



The Effect of Computer-Mediated Corrective Feedback on EFL Writing Skill Achievement and Attitude

Navid Atar Sharghi*

Corresponding Author, Assistant professor of language Sciences, Persian Language Teaching Center, Imam Khomeini International University, Qazvin, Iran.

navid_atar.sharghi@PLC.ikiu.ac.ir

Kiyoomars Jahangardi

Visiting Assistant professor of Farhangiyani University, Tehran, Iran.

kjahangardi@yahoo.com

Sepideh Ahmadkhan Beigi

MA in TEFL, Kharazmi University, Tehran, Iran.

Khanbeigi.s@gmail.com

Abstract:

The present study investigated the effect of Computer-Assisted Language Learning (CALL) on Iranian EFL writing ability on the one hand and studied the participants' attitudes toward integrating CALL into their curriculum on the other hand. Advanced learners from Iran Language Institute (Tehran, Iran) were selected based on a non-random convenient sampling method. Then, the researchers measured the participants' English writing skill by administering a researcher-made writing pre-test in which the students were required to write an opinion essay. Having made sure the students were at the same proficiency level regarding their writing ability, the teacher gave instructions on how to use Virtual Tutor and Grammarly applications to practice writing opinion essays. After 15 sessions of instruction, a writing post-test was administered and finally, the data were analyzed using paired and independent samples t-tests. The obtained results indicated a significant difference between the pre-tests and post-tests. The findings showed that learners' writing skill improved compared to their pre-tests. Moreover, the results of descriptions and t-tests of the attitude questionnaire suggested that students believed they were learning more effectively, which helped them boost their motivation in the long run. The present study confirms the advantage of using technology in the language classroom which by itself implies that instructors and material developers should integrate technology into the language learning process.

Keywords: Computer-Assisted Language Learning (CALL), English as a Foreign Language (EFL), Writing skill, Corrective feedback, Grammarly application, Virtual Writing Tutor Website.

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1. Introduction

While receiving years of instruction on writing, many learners do not appear to develop their writing skills. In fact, learners still make similar grammatical errors, same sentence structures and content in addition to the same vocabulary. Expressing and developing ideas was proven to be one of the challenging obstacles for them. Not only do they make mistakes regarding spelling but also capitalization and punctuation marks (Ambrose & Palphantan, 2017). Harmer (1998) emphasizes teaching writing to ESL learners for four reasons: reinforcement, language development, learning style and writing as a skill. Celce-Murcia (2001) asserts that writing is an important tool which helps learners communicate and express their emotions and ideas. Setyowati (2016) claims that writing is of great significance for exploring feelings and opinions, though it is very demanding to master because it is not just about ideas but also about the clear purpose, organization, word choice and language use. It is not easy to write an opinion essay because the writer should express their idea in a way to influence the readers so that they will concur with them. They should support their opinion based on facts and evidence to make the argument more convincing. Finally, since opinion essays analyze or synthesize an object, they resemble persuasive essays (Oshima & Hogue, 1988).

On the other hand, there is nowadays a growing interest in using technologies in English language classrooms due to their benefits for learners, such as leading them to become judicious users of technology (e.g., Ghasemi et al., 2011; Tafazoli, 2021). Interestingly, using computers for enhancing writing skill has recently been attested, too (e.g., Sadiku & Krasniqi, 2018; Mohsen, 2022).

Technology integration in language classes is called Computer-Assisted Language Learning (CALL). As almost all students and their teachers have now access to a kind of computer, using them in language learning has been widespread. Thus, CALL, as a new method of language learning, needs to be under further study.

On the other hand, teachers usually provide feedback on different aspects of EFL (English as Foreign Language) writing, including the writing content, coherence and cohesion, the range of vocabulary, the complexity of structures and so on. But, as Ramirez (2007) stated, "Instead of receiving a paper filled with corrections, the computer offers a less personal way of critical feedback". By the way, teachers may not have enough time to remind all of their students' mistakes. Therefore, machine-corrective feedback seems to be very welcomed by the

students. Regardless of (dis)advantages of machine-corrective feedback, it seems that students' access to such kinds of machines may increase their motivation for self-learning the desired language. Nevertheless, using an automatic corrective feedback machine is still the subject of debate among scholars, and the most important debate focuses on how harmful error-correction may be to students' fluency and their overall writing quality. On the other hand, using computer may be seen as more effective than receiving the teacher's corrective notes on test papers. Thus, it seems necessary to study the effectiveness of using computer-based applications and websites using to feedback on writing skill.

