008; Prapinwong & Puthikanon, 2007) and few on English language learning (Chuo, 2007; Tsai, 2006). Very little research has been conducted on WebQuest use in the EFL classroom to investigate its potential in promoting language skills and reading skills in particular. This study will try to shed light on the possible effects of WebQuest on the comprehension performance of tertiary level male students in a Saudi EFL context. This study is hopefully significant for teachers, students, EFL and CALL fields, in that it provides language teachers with information about teaching reading skills using WebQuest.

Research Questions
This study aims to investigate the effects of using WebQuest on Saudi male EFL students reading comprehension performance. It seeks to answer the following questions:

1. Will there be a significant improvement in the students' (of both control and experimental groups) comprehension performance in the post reading test?
2. Are there any significant differences between the control and experimental groups in the post-tests in relation to the use of WebQuest?

LITERATURE REVIEW
Overview of WebQuest
WebQuest was designed by Bernie Dodge and Tom March in 1995 in an effort to integrate the World Wide Web into classrooms. Exposed to several online resources, students are required to gather information about a specific topic (Dodge, 1997). Sometimes these resources are supported with video conferencing in order to enhance understanding (Koenraad, 2002). WebQuests are designed to provide an opportunity for students to exchange real information and thus trigger meaningful communication. A WebQuest involves team work among groups of students accessing the web in order to gather information and reproduce it in different forms (March, 2004). As described by March (2004), the main element of a WebQuest is "a scaffolding structure that encourages students motivation and facilitates advanced thinking with integration of enriched learning resources" (p. 02). Samuda and Bygate (2008) consider WebQuest a web-based task and link it to task-based learning and teaching as tasks on a broad range of topics are used throughout the curriculum.

Using WebQuest gives students the opportunity to be exposed to many resources while they are in the classroom. As such, Dodge (2006) suggests students engaging with the method develop a deeper understanding of the content when compared to the usual way of learning. Similar conclusions have also been found in studies of other web based learning tools, such as online training courses, wikis, discussion forums, and videos (Bravo, Enache, Fernandez & Simo, 2010; DeWitt & Siraj, 2010; Limniou & Whitehead, 2010). Dodge (1997) recommends that a WebQuest include the following basic structure: introduction, task, process, evaluation, and conclusion. In order to complete a WebQuest task, students search through links provided on the WebQuest. These links are relevant to the topic and are thus efficient and focused learning tools. The students do not need to use general search engines as their primary source, so they do not run the risk of accessing inappropriate materials (March, 2007). The WebQuest task requires student analysis, synthesis, evaluation, judgment, problem solving and creativity (Dodge, 2006; Perkins & McKnight, 2005). WebQuest, being a technological innovation, was found by teachers to be an up-to-date strategy that provides knowledge to students in an interesting way (Vidoni & Maddux, 2002).

WebQuest and Learning
Motivation, considered to be an important psychological element in learning, plays an important role in students' ability to accomplish long-term goals (Guilloteaux & Dörnyei, 2008). Dudeney (2003) suggests WebQuests are motivating, authentic tasks that require students to concentrate. Students in all grades, when questioned, indicate they prefer WebQuest to traditional teaching methods (Abbitt & Ophus, 2008; Halat & Peker, 2011; Noordin, Samed & Razali, 2008; Prapinwong, 2008; Puthikanon, 2009). Students may enjoy and remember lessons far better via WebQuest than through the traditional way of learning (Hassanien, 2006). The teacher's role is to guide students on how to use WebQuests in ways that elicit positive educational results. Teachers, by embracing WebQuest technology, can heighten student interest in diverse subject matters while concurrently heightening the educational benefit to their students in a blended learning classroom. Blended learning can be an effective teaching method that is not only viewed positively by students, but that also supports successful learning outcomes (Tavukcu, Gezer & Ozdamli, 2009). As such, teachers continue to play an important role in the blended learning classroom, as students do report having a positive view of face-to-face learning interaction in addition to online learning tools (Tuncay & Uzunboylu, 2011).

According to Torres (2007), using WebQuest 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. A further benefit of WebQuest use in learning is that it supports higher-order thinking. Students are required to read, think, analyze, synthesize, and evaluate (Halat & Peker, 2011; Torres, 2007). Chang, Chen, and Hsu (2010), in demonstrating the impact of different teaching strategies on the learning performance of environmental education, found WebQuest 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 WebQuest can be seen as a method that helps organize the learning process in line with the theory of dialectic constructivism. Investigating the effects of WebQuest 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 WebQuest as opposed to a free-search environment.

