

Providing Computer-Based Feedback through Grammarly® in Writing Classes

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ABSTRACT

This study aimed at evaluating the impact of Grammarly® software as a new technology-based immediate corrective feedback on improving EFL learners' writing achievements. To this end, 40 sophomore Iranian EFL students from Islamic Azad University, