

Application of Web Quest-based Instruction in Higher Education Context: EFL Students' Achievement in Writing Skill*

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Abstract

EFL learners' low motivation and lack of sufficient prior knowledge can be regarded as the barriers that impede their success in presentation of high quality writing pieces. To solve the mentioned problems, some researchers suggest the application of inventive technology-enhanced instructions in teaching the writing skill. In this regard, WebQuest as a computer-based instructional model providing the already-selected website links can be proposed as an appropriate candidate. Hence, the very aim of the present experimental pre-test/post-test study was to address the effect of WebQuest-based instruction on Iranian undergraduate EFL learners' achievements in their overall essay writing ability as well as their writing ability concerning the elaboration, focus, conventions, vocabulary, and organization sub-skills. To do so, 50 participants in the experimental group and 49 participants in the control group performed the WebQuest-based and the alternative tasks without access to the web links, respectively. To analyze the obtained data, six ANCOVAs were run. The results revealed a significant improvement in EFL learners' overall writing performance as well as their outperformance in the organization, focus, elaboration, and vocabulary subskills, but not the conventions sub-skill. The findings of this study indicated optimistic implications about the potential applicability of novel educational technologies in Iranian higher education context. EFL learners' improved writing performance and vocabulary acquisition as well as their increased motivation and collaboration in WebQuest-based writing classes can be regarded as a valuable clue for teachers, administrators, and designers to pave the way for further integration of innovative technologies in EFL settings.

Keyword: *Technology-enhanced instruction, WebQuest-based instruction, writing skill, writing sub-skills*

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Introduction

Writing skill has always been accentuated in the EFL teaching and learning contexts as it can encourage EFL learners' critical thinking by engaging them in summarizing, analyzing, synthesizing, reflecting, and finally criticizing the acquired pieces of information for offering a new robust piece of written product (Rao, 2007). Moreover, over the process of writing, EFL learners can improve and deepen their understanding of English language by thinking and reflecting on the target language and keeping away from rote learning and memorization. However, learners' fear of failure to successfully present their knowledge on a topic in the framework of writing as well as fear of making mistakes can lead to their demotivation in writing in the target language (Belkhir & Benyelles, 2017). Moreover, the lack of sufficient background knowledge of the writing topic can result in learners' disappointment in EFL essay writing.

To solve EFL learners' low motivation and lack of sufficient prior knowledge, which impede their success in presentation of high quality writing pieces, some researchers suggest the application of inventive and encouraging educational technologies in teaching writing (Aydin & Yildiz, 2014). It seems that presentation of new instructional practices via educational technologies that engage the learners in more interesting and authentic learning and writing opportunities can not only increase the learners' enthusiasm in writing but also enhance and activate their prior knowledge in essay writing by exposing them to more authentic materials. New educational technologies including the Internet known as a virtual library not only could equip the learners with rich information to present writing products but also could guide and direct them to exchange and negotiate the acquired ideas with their teacher and classmates. However, further studies should be devoted to examine the pedagogical effects of surfing the net without any specific goal (Zheng, Perez, Williamson, & Flygare, 2008). To put in another way, the learners may be at the risk of viewing inappropriate, excessive, and even irrelevant content on the hundreds of the websites that are presented to them. Hence, it is of great value to organize the Internet-

based classroom activities to use the available web pages more prudently and productively. One of the educational models developed to avoid allowing the learners to surf the net and visit every available web page is the WebQuest model. Halat (2010) offered the most recent definition of the WebQuest as a computer-based instructional model that provides the already-selected website links. Active engagement of the learners in the process of gathering, evaluating, synthesizing, and presenting the information to respond to a real-life situation is the main feature of this model.

One of the main features of WebQuests that makes them appealing both for learners and teachers is their systematic structure which guides the users toward its appropriate application. A WebQuest usually includes six steps, normally regarded as its building blocks (March, 2004), which are the introduction, task, process, resources, evaluation, and conclusion.