Many studies have found that using WebQuest enhanced vital cooperation and collaboration among students (Gorghiu, Gorghiu, González, & García de la Santa, 2006; Lara & Repáraz, 2007; Murray & Mcpherson, 2009; Torres, 2007). By working collaboratively, students improve speaking skills through verbal interaction with peers. When students work in groups they discuss assignments thereby exchanging vocabulary. According to Torres (2007), the use of WebQuest has the ability to promote collaboration and cooperation among students while using the target language. This interaction in turn fosters responsible and independent learning.

Gorghiu, Gorghiu, González, and García de la Santa (2006) found the greatest gain of WebQuest was pupils' motivation and cooperative work. Students, as actors in the learning process, assume different roles in the WebQuest team. Pupils displayed greater enthusiasm playing specific roles and relaying information to group partners. Working in groups is beneficial in that it gives students the opportunity to teach each other and to correct each other's mistakes. It makes them feel mature and responsible for the group as a whole in addition to building social skills (Strickland, 2005).

WebQuest and EFL
WebQuests can be an effective tool to promote different foreign language skills. As discussed by Torres (2007), students are exposed to a large number of resources through the web. They read in the target language and then provide a written report of what they learned in the target language. As many EFL students do not enjoy reading in a second language, it is useful to employ motivational learning tools such as WebQuest in the second language classroom. Although Gaskill, McNulty and Brooks (2006) found no discernable difference in learning outcomes when WebQuests were compared to conventional methods, they did find that both teachers and students enjoyed and spoke highly of WebQuest instruction. Similar to the findings of Zheng et al., Barros and Carvalho (2007) found WebQuest to be a valuable environment for teaching extensive reading as it can enhance motivation and promote constructivist learning.

"TalenQuest", or LanguageQuest in English, was developed as a tool for foreign language instruction (Koenraad & Westhoff, 2003). It is an adaptation of the WebQuest format designed to meet the needs of second language learners (Samuda & Bygate, 2008). It encourages scaffolding activities by incorporating focus guides, text tools and strategy guidance. Koenraad and Westhoff (2003) suggest that the task should encourage use of the target language either in the form of language instruction, or of the language used in the LanguageQuest end products, or a combination of both. Koenraad and Westhoff (2003) suggest that the material used should be authentic and reflect what learners would apply in their real life. The task should promote collaboration and meaningful communication.

Furthering research on the use of WebQuests in the EFL classroom, Researchers (Luźon-Marco, 2010; Sen & Neufeld, 2006) found that WebQuest, being a web-based task oriented tool, helps students engage with texts related to their discipline, prepare for autonomous learning, and become accustomed to the methods of meaning construction needed in digital learning. Reporting similar conclusions, Noordin, Samed and Razali (2008) suggest that WebQuest techniques, with a solid pedagogical foundation, make use of global communication by sharing information and fostering discussion while contributing to the integration of the internet in EFL learning. These authors surveyed a group of Malaysian student teachers in a TESL program. A questionnaire was administered to elicit their perceptions on the practicality and potential of WebQuest in EFL classrooms. The findings suggest that the majority of the student teachers found WebQuest beneficial to English learning. Students were found to work and interact with one another using English while engaging with reading materials, taking part in discussions, and presenting written work. These activities, as encouraged by WebQuest, improve the students' level of language ability.

In addition to the acculturation to the digital age that students gain from WebQuest, the effectiveness of WebQuests in second language learning also has been the subject of various empirical studies. Laborda (2009) investigated the effectiveness of WebQuest in English for Specific Purposes (ESP) classes (such as tourism). Laborda (2009) noted that in completing the WebQuest assignment, students read different materials and then

come up with their own. This process gives students opportunities to explore how the target language is used and then spontaneously use the language in its correct way. Students are provided with interactive opportunities which make the learning experience meaningful. In a similar classroom environment, Luzon (2007) supported WebQuest use in ESP classes. She suggested that WebQuest is beneficial in ESP classes because it helps students use background knowledge from their discipline to assess the problem, evaluate information from different sources and synthesize a response to the main WebQuest problem.