However, CALL researchers have mainly focused on the kind of feedback which treats grammar and writing skill (e.g., Beuningen, 2008; Mohsen, 2022). Of course, there may be myriads of L2 studies which have concentrated on how corrective feedback can assist L2 learners to turn them into autonomous writers (Maatouk & Payant, 2020; Sato & Leowen, 2018). Nevertheless, these studies basically focus on the type of feedback which involves learners in the process of revising and editing their drafts (Tafazzoli et al., 2014). This paper intends to provide empirical evidence concerning the value of computer-mediated feedback in writing opinion essays and whether learners develop positive attitudes toward receiving this kind of corrective feedback. Therefore, the present study was designed to find answers to the following questions:

RQ 1. Does computer-mediated corrective feedback have any significant impact on Iranian EFL learners' writing skill?

RQ 2. Do Iranian EFL learners develop positive or negative attitudes toward learning through computers?

2. Literature Review

Many pedagogues and language researchers tried to display the efficiency of CALL in developing learners' language skills and sub-skills (Nachoua, 2012). Among the four language skills, writing has been one of the most challenging skills for EFL learners and makes up a great proportion of one's professional career. Also, writing is a means of expressing those thoughts to others (Mahdavi, 2017).

In one study, Zaini and Mazdayasna (2014) investigated the influence of Microsoft Word Office as a word processor providing automatic feedback to students while writing their tasks. Feedback included inappropriate word choice, tense, article, verb form, pluralization, word order, and mechanics. Forty-four Iranian students with advanced English proficiency participated in that study. The

results of the study revealed that participants in the experimental group gradually gained experience to improve their writing skills as well as to enhance their ability to use more appropriate structures. Moreover, they developed their ideas in an organized way to create more quality texts.

In another study, Mahdavi (2017) employed CALL as an aid to the production, substantiation, and evaluation of material to be learned. He concludes that computers have changed into a complex and flexible writing aid to improve writing skills and their attitudes toward writing. He emphasizes that word processor provides some handy tools including spell checking, grammar checking, thesaurus, dictionary, synonyms, and antonyms, which have proven to improve EFL learners' writing ability.

Having investigated the effect of CALL on students' writing achievement, Jafarian et al. (2012) claimed that feedback provided by computers enhanced the proficiency of learners in writing skill. He claims that becoming autonomous and judicious users of technology is the outcome of using grammar checkers. In fact, grammar checkers intend to engage the students' critical thinking skills by providing feedback and alarms.

In the area of writing achievement, several studies have shown significant differences favoring computer-assisted feedback using mostly grammar checkers. Following the extensive use of computer technologies in language classrooms in recent years, further distinctions can be made between electronic feedback and conventional print feedback. The main objectives of this study were to evaluate the effectiveness of an online website and application designed for instructing and giving feedback on essay writing as well as their roles in changing the students' attitudes towards computer-mediated corrective feedback.

Jiang and Yu (2022) explored a cohort of EFL students' experiences of appropriating automated feedback in their writing activities. The findings revealed three forms of appropriation (i.e., regular, partial, and rare) among the students who had used various artefacts (e.g., dictionary) and rules (e.g., teacher requirement), taken on different roles (e.g., student writer, spotlight-avoider), and resorted to different community members (e.g., peers) to mediate their appropriation. These findings pose a critical need to revisit the idea that submission for immediate automated feedback is motivating and to watch the potential wash-back effect of setting a threshold score when pedagogically using automated feedback.

Tafazoli et al. (2014) may be considered the most related survey to the present study. Although their study is on grammar, they also studied corrective

feedback in ESP courses made by using a computer. Their findings indicated that the computer-mediated feedback process seemed to be more influential in enhancing the grammatical accuracy of the participants.

Finally, Lin et al. (2022) designed and implemented an augmented-reality context-aware ubiquitous writing (ARCAUW) application, which aimed to increase long-term memory, motivation, and self-regulated cognition in participants' writing development. The pilot project compared the writing outcomes and learner perceptions of the proposed ARCAUW writing mode against the baseline mobile-assisted, classroom-based writing mode. The two writing modes differed in the way that metacognitive scaffolding tasks were carried out. Pre- and post-test results showed that although both modes led to significant improvement in writing the process analysis essay, ARCAUW was conducive to the development of task schema in long-term memory, motivation, and self-regulation in writing.

As shown above, there may be seen a growing increase in studies on CALL and writing skill. In spite of this, it seems that there are still some gaps in the effects of computer-mediated corrective feedback on second language learners' writing skill. Furthermore, we have to know the learners' attitudes toward learning by means of technology and particularly in the field of writing skill. However, the present study, as stated before, is going to concentrate on only one of the main language skills, i.e., writing, to explore the effect of computer-mediated corrective feedback on EFL writing skill achievement and attitudes.