Several studies examining the effect of the WebQuest model on EFL learners' writing performance are presented in the literature. In a more recent study, Berezova, Mudra, and Yakushko (2018) investigated the university students' writing performance following the integration of researcher-designed WebQuests into the syllabus of ESP course. In the mentioned study, the experimental group analyzed the information provided by the resources of the WebQuests and then synthesized it to present a written project while the control group received the traditional instruction, through which they read a number of passages on the same topics. The results of this study revealed a significant improvement in the writing performance of the experimental group. In another study conducted in Iranian EFL context, Ebadi and Rahimi (2018) examined the learners' academic writing skill following a WebQuest-based instruction. The experimental group was required to study the provided materials in the WebQuests prior to the class time in order to devote the whole time of the class to practice academic writing skills. The control group received the traditional face-to-face instruction, through which they were provided with a topic for academic writing task. The materials in print were reviewed at home and subsequently the tasks

were performed. The findings indicated that learners' writing performance was improved in both traditional and WebQuest-based instructions; however, the WebQuest group outperformed the other group. In 2016, AL-Khataybeh and AL-Awasa examined the impact of the WebQuest application on seventh-grade female students' writing performance. The conventional method and the researcher-designed WebQuests were used in the control and experimental groups, respectively. Then, both groups were supposed to write about the global warming, its causes, effects, and proposed solutions in this regard. The findings revealed the positive effect of the WebQuests on students' writing performance in the experimental group as compared with the control group.

As the review of the literature revealed, due to the novelty of the WebQuest-based instruction in Iran, a limited number of studies have been devoted to examining its integration into Iranian EFL teaching and learning context in general and its higher education context in particular with a focus on undergraduate EFL students' achievements in the writing skill. In addition, the present study did focus on not only the learners' overall essay writing ability but also their ability regarding the elaboration, focus, conventions, vocabulary, and organization sub-skills, which can be considered as less-attended to aspects of the writing skill. It is expected that gaining a better understanding of EFL learners' achievements in the writing skill as well as the writing sub-skills would pave the way toward the effective integration of the internet-based instructions in writing courses in Iranian higher education system. The following research questions focusing on EFL learners' achievements in essay writing skill were addressed in the present study.

1. Does WebQuest-based instruction affect EFL learners' achievement in their overall essay writing ability?
2. Does WebQuest-based instruction affect EFL learners' essay writing ability regarding the elaboration, focus, conventions, vocabulary, and organization?

Methodology

Research Design

The present study followed an experimental pre-test/post-test research design. The independent variable was the type of writing instruction, and the dependent variable consisted of scores on the writing post-tests administered following the instruction. The participants' performance on the writing pre-tests was regarded as the covariate in this study.

Participants of the Study

Regarding the EFL learners, convenience sampling was applied to invite all EFL learners in three universities passing the fourth term of the university program for EFL learners to take part in a free five-session writing workshop. To examine the effectiveness of the WebQuest-based instruction on EFL learners' academic essay writing achievement, it was ensured that they had not passed the writing course, and all had successfully passed the grammar and reading comprehension courses that were prerequisites for taking the writing course at the university. After enrolling the volunteer participants, they were randomly assigned to the experimental and control groups. Table 1 indicates the distribution of the sample according to the groups at each study context.

Table 1

Distribution of the Learner Participants in the Experimental and Control Groups in Each University

Number	Experimental	Control
Participants of Urmia University	16	17
Participants of Ardabil University	16	15
Participants of Tehran University	18	17

Instruments

Teacher guide for implementation of the WebQuest tasks.

In order to ensure the three involved teachers' accurate and uniform implementation of the WebQuest-based instruction in the experimental

groups, the researcher developed a teachers' guide including the introduction presenting the objectives of the teacher guide, summary about the WebQuest model and its components, and the pre-, while-, and post-implementation procedures that must be followed.

The WebQuest tasks.

The main instruments employed in the present study were WebQuest tasks, which were all selected from the WebQuest.org website. The mentioned website is an online hosting system presenting over 20000 WebQuests that can be freely downloaded and adjusted to meet the teachers' specific needs. Considering the mentioned peculiar feature of this website, the researcher had the opportunity to choose the most appropriate WebQuests from among the remarkable number of WebQuest tasks presented in the mentioned website.