Specifically investigating the effects of a WebQuest Writing Instruction program on Taiwanese EFL learners' writing performance, Chuo (2007), found that students in the WebQuest class improved their writing performance significantly more than those in the traditional writing class. Also investigating writing apprehension and perception of web-resource integrated language learning, Chuo (2007) found the participants had a favorable perception of the WebQuest program and reported recognizing more advantages than disadvantages. These findings suggest the integration of web resources, such as WebQuest, into EFL writing instruction can be effective in enhancing students' writing performance and providing a positive learning experience. However, a comparable study on the integration of WebQuest in Turkish EFL university classrooms found the experimental group and the control group scored equally on writing tests (Kocoglu, 2009).

In addition to WebQuests effectiveness in improving writing skills, research suggests the tool can be effective in promoting critical thinking skills. Puthikanon (2009) investigated the use of WebQuest by EFL university students in Thailand. Two WebQuests were used as supplementary reading activities in a reading course. The results showed that students used critical thinking during the WebQuest at a high level. They actively analyzed, synthesized, evaluated, and reflected on information pertaining to the topic of the WebQuest. However, low proficiency students struggled to transfer their thoughts and opinions in the end products of the WebQuest. Nonetheless, findings suggested that WebQuest can be a useful activity to promote critical thinking in an EFL reading course.

In relation to WebQuest's usefulness in promoting reading skills, Tsai (2006) investigated, in a quasi-experimental study, the effects of WebQuest use on reading vocabulary acquisition and reading performance of Taiwanese EFL university students. The WebQuests were used to enhance the normal reading instruction practice in EFL reading courses. The results showed that the students in the treatment group (using WebQuests) significantly outperformed those in the control group (traditional reading class) in both their vocabulary learning and story reading comprehension. However, there were no significant differences in student thematic reading comprehension. The finding suggested that integrating WebQuest in EFL reading instruction can be useful in increasing students' story reading comprehension and vocabulary acquisition.

While the above mentioned research supports the position that WebQuest can be an effective learning tool, students' perceptions of the tool are equally important in considering its widespread use. Prapinwong and Puthikanon (2007) investigated students' perceptions of WebQuest in a college-level reading course in Thailand. The findings showed that students had mixed opinions toward WebQuest. Some students showed positive attitudes and experienced WebQuest as a fun activity that helped them to learn English. However, some students found the materials in the WebQuest to be overwhelming and felt frustrated when completing the WebQuest task. However, in a similar context, Prapinwong (2008) used two WebQuests with a group of students in a reading course at a university in Thailand. The findings showed that the teacher and students felt very positively toward the WebQuest experience. Additionally, the use of WebQuest in Prapinwong's (2008) study showed statistically significant positive effects in vocabulary learning among students.

WebQuest is one of numerous ways to integrate technology in learning. Technology is proliferating rapidly and teachers can improve classroom education by embracing different teaching methods that make their classes interesting and beneficial. WebQuest has been studied in terms of its effectiveness in language learning as discussed above, but few studies have been conducted in the Saudi context that investigate its impact on promoting EFL language skills. The lack of published EFL literature in the Saudi context could be attributed to a demanding administrative and technical workload on teachers (Al-Issa & Al-Bulushi, 2011). To address this gap in the literature, this study sheds light on the possible effects of WebQuest use on Saudi EFL university students reading comprehension.

METHODOLOGY
Research Design
The design of this study is a quasi-experimental (field experiment) since it was not feasible to randomly assign subjects to treatments (Cohen, Manion & Morrison, 2007). It uses a pre-test/post-test quasi-experimental non-equivalent control group research design. This type of design is often used in educational research as it is not

possible to assign subjects randomly to groups (Ary, Jacobs, & Razavieh, 2002). That is, the groups were naturally assembled through their class sections. The experimental group received the traditional teaching plus WebQuests as supplementary activities. The control group received the traditional teaching only. The students' comprehension performance in the post-test was compared for both groups in order to determine whether there were significant differences between the groups in relation to the treatment.