3. Method

3.1. Research design

This study may methodologically be considered quantitative research because it aims to test the correlation between language learning and using computer-assisted language courses. Furthermore, there has been a lot of efforts to survey the opinion of participants on CALL. This survey was done by means of a questionnaire. The data gathered by means of this questionnaire has been also measured by T-test to calculate the value of the subjects' attitude toward using computers in language learning.

3.2 Participants

For fulfilling this part of the study, twenty female advanced English learners were selected based on a non-random convenient sampling method as well as their availability in the spring semester of 2021. The advanced learners aged from 15 to 18 with a mean age of 17 who have been learning English as a foreign language at the Iran Language Institute (ILI) for four consecutive years. This part of the study was conducted on the basis of a one-group pretest-posttest research design. Table 1 shows the statistics of the participants:

Table 1

Demographic data of the learners participate in the study

All the learners who participated in a 6-week English class	30 learners
The participants, selected after fulfilling the pre-test	20 learners

3.3 Instruments

3.3.1. Virtual Tutor Website

The main instruments employed in the present study were firstly a free online proofreader, and Virtual Writing Tutor¹ - an easy-to-use free proofreader. It provides feedback in four separate categories. The primary category includes comments regarding general writing quality which scores writing rubrics such as cohesion, dynamism, provocativeness, clichés and exclamation marks.

3.3.2 Grammarly

The second instrument of the study was Grammarly convenient desktop application.² Grammarly application is a free browser extension that provides learners with context-specific suggestions to revise grammar, spelling and usage, wordiness, style, punctuation, and even plagiarism.

This online application and website aimed to provide supportive comments on writing essays. It counts words, scores essays, checks spelling, checks paraphrasing, checks grammar and punctuation, improves word choice, and self-assesses the use of target structures.

¹. <https://virtualwritingtutor.com>

². <https://www.grammarly.com/>

3.3.3 Questionnaire

Another instrument used in the study was a questionnaire extracted from Aryadoust et al. (2014). Their questionnaire was modified to focus on the perceived ease, preference and effectiveness of using virtual writing feedback for improving essay writing. The modified questionnaire consists of twenty-seven 4-point Likert scale questions to assess students' attitudes towards using CALL as a new tool for improving their writing ability. This questionnaire includes 27 items selected from a pool of 633 survey items to measure CALL attitude. Having been translated and back-translated by experts, the items were administered to 1001 Iranian EFL learners. Afterwards, principal component analysis, confirmatory factor analysis (CFA), and the Rasch-Andrich rating scale model were used to examine the psychometric features of the items. Finally, a five-inference validity argument for the CALL attitude instrument (CALLAI) was developed. They found that the validity framework is well-supported.

3.4 Procedure

This project was implemented in an advanced English class at ILI in Tehran, Iran. The class was an integrated-skill class focused on four skills, held twice a week and lasted one hour and a half for each session. Firstly, a pre-test was administered which required the students to write an opinion essay which was then scored by the teacher as a rater based on IELTS writing band descriptors to make sure that the learners were homogenous. The class was made up of 30 learners, twenty of whom were selected after the pre-test. All of those twenty had studied English for four years at the ILI and were at the same level of writing ability. The project was defined for the learners thoroughly in the first session of a 6-week program. Subsequently, the students were shown a sample opinion essay scored by Virtual Tutor.

The comments provided by Virtual Tutor were analyzed, and the criteria for writing a productive essay were clarified. Subsequently, learners were required to download the Grammarly application followed by a sample writing analyzed by Grammarly.

Afterwards, the students were instructed on how to insert their own writing into Virtual Writing Tutor. Once the learners had understood the procedures, they were instructed on how to apply the comments provided by either Grammarly or Virtual Tutor to improve their writing quality. After the initial session, the project was conducted as an out-of-class project. Learners

were responsible for writing two opinion essays of at least 200 words per week. The topics they had to write about were based on classroom context. For example, if learners studied how to express their opinions about Hurry Sickness that week in class; they were motivated to recite the ideas, vocabulary, and grammar they had already learned in their essays. The essays were scored and evaluated by Virtual Tutor. After six weeks, a post-test was given and the scores were recorded.

Finally, a questionnaire was administered on students concerning their attitudes towards the effect of computer-generated feedback in writing opinion essays. The responses were compiled by the instructor in order to determine how students viewed the assignment, how effective the assignment was in encouraging out-of-class learning, and whether they found CALL influential in improving their writing ability.