Regarding the WebQuest tasks, the most significant issue considered in their selection was the writing topic. As the topic could significantly affect the learners' performance in the production of essays, first two TEFL teachers that had the experience of teaching the writing course were asked to provide a number of topics that were supposed to be more appropriate considering the EFL learners' familiarity with, knowledge of, and interest in topics. Moreover, in the selection of the WebQuest tasks, the comprehensive definition of 'task' provided by Skehan (1998) was taken into account. According to the presented definition, each task should have five main features that are as follows: 1) Meaning is of main significance, 2) Learners are not supposed to repeat others' meaning, 3) The tasks should be similar to real-world activities, 4) Task completion should be achieved, and 5) The assessment of the task requires consideration of the outcome. All the selected topics in this study reflected real-life situations which involved the EFL learners in understanding, controlling, producing, and interacting in the target language to present an essay on the topic discussed and tackled with through the WebQuest task. Moreover, as the selected WebQuests were related to a real-life situation, the learners would be more enthusiastic about using the target language to convey their understanding of the

situation, which could be of great significance in the presentation of written products.

Accordingly, four persuasive writing WebQuest tasks with the topics reflecting real-life situations were selected from the mentioned website. All the persuasive writing WebQuest tasks included the introduction, task, process, resources, evaluation, and conclusion sections. The first writing WebQuest was “Fast Food Frenzy”, in which the learners were asked to write a persuasive letter to convince their parents about the healthy nature of their meal when they eat out. The second WebQuest was “The Internet Safety Rules”, in which the learners were required to write a persuasive essay discussing the significance of protecting their safety while using the Internet. The third WebQuest task, i.e. “Save the Environment”, required the learners to persuade the public about the importance of changing their behavior to protect the environment. The last WebQuest task entitled “Cell Phones in School” asked the learners to write a persuasive essay supporting their personal beliefs for or against restricting cell phone use in the educational environment.

The writing scoring rubric.

To measure the learners’ overall writing achievement as well as their achievement in the sub-skills of the elaboration, focus, conventions, vocabulary, and organization, the modified version of Wang and Liao’s writing scoring rubric (2008) was used. The mentioned rubric consisted of five sub-scales, each with five levels, and was used to rate learners’ pre-test and post-test writings. The “focus” sub-scale aimed at measuring the degree to which the learners were able to specifically address the writing task. Presentation of appropriate details to support the topic was focused on in the “elaboration” sub-scale. Providing a clear and connected flow of ideas was addressed by the “organization” sub-scale. The “conventions” sub-scale examined the learners’ consideration of the accurate use of spelling, grammar, and punctuation. Finally, learners’ knowledge of idioms, vocabulary, and verb forms was rated using the “vocabulary” sub-scale.

Procedure

First, three highly cooperative and informed TEFL instructors from three universities were selected by applying the purposive sampling strategy informing. The procedure for conducting the study was individually explained to them in detail.

The next step was the selection of learner participants through convenience sampling to take part in the study. In three universities, it was announced that a five-session free writing workshop would be held. Volunteer EFL learners that had passed the Grammar and Reading courses in their EFL program were allowed to enroll in the workshop. Then, the enrolled participants were randomly assigned to the experimental and control groups. In each university, both of the mentioned groups were taught by the same instructor though the classes were held at different times.

Next, all the teachers were asked to specify which types of essay writing were more appropriate and inspiring for learners to be taught during the workshop. As one of the objectives of the study was to examine the effect of WebQuest-based instruction on EFL learners' writing achievement, it was significant to concentrate on only one type of essay writing to control the possible effect of the essay types on learners' writing performance. The negotiation of ideas between the teachers in this regard led to the selection of "persuasive" type of essay writing to be the focus of the WebQuest writing tasks. To ensure that all the three teachers followed the same procedure in the first teaching session presenting the definition, structure, and a sample of persuasive writing, the teachers were asked to use the provided teacher guide in this regard. Hence, the first session started by teachers' presentation of the main tenets of a persuasive essay writing in both experimental and control groups.