Participants and Context
The study was conducted in a university first year preparatory program. The participants were 83 level three male students in the science and engineering track in the Preparatory Year (PY) in King Saud University (KSU), Saudi Arabia. Students were enrolled in the Intensive English program with 20 weekly contact hours for two semesters and a summer. The program aims to develop students' English language proficiency and equip them with the essential language skills needed for academic study and future professional life. There are six levels of proficiency in the program where level six is for advanced learners and level one is for false beginners. Level three is considered pre-intermediate. The students were selected using a simple random selection and two sections were chosen to participate. There were 42 students in the experimental group and 41 students in the control group. The two sections were used for a total of 10 sessions (50 minutes each) over a seven week period in June-August 2011. The sections' teacher is a native speaker of English and has taught English for seven years. He has experience with using WebQuest, therefore, no training was needed.

In order to ensure that the subjects in this study were at the same proficiency level in reading comprehension, a reading comprehension pre-test was assigned to both groups. The results of the pre-test show that the mean averages of the subjects' grades on the pre-test were very similar (see Table 1). These results were computed through Independent Samples Test (t-test) and revealed at the $p<.05$ level in scores for the two groups [$t = 0.35$, $p= 0.972$].

Table 1. T-test Results for the Groups' Equivalence

Group	No.	Mean	St. Deviation	t Value	Sig. (2-tailed)
Control	41	13.9024	5.91526	.035	0.972
Experimental	42	13.8571	5.85004		

Instruments
Pre- and post-reading comprehension tests were used in this study in order to measure the students' performance before and after the treatment. The tests were Standardized Reading Part 4 from the Preliminary English Test (PET) of the University of Cambridge ESOL examination (Cambridge University ESOL Examination, 2010). The full exam is usually taken during the final exams for the students of this study in this level. In this test, the students are provided with a passage to read carefully in order to discern the topic and general meaning of the text, the writer's purpose and the meaning of the text as a whole. Then, the students answer five questions with four-option multiple choice answers. The focus is on reading for detailed comprehension: understanding attitude, opinion, and writer purpose as well as reading for gist, inference and global meaning (Cambridge University ESOL Examination, 2009). A reliability analysis was computed for each test using the test/retest method (Cohen, Manion, & Morrison, 2007). The reliability results were (Pearson coefficient) 0.698 for the first test and 0.725 for the second test. The reliability estimates were acceptable because the tests contained only five items.

Materials
The four WebQuests used in this study were designed by the researchers. The WebQuests designed were sent to three experienced EFL teachers to check for appropriateness for the students' level of proficiency and topic. Also, they were reviewed by two educational technology professors for its face validity. In each WebQuest there are two main pages, the teacher's and the student's. The student's page includes five parts. The first part is the introduction which gives general information in a motivational way about the whole WebQuest. The second part is the task which is a description of what the students should do. The third part is the process and it includes detailed steps describing what exactly the students are required to do. The fourth is the evaluation part which includes a rubric that shows the students how they will be evaluated. It includes the certain points they should accomplish at the end of the task. The final part is the conclusion which provides the students with further websites if they want to read more about the topic. The other page is the teacher's page which includes instructions for teachers who will use the WebQuest.

The WebQuests topics were chosen according to the students' level. The researchers tried to use various topics interesting to university level students. Those students interested in technology were expected to enjoy the 'Google It' WebQuest while those with an interest in sea animals might prefer 'The Killer Whales' WebQuest. Also included in the study was a 'Physical Activity' WebQuest which encourages students to integrate physical

activity in their daily routines. The last WebQuest included in the study was an awareness raising WebQuest on Alzheimer's disease. Students need two to three sessions to complete the task in each WebQuest, depending on the students' level and motivation. Each session is 50 minutes.

The teachers displayed the WebQuests on the white board and assigned students into groups. Each group worked on one computer. First, the teacher presented the WebQuest's homepage on the class white board explaining every part clearly in order to help students complete the task carefully and answer the questions. Following this instruction, students worked alone. The teacher's continued presence was, however, important as he is often called on to answer questions and address technical problems.