4. Data Analysis

In order to answer the research questions, data analysis was carried out by using SPSS software version 26. Firstly, Kolmogorov-Smirnov (K-S) test was used to check the normality of the gathered data. Secondly, descriptive statistics, including means and standard deviation were computed. Thirdly, to examine the impacts of computer-generated feedback on Iranian EFL learners' writing skill and to analyze the factors associated with the attitude questionnaire (component analysis), independent and paired samples t-tests were run, respectively. The reliability of a 27-item questionnaire was addressed by Cronbach alpha whose coefficient for this questionnaire was 0.956.

4.1 Quality of learners' writings using Virtual Tutor

The first type of assessment concerned the quality of learners' writing after using Virtual Tutor. Figure 1 shows the quality of learners' writing regarding the five following components: cohesion, dynamism, provocativeness, clichés, and exclamation marks.

Figure 1

Feedback on Writing Quality by Virtual Tutor

Writing quality: 86%

Cohesion:

You have a range of transition words and cohesion devices to help your reader understand the relationship between your ideas. That's very good. Your score for this feature = 100/100

Dynamism:	Your writing style is dynamic. You write a combination of short sentences and long sentences. That's very good. Your score for this feature = 100/100
Provocativeness:	Your essay contains just a few words that will provoke an emotional reaction in your reader. Provocative words help to engage and sustain your reader's attention. Add more to increase your score. Here are some examples of words that provoke an emotional reaction in readers: <i>awe-inspiring, brutal, children, danger, explode, fear, gorgeous, hoax, and invasion...</i> Your score for this feature = 60/100
Cliché:	I did not detect any clichés in your writing. No penalty was applied.
Exclamation marks:	I did not detect any exclamation marks in your writing. No penalty was applied.

The second type of assessment is made concerning the whole essay structure and content. In other words, paragraphs are evaluated one by one and comments are provided to improve the quality of paragraphs.

Figure 2

Feedback on the Introductory Paragraph-Structure and Content

Essay structure and content: 58%

Paragraph 1 - introduction: 66%

Title:	I could not detect any word with four letters or more in your title that was not capitalized. This tells me that you have capitalized your title correctly. Your score for this feature = 100/100
Opening:	<i>In many societies, the rate of crime has seemingly been on an upward trajectory.</i> I noticed that you started your essay with a short anecdote or narrative to spark interest in your topic. That's good. Your score for this feature = 100/100
Context:	I checked your introduction for words and phrases that writers use to establish the importance of their topic. I was unable to find any matches. Establish the importance of your topic with one of these phrases: <i>a vital factor in, the leading cause of, widely considered to be, set to become, undergoing a revolution, is responsible for.</i> There are others. Your score for this feature = 0/100
Thesis:	This essay will discuss both statements and present my point of view as well.

You can improve your score for this feature of your essay by strengthening your claim. Here is an example of a debatable thesis statement that makes a strong claim: *We desperately need an added-sugar tax in this country because taxing sugar will cut sales of unhealthy food and because the tax money, we collect can pay to treat the diseases caused by added sugar.* Your score for this feature = 0/100

Figure 2 demonstrates that an introductory paragraph is comprised of four parts, including title, opening, context, and thesis. This implies that Virtual Tutor not only provides feedback on learners' writing but also introduces the required parts of an introduction to an essay. Moreover, alternatives are suggested to learners in order for them to improve their scores.

Figure 3

Feedback on the Body Paragraph-Supporting Sentences

Paragraph 3 - supporting argument: 55%

- On the other hand, critics alarm that more productive approaches should be adopted.
- Topic sentence:** The first sentence of this paragraph contains words that will have an impact on your reader. That's good.
- Nevertheless, remember this advice: an effective topic sentence in an argument essay should make a debatable claim that the rest of the paragraph will elaborate on with reasons and examples. Your score for this feature = 100/100
- Argue:** You have used a word commonly used in argumentation. That's a good start. However, try to use one or two more argumentation words and phrases for a higher score. Some examples of words that you can use are as follows: *by analogy, we can conclude, evidence, fact, fallacy, implication, follows that, it makes sense, opinion, point of view, posit, premise, proof, statistic, reason, relevance.* Your score for this feature = 60/100
- Evidence:** You have not used any words commonly used when giving evidence. That's NOT good. Use one or two more words and phrases for giving evidence to get a higher score. Some examples of words that you can use are as follows: *according to, to quote from, tells us that, shows us that, referring to, argues that, stated, wrote, argued, discussed, expressed the concern that.* Your score for this feature = 0/100
- Support:** You have used a word commonly used when providing support. That's good. Use one or two more support words and phrases for a higher score.
-

Some examples of words that you can use are as follows: *a case in point, an analogy, another way, as an example, as an illustration, consider, put another way*. Your score for this feature = 60/100

Figure 3 indicates the way body paragraphs are evaluated. In other words, these paragraphs are assessed in terms of the topic sentence, argument, evidence, and support. Therefore, learners understand what parts a body paragraph includes. Besides, they learn idioms and expressions by which they are able to strengthen their arguments.