Following the first session, the teachers were supposed to use the WebQuest-based tasks in the experimental group and to use the modified tasks without access to the webs in the control group. To prepare the teachers to uniformly hold the four sessions of WebQuest-based persuasive writing tasks in the experimental group, they were

required to read the prepared teacher guide for implementation of the WebQuest tasks and personally perform each of the WebQuest tasks to be acquainted with details of each task. After the initial session of the workshop in which TEFL teachers presented the definition, structure, and a sample of persuasive writing, in the next four sessions the learners in both experimental and control groups were supposed to write and deliver a five-paragraph persuasive essay at the onset of the session on a topic that was the focus of the WebQuest-based and traditional task. The EFL learners' submitted written products in each session were considered as pre-tests. Hence, all the participants in the experimental and control groups presented four pre-tests over the workshop.

After writing the pre-test at the onset of the session, the participants in the experimental group were familiarized with the WebQuest-based tasks, and their understanding of the mechanisms of WebQuest-based tasks was checked by teachers. Then, they were asked to perform the sub-tasks and finally do the main task, which was writing a five-paragraph persuasive essay on the topic of the tasks. The submitted essays at the end of each session were considered as post-tests.

Similarly, after submitting the pre-tests, the control group was involved in performing the traditional tasks that were the modified version of the tasks presented to the experimental group and included a combination of pair and group discussions, role plays, and reading authentic materials on the presented topics. Hence, the control group also delivered a five-paragraph persuasive essay at the end of each session. Their essays were considered as the post-tests.

After conducting the five sessions of the workshop and gathering four pre-tests and four post-tests from participants in both experimental and control groups, analysis of the quantitative data was started to examine whether WebQuest-based instruction affect EFL learners' achievement in their overall essay writing ability and their ability regarding the elaboration, focus, conventions, vocabulary, and organization sub-skills. To do so, the teachers were asked to use the modified version of Wang and Liao's writing scoring rubric (2008). Furthermore, one of the researchers scored the learners' writing pre- and

post-tests to check the inter-rater reliability. The inter-rater reliability coefficient for pre- and post-tests was found to be 0.86 and 0.74, respectively. According to Koo and Li (2016), the obtained results indicated a good agreement between the raters in this regard.

To analyze the obtained data, all the three experimental groups and all the three control groups of the three universities were regarded as one experimental group and one control group, respectively. The participants in both experimental and control groups presented two pieces of writing for each topic, one as the pre-test and the other as the post-test. The average of the scores on the four pieces of writing in the pre-tests was considered as the learners' pre-test scores. Similarly, the average of the scores on the four pieces of writing in the post-tests was considered as the learners' post-test scores. Six one-way between groups analysis of covariance (ANCOVA) were conducted to compare the effectiveness of WebQuest-based and traditional writing instructions on learners' overall writing achievement as well as their achievements in the sub-skills of the elaboration, focus, conventions, vocabulary, and organization. The independent variable was the type of writing instruction, and the dependent variable consisted of scores on the writing post-tests administered following the instructions. The participants' performance on the writing pre-tests was regarded as the covariate in this analysis.

Results

The first research question examined the effect of WebQuest-based instruction on EFL learners' achievement in their overall essay writing ability. An ANCOVA was conducted to analyze the difference of the post-test overall writing achievement scores between the control and experimental groups with the pre-test overall writing achievement scores as a covariate. As Table 2 indicates there was a significant difference between the control and experimental groups on post-test writing achievement scores, $F(1, 96) = 49.55, p = .00, \text{partial eta squared} = .34$. The mentioned finding revealed that application of the WebQuest-based instruction in the writing class could significantly improve the participants' performance in post-test overall writing

achievement. Although the significant difference was observed between the groups in this regard, the Partial Eta Squared value is .34, which can be considered as a medium effect size, according to Cohen's 1988 guideline.