Data Collection Procedures

In the first week, both the experimental group and control group received the pre-test before the treatment and instruction. The data collected was analyzed using SPSS and a t-test was computed to ensure the groups equivalence. The treatment period was four weeks. During the treatment period, the experimental group received researcher-designed WebQuests embedded as supplementary materials in the traditional way of instruction. Each WebQuest took two sessions a week. The control group received only the traditional instruction. In week six, both the experimental and control group students received the post-test. The data collected was again analyzed using SPSS. Then, paired sample t-tests were computed for the results of both groups in order to investigate the differences between the pre-test and post-test in comprehension performances. An analysis of covariance (ANCOVA) was conducted, partialling out the pre-test scores, in order to investigate the differences between the experimental and control group in the post-test. The ANCOVA test was viewed as being more appropriate for comparing why there may be differences between the effects (Wright, 2006), and for being a more powerful procedure (Oakes & Feldman, 2001). As Wright (2006) stated, ANCOVA is appropriate more often than t-test for analyzing differences. Next, the results of the study are presented.

THE RESULTS

This study investigated the effects of using WebQuests on students' reading comprehension performance. The scores obtained from the participants' reading comprehension pre- and post-tests were compared. The results are presented in accordance to the research questions, beginning with the first research question.

In order to answer the first research question (Will there be a significant improvement in the students' (of both control and experimental groups) comprehension performance in the post reading test?), descriptive analysis and paired samples t-tests were used to investigate any statistically significant differences in the results of the post-test compared with those of the pre-test for both groups. For the control group, Table 2 below reports the paired samples t-test results for comprehension scores.

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

Group	Variable	Test	No.	Mean	St. Deviation	t value	Sig.(2-tailed)
Control	Reading Comprehension	Pre	41	13.9024	5.91526	3.354	0.002**
		Post	41	15.2195	5.86307		

**significant at 0.01 level

Table 2 shows that the performance of the students in the control group improved significantly in reading comprehension scores [t = 3.354, p=0.002]. There are significant differences between the two performances in favor of the post-test scores at the level of p<.01. These results might be due to the period of conducting the study as it came at the end of the semester. The students who participated in this study, as mentioned before, study in an intensive English course twenty hours per week. Also, the post-test was conducted one week before the final exams period. Figure 1 below shows the overall look of the mean scores of the control group in the pre- and post-test.
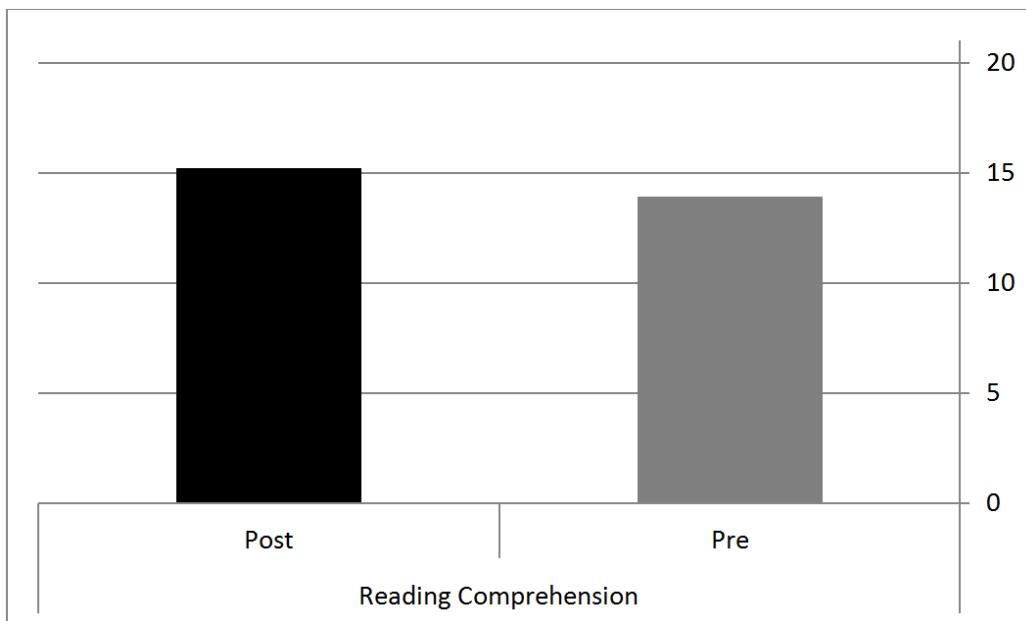
Figure 1. Mean scores of the control group's performance in the pre and post-test

For the experimental group, Table 3 below reports the paired samples t-test results for comprehension scores.

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

Group	Variable	Test	No.	Mean	St. Deviation	t value	Sig.(2-tailed)
Experimental	Reading Comprehension	Pre	42	13.8571	5.85004	12.600	0.000**
		Post	42	20.1429	5.74911		

**significant at 0.01 level

Table 3 reveals that the experimental group improved significantly in reading comprehension performance [t = 8.567, p=0.000] at the level of p<.01 in favor of the post-test results. These results also might be due to the period of applying the study and the intensive program. However, the margin of the mean scores between the mean scores in the pre-test and the post-test is higher in the experimental group than in the control group. An overall look at the above results of the experimental group can be seen below in Figure 2.
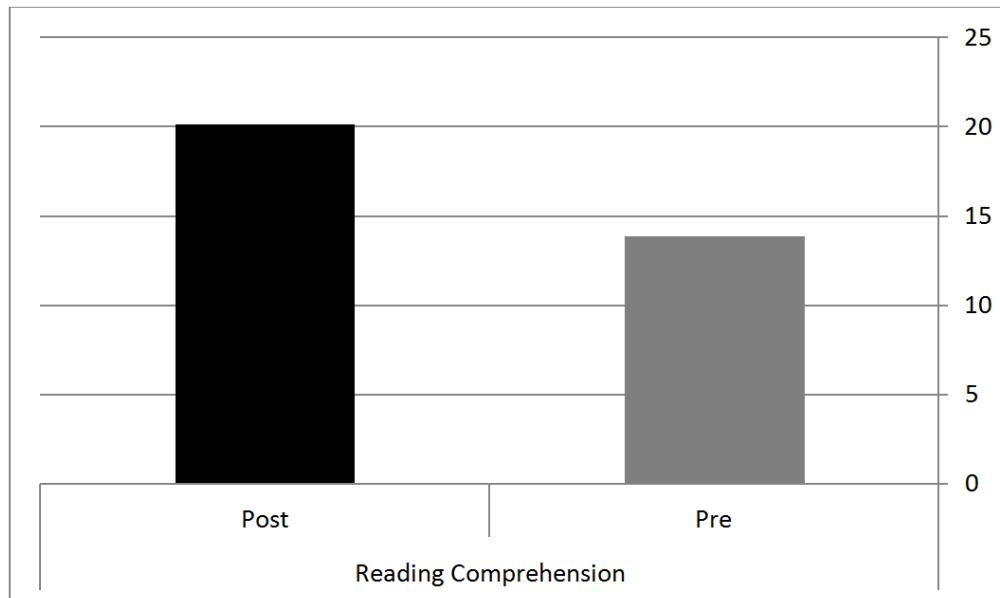

Figure 2. Mean scores of the experimental group's performance in the pre and post-test

The results of both groups showed that there were significant improvements in students' reading comprehension performance over time. However, the treatment effects were investigated in relation to the second research question (Are there any significant differences between the control and experimental groups in the post-tests in relation to the use of WebQuests?). In order to answer the second research question, an analysis of covariance (ANCOVA) was conducted partialling out the pre-test scores.

Table 4. ANCOVA tests for the groups post-test results after controlling the pre-test effects

Item	Group	No.	Mean	St. Deviation	F	Sig.
	Control	41	15.2195	5.86307	64.804	0.000**
	Experimental	42	20.1429	5.74911		

**significant at 0.01 level

Table 4 shows that there were significant differences between the experimental and control group in the post-test controlling the pre-test scores [F=24.286, p=0.000] at the level p<.01. The strongly significant differences occurring in the students' post-test comprehension performance support the claim that using WebQuest can improve students' reading comprehension performance. Figure 3 below shows the differences in post-test mean scores of both groups.
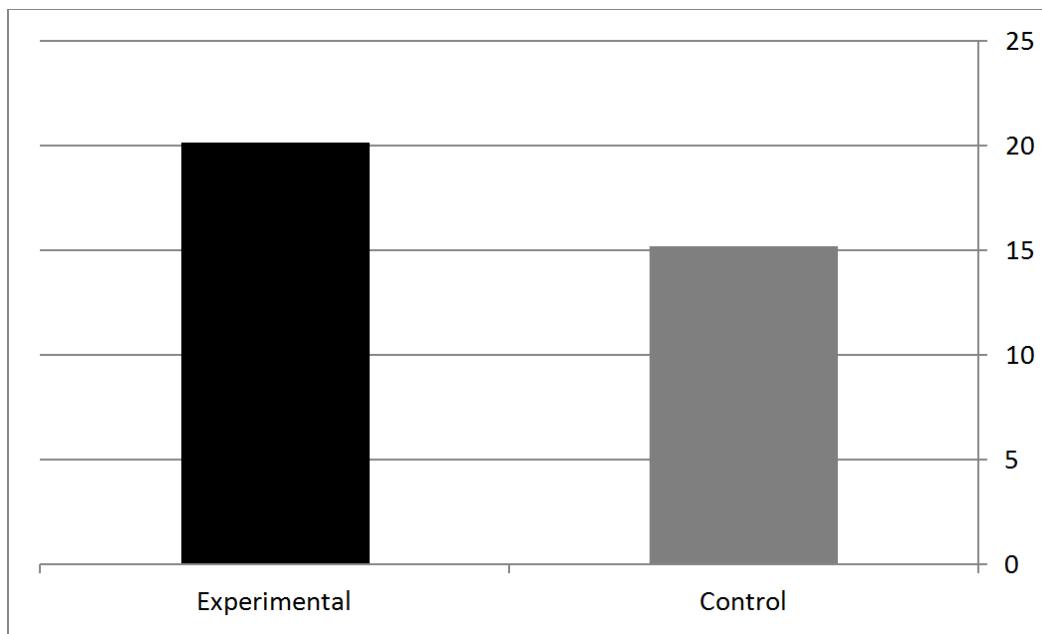

Figure 3. Mean scores of both groups comprehension performance in the post-test

The figure shows that the experimental group's mean score is higher than the control group in the post-test. The results will be discussed next in relation to the literature.

DISCUSSION

In investigating the effects of using WebQuest on Saudi male EFL students' reading comprehension performance, this research found that the performance of the students in the control and the experimental group improved significantly in reading comprehension scores. However, the strongly significant differences occurring in the experimental group's post-test comprehension performance when compared to the pre-test indicate that using WebQuest can improve students' reading comprehension performance.

This research supports the findings of Tsai (2006) who investigated the effects of WebQuest use on the reading vocabulary acquisition and reading performance of Taiwanese EFL university students. Using WebQuests to enhance the normal reading instruction practice in EFL reading courses, Tsai (2006) found that students engaging with WebQuests significantly outperformed those in the control group in both their vocabulary learning and story reading comprehension. Although Tsai (2006) found WebQuest in EFL reading instruction may be useful in increasing students' story reading comprehension but not thematic reading comprehension, this research found that thematic WebQuests also can be effective in improving reading comprehension.

As discussed, previous research on the efficacy of WebQuests suggests that the task supports reading comprehension because it requires student analysis, synthesis, evaluation, judgment, problem solving and creativity (Dodge, 2006; Perkins & McKnight, 2005). The three underlying constructs found by Zheng et. al. (2007) to be critical to the design and related benefits of WebQuests are constructivist problem solving, social interaction and scaffolded learning.

Scaffolding teaching, in which a knowledgeable teacher provides individualized support for students, is a method that aims to build on prior knowledge while internalizing new information or skills. Such as with WebQuest, the task utilized in a scaffolded teaching activity should be just beyond the current ability level of the student. Important to the concept of scaffolded learning is the notion that the support mechanisms of the learning intervention should easily be taken away as the student gains proficiency at the given task. The goal of the teacher is, therefore, to support the student to be an autonomous learner. WebQuests well support this method as the task is designed to motivate students in a blended learning environment by using simple directions to accomplish an activity with clearly defined learning expectations.

Furthermore, as suggested by Zheng et al. (2007), the emphasis of learning via WebQuest could be placed on constructivist learning that incorporates critical thinking and knowledge application. Luźon-Marco (2010) found that WebQuests help students engage with texts related to their discipline by supporting autonomous learning and helping the students become accustomed to the methods of meaning construction needed in digital learning. Similar to the findings of Zheng et al., Barros and Carvalho (2007) found WebQuest to be a valuable environment for teaching extensive reading as it can enhance motivation and promote constructivist learning. Similarly, this study supports the theory that WebQuest can be a useful tool in constructivist learning as the method does create an environment in which learning seems relevant, supports the acquisition of skills that are needed in real-world scenarios, and encourages students to analyze information using multiple tools and perspectives.

Reading comprehension, the subject of this research, is dependent on the student's ability to analyze and interpret text. Employing critical thinking skills in order to meaningfully draw connections between newly introduced text and previous knowledge is a crucial step in the development of reading comprehension. Finding that WebQuest supports the development of critical thinking, Puthikanon (2009) reported that students actively analyzed, synthesized, evaluated, and reflected on information pertaining to the topic of the WebQuest. Although Puthikanon found that low proficiency students struggled to effectively communicate their thoughts in the final products of the WebQuest task, this difficulty does not necessarily reflect the student's ability to comprehend the text or analyze it critically.

Although the teacher's role is to provide the support, or scaffolding, for the learning activity, student engagement in cooperative learning can effectively further the learning process. An environment such as created by WebQuest in which students work in small group settings with teacher assistance can help in reducing the support required from the teacher by the students. Many studies have found that using WebQuest enhanced vital cooperation and collaboration among students (Gorghiu, Gorghiu, González, & García de la Santa, 2006; Lara & Repáraz, 2007; Murray & Mcpherson, 2009; Torres, 2007). This aspect of the learning process, and its role in reading comprehension, was not the specific topic of this research, but should be noted as an area in need of further research.

While this study specifically focused on 10th grade male students, previous research has found that students in all grades indicate they prefer WebQuest to traditional teaching methods (Abbitt & Ophus, 2008; Noordin, Samed & Razali, 2008; Prapinwong, 2008; Puthikanon, 2009). Gaskill, McNulty and Brooks (2006), while finding no difference in learning outcomes when WebQuests were compared to conventional methods, did reveal that both teachers and students enjoyed WebQuest instruction and the learning environment it created. Although student perceptions were not the focus of this research, general impressions suggest that in agreement with the findings of Vidoni and Maddux (2002), WebQuest can be viewed as an up-to-date strategy that provides knowledge to students in an interesting way.

CONCLUSIONS

The results showed the potential of WebQuest use for promoting reading comprehension. Teachers and students do, however, need to be trained in order to use WebQuests more effectively in the blended learning classroom. The students of this study, only needed help to get started on the task and then managed to continue on their own with no difficulty. Although the teachers who participated in this study were experienced with WebQuest, teachers in general need to be provided with training to explore the usefulness of WebQuests and to master its integration in their classrooms. There are challenges inherent in the implementation of WebQuests due to the

changing pedagogical principles and practices arising from the use of the tool. Teachers need support in understanding and adjusting to the new way of teaching, especially when they are used to the transmissive mode of instruction. Therefore, it is crucial for the teachers to understand the changing role from an authoritative figure to the role of facilitator or mentor as required by the WebQuest design. Also, the use of pre-designed WebQuests in this study may have constrained the teachers in implementation and in choosing interesting topics that meet the needs of the students. The authors suggest that the teacher's experience of the WebQuest tool, and the challenges to its integration in the blended learning classroom, should be investigated further.

The use of WebQuest seems to be motivating for students as indicated by the teachers in the study. Although this is anecdotal evidence, teachers should invest in the potential of WebQuests as a motivating activity. However, more research is needed. Moreover, the topic and difficulty level of materials are important issues that the teacher should consider when selecting or designing a WebQuest. March (2004) suggests the teacher choose a topic that the students find compelling and then build an authentic learning task around it. If more than one WebQuest is to be used, the teacher may design topics that seem likely to draw diverse student interest. The type of task should also be designed carefully. If for example, an information gathering task is to be included, it should be used as a step to a more complex task rather than an end in itself. However, the teacher needs to be careful about the level of difficulty of the tasks and its appropriateness for the students.

One limitation of the study was the time constraint of the summer semester (10 weeks) which made it difficult to implement a larger number of WebQuests. Only four WebQuests were used in eight class sessions in four weeks. Future research should consider longer implementation over one semester, or four months, in order to allow more exposure to WebQuests as well as the possibility to test comprehension at a point other than the end of the semester. Also limited by gender, grade level, and level of language ability, this study can be considered a starting point for additional research addressing the use of WebQuests in other educational settings.

Additionally, the study was limited in using a comprehension test as the predictor of reading comprehension. This limitation made it difficult to generalize the results to other classroom contexts. As the study suggested that WebQuests have positive effects on reading comprehension, more qualitative investigation is needed into the processes that students followed that helped enhance reading comprehension.

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