Figure 4

Vocabulary Assessment

Vocabulary: 100%

Argument-related words: believe, conclusion, demonstrate, opinions, point, point of view, since, so, statements, studies, to illustrate, view, nuance

Feedback: You have used many words related to argumentation. Your score for this feature = 100/100

Vocabulary profile:

Feedback: 41% of your essay comprises the most common 1000 words in the language. You possess a very large vocabulary and excellent academic potential. Your score for this feature = 100/100

Academic vocabulary profile: approach, assume, beneficial, concept, create, individual, conclusion, consequence, secure, survey, alternative, contribute, demonstrate, illustrate, instance, outcome, technique, adequate, commit, job, option, academic, decline, generation, inaccurate, incorporate, confirm, foundation, guarantee, predominant, prospect

Feedback: 31% of your essay comprises words from the academic word list. You possess a very large academic vocabulary and suggests excellent academic potential. Your score for this feature = 100/100

Virtual Tutor provides comments on the range of vocabulary in three different areas, namely argument-related words, vocabulary profile, and academic vocabulary profile. Moreover, it introduces the vocabulary of each relevant area which enables learners to expand their knowledge of vocabulary.

Figure 5:
Grammar Check Feedback

Language Accuracy: 70%

Number of errors: 5

Feedback: I detected a significant number of errors in your writing. Do your best to eliminate any avoidable errors in your writing by rereading your essay carefully and by using a spell checker and grammar checker. Your score for this feature = 70/100

Grammar Check Feedback

You wrote: ...al options to tackle this problem. This essay will discuss both statements and presen...

Feedback: Your subject is singular but your verb is conjugated for a plural subject.

Suggestion: essays

You wrote: ...l curriculum, youngsters would get more accustomed with the basic concepts of law and order, wh...

Feedback: The usual collocation for "accustomed" is "to" not "with". Did you mean "accustomed to".

Suggestion: accustomed to

You wrote: Secondly, governments are responsible to create equal and adequate job opportunities fo...

Feedback: Follow "responsible" with an -ing form. Revise: "responsible for creating".

Suggestion: responsible for creating

You wrote: ...oint, lengthening the jail sentence per se produces less than stellar results. Tha...

Feedback: Possible spelling mistake found

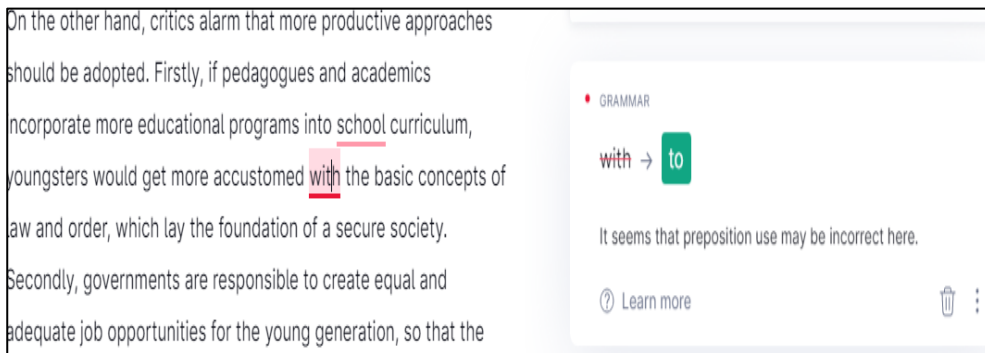
Virtual grammar check feedback examines structures, correct use of collocations, appropriate use of prepositions, and even subject-verb agreement. In addition to the feedback offered, suggestions are also provided for the learners to help them with self-correction.

4.2 Quality of learners' writings using Grammarly Application

Grammarly Application is a free application that explains the reason of each recommendation; therefore, the students have the opportunity to make a wise decision about whether, and how, to correct an issue. Figure 5 is a sample of Grammarly writing corrections.

Figure 6.

A sample of learners' Writing correction by Grammarly



Grammarly has the edge over Virtual Tutor for learners owing to the fact that it provides corrective feedback on the spot. This form of feedback identifies errors and provides explicit guidance on how to correct them, affording the learner rapid, laser-like precision in writing and revising a text.

4.3 Results

At first in order to find out whether the gathered data were normally distributed, the One-Sample Kolmogorov-Smirnov test was run on all scores of pre and post-test.

Table 2:

One-Sample Kolmogorov-Smirnov Test (Group's Pre and Post-Tests)

*. This is a lower bound of the true significance

	statistics	Sig.	
Group pre-test	0.119	0.200*	Normal
Group post-test	0.122	0.200*	Normal

Table 2 shows that the scores of both groups in pre- and post-test were normally distributed, that is, the significance level was less than the observed value (0.2 > .05), and accordingly the criteria for running parametric statistics like t-test were met.

Table 3:

Paired Sample T-Test

	Mean	Std. Deviation	t.	df.	Sig.
Pre-test	58.037	9.999	9.160	19	0.001
Post-test	74.912	7.785			

Table 3 illustrates the descriptive statistics on the pre-test and post-test of the experimental group. The results show that there is a difference between the mean of the pre-test (58/037) and post-test (74/912) of this group. The conclusion to be drawn from this part would be the students' development on their post-test in comparison to their pre-test. This table also depicts that Sig is .001 which is less than 0.05 ($t=9.160$ $sig.=0.001<0.05$); therefore, the difference between the pre-test and post-test is significant at ($p<0.05$).

Table 4:
Percentage of Responses to the Attitude Questionnaire Towards Virtual Feedback

Item	Mean	S.D	T. Statistic	Sig
computer is a useful tool to access various types of English materials for reading.	3.700	.470	11.414	.001
CALL helps me develop my listening skills.	3.700	.470	11.414	.001
CALL makes lessons more interesting than traditional English instruction.	3.500	.512	8.718	.001
Computers make English learning much easier for independent learning.	3.250	.444	7.550	.001
Computers make English learning easier in the classroom.	3.250	.444	7.550	.001
CALL helps me develop my speaking skill.	4.000	.000	Failure to perform the test due to a lack of changes in scores	
computer is a useful tool in developing writing skills.	3.500	.512	8.718	.001
I like learning a new language by computer.	3.250	.850	3.943	.001
Using a computer while learning keeps me more motivated.	3.500	.512	8.718	.001
I can get more useful feedback in CALL lessons.	3.700	.470	11.414	.001
I am confident about working with computers.	3.500	.512	8.718	.001
I often use computers to do my English assignments.	3.000	1.025	2.179	.042
CALL helps me enlarge my vocabulary knowledge.	3.500	.512	8.718	.001
It is essential for English language learners to master computer skills.	3.500	.512	8.718	.001
Using computer tools to learn English is a great advantage over traditional methods.	3.500	.512	8.718	.001
CALL is a stress-free environment to learn English.	2.750	.444	2.517	.021

Learning English through computers isn't necessary.	4.000	.000	Failure to perform the test due to lack of changes in scores	
I find that using computers does not help my English learning.	3.750	.444	12.583	.001
The use of computers can help improve my communication skills.	4.000	.000	Failure to perform the test due to lack of changes in scores	
Using computers make language lessons more interesting to me.	3.500	.512	8.718	.001
CALL helps me develop my grammar.	3.00	.000	Failure to perform the test due to lack of changes in scores	
CALL makes me feel tense and uncomfortable.	3.750	.444	12.583	.001
Communicating by e-mail is a good way to improve my English.	3.000	1.025	2.179	.042
I need training in using language learning software programs.	3.500	.512	8.718	.001
Chatting with native English speakers on the Internet is helpful for learning English.	3.500	.512	8.718	.001
I can cover more material on my own when I study English with computers.	4.000	.000	Failure to perform the test due to a lack of changes in scores	
Computers will dehumanize learning English.	3.000	.725	3.082	.006

Table 4 indicates the percentage of responses to the questionnaire. To analyze each component, an independent sample t-test was used. Considering that this questionnaire uses a 4-point Likert spectrum (strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1), the criterion for the independent sample t-test of the theoretical mean of this spectrum equals the value 5.2. This implies that if the mean obtained from each component is more than 5.2 and the test is significant, that phrase and component is significantly desired by the learners. It should be noted that questions 17, 18, 22, 24 and 27 express a negative attitude towards computer language learning, and for these questions, the data was entered in reversely, that is to say, strongly agree = 1, agree = 2, disagree = 3 and totally disagree = 4.

The results of a sample t-test for 27 items and components of the Attitude towards Virtual Feedback Questionnaire are summarized in Table 4.

Table 5:

Assessing the Status of the Attitudes towards the Virtual Evaluation Questionnaire

tem	Strongly Disagree	Disagree	Agree	Strongly Disagree
A computer is a useful tool to access various types of English materials for reading.	0.0	0.0	۳۰/۰	۷۰/۰
CALL helps me develop my listening skills.	0.0	0.0	۳۰/۰	۷۰/۰
CALL makes lessons more interesting than traditional English instruction.	0.0	0.0	۵۰/۰	۵۰/۰
Computers make English learning much easier for independent learning.	0.0	0.0	۷۵/۰	۲۵/۰
Computers make English learning easier in the classroom.	0.0	0.0	۷۵/۰	۲۵/۰
CALL helps me develop my speaking skill.	0.0	0.0	۰۰/۰	۱۰۰/۰
Computer is a useful tool in developing writing skills.	0.0	0.0	۵۰/۰	۵۰/۰
I like learning a new language by computer.	0.0	۲۵/۰	۲۵/۰	۵۰/۰
Using a computer while learning keeps me more motivated.	0.0	0.0	۵۰/۰	۵۰/۰
I can get more useful feedback in CALL lessons.	0.0	0.0	۳۰/۰	۷۰/۰
I am confident about working with computers.	0.0	0.0	۵۰/۰	۵۰/۰
I often use computers to do my English assignments.	0.0	0.0	۵۰/۰	۵۰/۰
CALL helps me enlarge my vocabulary knowledge.	0.0	0.0	۵۰/۰	۵۰/۰
It is essential for English language learners to master computer skills.	0.0	0.0	۵۰/۰	۵۰/۰
Using computer tools to learn English is a great advantage over traditional methods.	0.0	0.0	۵۰/۰	۵۰/۰
CALL is a stress-free environment to learn English.	0.0	۲۵/۰	۷۵/۰	۰/۰
Learning English through computers isn't necessary.	۱۰۰/۰	0.0	0.0	0.0
I find that using computers does not help my English learning.	۷۵/۰	۲۵/۰	0.0	0.0
The use of computers can help improve my communication skills.	0.0	0.0	0.0	۱۰۰/۰

Using computers make language lessons more interesting to me.	0.0	0.0	0.0/.0	0.0/.0
CALL helps me develop my grammar.	0.0	0.0	1.0/.0	0.0
CALL makes me feel tense and uncomfortable.	2.0/.0	2.0/.0	0.0	0.0
Communicating by e-mail is a good way to improve my English.	0.0	0.0/.0	0.0	0.0/.0
I need training in using language learning software programs.	0.0/.0	0.0/.0	0.0	0.0/.0
Chatting with native English speakers on the Internet is helpful for learning English.	0.0	0.0	0.0/.0	0.0/.0
I can cover more material on my own when I study English with computers.	0.0	0.0	0.0	1.0/.0
Computers will dehumanize learning English.	2.0/.0	0.0/.0	2.0/.0	0.0/.0

According to the results, it can be concluded that the test is significant for all items and the mean of the items is more than 5.2. In other words, language learners have a positive attitude towards learning English with the help of a computer. It should be noted that because there was no standard deviation in some items, it was impossible to perform the test.

5. Discussion

To find out the effectiveness of computer-mediated feedback on the student's writing skill as the main goal of the study, an independent t-test was used to analyze the gathered data obtained from paired samples. Findings indicated that integration of the feedback has a significant positive effect on students' writing skill. The results statistically revealed that the students significantly did better on their post-tests ($p < .05$). Interestingly, the outcomes of the current study are consistent with the results of the studies reported in the review of the literature (Jafarian et al., 2012; Tafazoli et al. 2014; Mahdavi, 2017; Zaini & Mazdayasna, 2014).

Regarding the second question of the study, the participants' attitudes towards using computers in writing sessions, the learners demonstrated a positive and meaningful attitude toward learning English with the help of a computer. However, two major differences exist between the current study and those mentioned in the literature. First, in those studies, computer feedback was limited to the use of grammar checkers, while the present study juxtaposed a grammar checker and an electronic feedback provider which offers feedback on different aspects of writing. Furthermore, while these studies focused on the effect of

grammar checkers, the current study was also concerned with the learners' attitudes toward this kind of feedback.

One of the marginal findings of the study is that when using the computer-assisted courses, the students will be acquainted with the macro and micro aspects and dimensions of written texts - including title, opening, context, thesis, cohesion, dynamism, provocativeness, clichés, vocabularies importance, and punctuation.

The major limitation of this research was the participants' number and gender. This study, with regard to time limitation, could not involve a large number of participants which may impact the generalizability of the findings. The present study checked the impact of computer-mediated corrective feedback programs on Iranian EFL writing improvement and their general attitude toward this approach. It is proposed for further studies to precisely scrutinize the usefulness of this approach on other language skills such as speaking, listening, and reading or even in other foreign languages.

6. Conclusion

In regard to the first question of the study, the findings indicate that there is a significant impact of using computers on Iranian EFL learner's writing skill; because the difference between the pre-test and post-test is at the level of 0.001 which is less than 5.05 ($p < 0.05$). It means that such impact is significant. Thus, the findings regarding the first question of the study indicate that the students' performance in writing could be strongly affected positively through the use of computer-mediated corrective feedback.