Table 2

One-way ANCOVA Analysis for Overall Writing Achievement

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1286.24 ^a	2	643.12	28.77	.00	.37
Intercept	4360.19	1	4360.19	195.09	.00	.67
Pre-overall	231.57	1	231.57	10.36	.00	.09
Groups	1107.41	1	1107.41	49.55	.00	.34
Error	2145.53	96	22.34			
Total	290929.00	99				
Corrected Total	3431.77	98				

a. R Squared = .37 (Adjusted R Squared = .36)

The second research question examined the effect of WebQuest-based instruction on EFL learners' achievement in the elaboration, focus, conventions, vocabulary, and organization sub-skills. Five separate ANCOVAs were conducted to analyze the difference of the post-test conventions, organization, focus, elaboration, and vocabulary scores between the control and experimental groups with the pre-test conventions, organization, focus, elaboration, and vocabulary scores as a covariate. As it is indicated in Table 3, there was no significant difference between the control and experimental groups on post-test conventions scores, $F(1, 96) = 3.62, p = .06$. The mentioned finding revealed that application of the WebQuest-based instruction in the writing class could not significantly improve the participants' performance in the post-test conventions achievement.

Table 3*One-way ANCOVA Analysis for Conventions Sub-skill Achievement*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	13.62 ^a	2	6.81	6.25	.00	.11
Intercept	186.16	1	186.16	170.93	.00	.64
Pre-test conventions	9.48	1	9.48	8.70	.00	.08
Groups	3.95	1	3.95	3.62	.06	.03
Error	104.55	96	1.08			
Total	9544.00	99				
Corrected Total	118.18	98				

a. R Squared = .115 (Adjusted R Squared = .09)

Regarding the control and experimental groups' post-test organization sub-skill achievement, Table 4 demonstrates that there was a significant difference between the control and experimental groups $F(1, 96) = 15.26, p = .00$, partial eta squared = .13. The mentioned finding revealed that the application of WebQuest-based instruction in the writing class could significantly improve the participants' performance in the post-test organization sub-skill achievement. Although the significant difference was observed between the groups in this regard, the Partial Eta Squared value is .13, which can be considered as a small effect size, according to Cohen's 1988 guideline.

Table 4*One-way ANCOVA Analysis for Organization Sub-skill Achievement*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	33.34 ^a	2	16.67	8.61	.00	.15
Intercept	282.40	1	282.40	145.88	.00	.60
Pre-test organization	6.30	1	6.30	3.25	.07	.03
Groups	29.54	1	29.54	15.26	.00	.13
Error	185.83	96	1.93			
Total	10646.00	99				
Corrected Total	219.17	98				

a. R Squared = .15 (Adjusted R Squared = .13)

After adjusting for pre-test focus sub-skill scores, a significant difference was observed between the control and experimental groups on post-test focus scores, $F(1, 96) = 27.74, p = .00$, partial eta squared = .22 (Table 5). The mentioned finding revealed that application of the WebQuest-based instruction in the writing class could significantly improve the participants' performance in the post-test focus sub-skill achievement. However, it must be mentioned that the Partial Eta Squared value is .22, which can be considered as a small effect size, according to Cohen's 1988 guideline.

Table 5

One-way ANCOVA Analysis for Focus Sub-skill Achievement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	71.11 ^a	2	35.55	15.60	.00	.24
Intercept	229.43	1	229.43	100.70	.00	.51
Pre-test focus	9.71	1	9.71	4.26	.04	.04
Groups	63.21	1	63.21	27.74	.00	.22
Error	218.72	96	2.27			
Total	12357.00	99				
Corrected Total	289.83	98				

a. R Squared = .24 (Adjusted R Squared = .23)

Table 6 reveals that there was a significant difference between the control and experimental groups on post-test elaboration scores, $F(1, 96) = 39.31, p = .00$, partial eta squared = .29. The mentioned finding revealed that application of the WebQuest-based instruction in the writing class could significantly improve the participants' performance in post-test elaboration achievement. Although the significant difference was observed between the groups in this regard, the Partial Eta Squared value is .29, which can be considered as a small effect size, according to Cohen's 1988 guideline.

Table 6

One-way ANCOVA analysis for elaboration sub-skill achievement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	71.62 ^a	2	35.81	20.22	.00	.29
Intercept	360.89	1	360.89	203.77	.00	.68
Pre-test elaboration	3.79	1	3.79	2.14	.14	.02
Groups	69.62	1	69.62	39.31	.00	.29
Error	170.01	96	1.77			
Total	12353.00	99				
Corrected Total	241.63	98				

a. R Squared = .29 (Adjusted R Squared = .28)

Regarding the control and experimental groups' post-test vocabulary sub-skill achievement, Table 7 illustrates that there was a significant difference between the control and experimental groups $F(1, 96) = 36.71, p = .00$, partial eta squared = .27. The mentioned finding revealed that the application of WebQuest-based instruction in the writing class could lead to a significant improvement in the participants' performance in the post-test vocabulary sub-skill achievement. However, it is worth considering that the Partial Eta Squared value is .27, which is a small effect size, according to Cohen's 1988 guideline.

Table 7

One-way ANCOVA Analysis for Vocabulary Sub-skill Achievement

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	85.78 ^a	2	42.89	18.55	.00	.27
Intercept	605.49	1	605.49	261.98	.00	.73
Pre-test vocabulary	1.70	1	1.70	.73	.39	.00
Groups	84.85	1	84.85	36.71	.00	.27
Error	221.87	96	2.31			
Total	14017.00	99				
Corrected Total	307.65	98				

a. R Squared = .27 (Adjusted R Squared = .26)

Discussion

First of all, results of the study are presented in brief to pave the way to follow the discussion in this section. The results of the writing post-test revealed that application of the WebQuest-based instruction led to a significant improvement in EFL learners' overall writing performance with a medium effect size in this respect. Considering the EFL learners' performance in writing sub-skills, the obtained findings were indicative of the out-performance of the experimental group as compared with the control group in the organization, focus, elaboration, and vocabulary sub-skills though with a small effect size. After application of the WebQuest-based instruction, the learners presented more focused pieces of writing as they could generate more complete and focused ideas addressing the main topic. In addition to the improvement of learners' performance in the focus sub-skill, they presented the information in an organized manner. The learners' organization sub-skill improved in the post-test as they were exposed to various tasks that clearly and logically communicated a specific topic. In this regard, the learners take advantage of linking words such as firstly, secondly, thirdly, etc. to provide a clear order in presentation of information. Moreover, each of the paragraphs presented a new piece of information that is logically connected to the main topic. Elaboration sub-skill of learners was also significantly improved. Sufficient details and supporting sentences were included in each paragraph that enriched the

learners' ultimate writing product. Moreover, learners' vocabulary sub-skill was improved as more new words were correctly used in the presented writings. However, learners' grammar, spelling, and punctuation that were categorized as the conventions sub-skill did not indicate any significant improvements following the Web-Quest-based instruction.

In spite of the mentioned improvements in the majority of writing sub-skills, the experimental and control groups did not indicate any significant differences in the conventions sub-skill following the WebQuest-based and traditional instructions. In other words, learners indicated no significant improvements regarding spelling, grammar, and punctuation of Standard English after application of WebQuest-based instruction.

The same positive results are echoed in studies conducted by Berezova, Mudra, and Yakushko's (2018), Abdelqader and Salameh (2018), AL-Khataybeh and AL-Awasa (2016), and Abd Elfatah and Said Ahmed (2016). All the mentioned studies acknowledge a significant difference in the writing performance of the experimental group in favor of the integration of WebQuests into the syllabus of English. Specifically focusing on Iranian EFL students, the findings reported by Ebadi and Rahimi (2018) and Arsanjani and Faghih (2015) are in line with those of the present study.

In contrast with the findings of these studies that confirmed the positive effect of WebQuest-based instruction on EFL learners' writing achievement, the study conducted by Nezam Hashemi and Yazdani Moghaddam (2014) revealed no significant difference between the two methods of teaching, i.e. traditional instruction and web-resource-integrated instruction. In other words, EFL learners did not benefit from the application of WebQuest writing tasks to improve their writing performance in the mentioned studies.

Specification of the influential factors affecting learners' writing performance is of great significance to justify the obtained findings. In this regard, Fareed, Ashraf, and Bilal (2016) claimed that learners' poor

writing products are associated with some teacher- and learner-related factors. Lack of appropriate pedagogical approach, tendency toward traditional instructions in teaching writing, lack of ability to inspire learners in writing classes, large size of EFL classes, and utilization of outdated writing books can be regarded as some of the teacher-related factors impeding learners' acceptable performance in writing classes (Dar & Khan, 2015). Moreover, learners' lack of motivation, lack of reading various authentic materials and insufficient sources of background information to generate quality writing pieces can be categorized as learner-related factors that negatively affect learners' performance in writing classes (Belkhir & Benyelles, 2017). It seems that the application of WebQuest-based writing instruction appropriately responded to the mentioned impeding factors.

The obtained positive findings in the present study can be generally attributed to the presentation of the writing course using the WebQuest-based instruction as a novel model and can be more specifically ascribed to the unique features and peculiar atmosphere-related outcomes of the WebQuest-based instruction. Three main features can be dealt with while discussing the WebQuest-based instruction: a) effective use of time, b) integration of four main skills, and c) the prominence of authenticity. Moreover, three outstanding atmosphere-related outcomes can be obtained in the WebQuest-based instruction: a) improvement of critical thinking skill, b) increased motivation, and c) enhanced cooperation among learners.

Regarding the peculiar features of the WebQuest-based instruction that resulted in the positive findings of the present study, the following points can be presented. First, as the target links were already chosen by the teacher, learners did not waste their time searching for the information in an unstructured manner. Hence, it can be stated that effective use of time simultaneously saved the teacher and learners' time and prevented their frustration while searching for the required information on the Internet. Second, integration of the four main skills in a single WebQuest-based task resulted in the use of authentic materials and meaningful content to respond to a real-life situation

(Blachowicz, Beyersdorfer, & Fisher, 2006). Third, authenticity, as one of the main concepts that should be addressed in the WebQuest model, was conceptualized in two ways, i.e. authentic tasks and authentic materials (Turville, 2008). The first conceptualization of authenticity referred to the authentic tasks, which presented a real-world problem or issue and required the learners to comprehend, analyze, and finally solve the presented problem. The second conceptualization of authenticity in the WebQuest model was related to the application of authentic materials presenting the original documents and real sources such as real-world videos, newspapers, articles, etc.

Regarding the remarkable atmosphere-related outcomes obtained in the WebQuest-based instruction that resulted in the positive findings of the present study, the following points can be provided. First, WebQuest-based instruction can improve learners' critical thinking skill as a higher level of cognition should be involved to analyze, evaluate, classify, and synthesize the presented information via Web links to accurately accomplish the task. In other words, performing a WebQuest task required the learners' involvement in a critical thinking process (Nwike & Catherine, 2013) to transform the obtained information to a new piece of knowledge to accomplish the ultimate goal of a task. The mentioned point is depicted in the integration of the WebQuests into writing classes as the learners were supposed to not only gather the required information but also analyze and present it as a coherent writing product. Second, the integration of WebQuests into writing classes resulted in learners' increased motivation. Motivation has been considered as a very significant psychological factor assisting learners in achieving their learning objectives (Guilloteaux & Dörnyei, 2008). Some researchers believe that learners appreciate learning with educational technologies as they can offer a variety of authentic and motivating tasks (Halat & Peker, 2011). Observation of the writing classes in this study revealed the learners' absolute involvement in performing the tasks which was indicative of their increased enthusiasm, thereby improving their writing performance. Third, as the WebQuests are inherently cooperative tasks which can improve

learners' collaboration with each other by offering the opportunity to experience the pair or group works, the cooperation was enhanced among the learners in this study. As each member in a group was supposed to contribute to the completion of the main task by taking a specific role to gain and share the pertinent information with other members of the group (Murray & McPherson, 2009), the learners acquired deeper understanding of the issue to be presented in their writing products.