Here, we may argue that since the findings of the current study are in line with the previous qualitative and quantitative studies, it is demonstrated that "a technologically enriched EFL learning context brings about positive results for the learners. Specifically, the outcomes of the present study put more stress on the importance of grammar checkers and online proofreaders in improving writing skill". Hence, it is crucial to employ more computer-based programs to assist learners with their writing improvement.

In addition, the findings of the questionnaire show that Iranian EFL learners' attitudes toward receiving computer-mediated feedback were significantly positive, since all the items in the questionnaire had a mean value of more than 5.2, and it indicates that learners developed a positive attitude toward learning English through computers. Therefore, if we try to develop

technological-based methods for teaching EFL, it is welcomed by the learners enthusiastically.

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تأثیر بازخورد اصلاحی رایانشی، بر نگرش و پیشرفت مهارت نوشتاری فراگیران زبان انگلیسی به‌عنوان زبان دوم (پژوهشی)

نوید اعطار شرقی*

نویسندهٔ مسئول، استادیار گروه آموزش زبان فارسی، دانشگاه بین‌المللی امام خمینی (ره)
navid_atar.sharghi@PLC.ikiu.ac.ir

کیومرث جهانگردی

استادیار مدعو دانشگاه فرهنگیان
kjahangardi@yahoo.com

سپیده احمدخان بیگی

دانش آموختهٔ کارشناس ارشد آموزش زبان انگلیسی دانشگاه خوارزمی
khanbeigi.s@gmail.com

چکیده:

مطالعه حاضر، تأثیر یادگیری زبان با کمک رایانه (CALL)، بر مهارت نوشتاری زبان انگلیسی و همچنین نگرش شرکت‌کنندگان را در مورد ادغام CALL در برنامهٔ درسی آن‌ها بررسی می‌کند. برای تحقق این هدف، ۲۰ زبان‌آموز سطح پیشرفتهٔ زبان انگلیسی، از مؤسسهٔ کانون زبان ایران، شعبهٔ تهران، براساس روش نمونه‌گیری غیرتصادفی مناسب انتخاب شدند. سپس محققان مهارت نوشتاری زبان انگلیسی، شرکت‌کنندگان را با اجرای پیش‌آزمون نوشتاری که در آن، دانش‌آموزان، ملزم به نوشتن مقالهٔ ابراز عقیده بودند، مورد سنجش قرار دادند. با اطمینان از این که دانش‌آموزان، از نظر مهارت نوشتاری در سطح یکسانی بودند، مدرس، نحوهٔ استفاده از Grammarly و Virtual Tutor و Applications برای تمرین نوشتن مقاله‌های ابراز عقیده را آموزش داد. پس از ۱۵ جلسه آموزش، یک پس‌آزمون نوشتاری انجام شد و در نهایت، داده‌ها با استفاده از آزمون‌های تی-زوجی و مستقل، تجزیه و تحلیل شد. نتایج به دست آمده، نشان داد که بین پیش‌آزمون و پس‌آزمون، تفاوت معنی‌داری وجود دارد. یافته‌های این تحقیق، حاکی از آن است که مهارت نوشتاری زبان‌آموزان، در مقایسه با پیش‌آزمون‌های آن‌ها، بسیار افزایش یافته است. علاوه بر این، نتایج توصیفی و آزمون‌های تی پرسشنامه نگرش، نشان داد که دانش‌آموزان معتقدند؛ استفاده از کامپیوتر، باعث یادگیری مؤثرتری می‌شود که در بلندمدت، انگیزهٔ آن‌ها را افزایش می‌دهد. مطالعهٔ حاضر، بینش جدیدی در مورد استفاده از فناوری در کلاس‌های زبان را ارائه می‌دهد؛ به این معنی که مربیان و توسعه‌دهندگان مواد آموزشی، می‌بایست فناوری را در فرایند یادگیری زبان ادغام کنند.

کلیدواژه‌ها:

یادگیری زبان با کمک رایانه، مهارت نوشتاری زبان انگلیسی به‌عنوان زبان دوم، مقالات ابراز عقیده، برنامه Grammarly، وب‌سایت مدرس نگارش مجازی.

*استناد: اعطار شرقی، جهانگردی، احمدخان بیگی. (۱۴۰۱)، تأثیر بازخورد اصلاحی رایانشی، بر نگرش و پیشرفت مهارت نوشتاری فراگیران زبان انگلیسی به‌عنوان زبان دوم. پژوهش‌نامهٔ آموزش زبان فارسی به غیرفارسی‌زبانان، سال یازدهم، شمارهٔ دوم (پیاپی ۲۴-

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