To put in a nut shell, WebQuest-based writing instruction provided the learners with more interesting and authentic learning and writing opportunities, which in turn not only increased the learners' enthusiasm in writing but also enhanced and activated their prior knowledge in essay writing by exposing them to more authentic materials. Regarding the improvements that were observed in learners' overall writing achievement and achievements in focus, elaboration, organization, and vocabulary sub-skills, the facilities provided by the WebQuest-based instruction such as the presentation of multimodal discourse including graphs, pertinent web sites, texts, videos, pictures, etc. should be accentuated as they could result in learners' further acquaintance with the idioms, vocabulary, flow, and relatedness of ideas that were reflected in their ultimate writing product.

Although integration of the WebQuest-based instruction resulted in a significant improvement in learners' post-test overall writing achievement scores as well as their achievement scores in the elaboration, focus, vocabulary, and organization sub-skills, learners' achievement scores in conventions sub-skill were not significantly different for the WebQuest-based and traditional instructions. The mentioned finding can be attributed to the nature of the tasks included within each WebQuest task. The tasks presented authentic materials that were mostly content-based and aimed at presenting a topic in a real-life situation. Hence, it may be speculated that as the EFL learners were more engaged with the content of the provided materials to extend their knowledge regarding a specific topic, they took advantage of their previously-acquired knowledge of the conventions in English writing.

Hence, no significant improvement was observed in their conventions sub-skill.

Conclusion

The findings of this study indicated optimistic implications about the potential applicability of novel educational technologies in Iranian higher education context. EFL learners' improved writing performance and vocabulary acquisition as well as their increased motivation and collaboration in WebQuest-based writing classes can be regarded as a valuable clue for teachers to take advantage of educational technologies in EFL writing classes. Variety of tasks, integration of all main skills, visual attractiveness due to integration of videos, graphs, articles, etc. can make the learners, even passive learner, to be attentive and involved in performing the sub-tasks and presenting the ultimate task, i.e. writing an essay. Hence, it can be proposed that teachers can apply WebQuest tasks in improving EFL learners' writing skill.

Moreover, teachers can improve the traditional writing instruction that presented linear essay writing in which three steps of introduction, development, and conclusion were followed by the learners. WebQuest-based writing instruction requires the learners to surf the proposed Web materials that are rich in quantity and quality, gather and analyze the pertinent information, perform the sub-tasks, and finally synthesize the acquired knowledge to perform the main writing task.

Furthermore, the findings of this study can convince and encourage administrators to equip EFL educational settings with more technological facilities. In doing so, more novel technology-based tasks such as WebQuest-based tasks can be integrated into EFL classes and bring a sense of approval and aspiration for learners.

In addition, another implication can be presented for WebQuest designers. Considering the Internet as a double-edged sword with its benefits and drawbacks, much attention should be devoted to cautiously select the Web links and meticulously design an appropriate WebQuest task to prevent the counter product of WebQuest integration to EFL classes.

Suggestions for further research

First, this study focused the effect of WebQuest-based instruction on learners' writing achievement. It seems that addressing the effect of WebQuest-based instruction on other main skills as well as sub-skills will shed more light on the effectiveness of integrating new technology-based instructions into EFL classes.

Second, as the study focused on female EFL learners in higher education, future studies should be conducted to examine the effect of WebQuest-based instruction on achievement of EFL learners with different gender, proficiency level, and age range.

Third, it seems that holding various teacher training programs in which teachers will be trained regarding the application of WebQuest-based instruction in EFL classes is of great significance. In doing so, teachers will be acquainted with their new role in EFL classes as a guide and support and can more precisely reflect on various aspects of this novel model of instruction. Based on the assumption that teachers play a crucial role in the success or failure of a new instructional model, it is worth examining teachers' responses to their role changes in WebQuest-based instruction.

Fourth, as the already-designed WebQuests were employed in the present study and the researcher aimed at selecting the most appropriate WebQuests to be used in the writing class, the students may have been deprived of having opportunities to be engaged in their own learning and developing their critical thinking and constructivist skills. In addition, learners in each EFL writing class may have specific needs. Hence, it would be of great value to train the learners to develop their WebQuests to appropriately respond to their specific objectives.

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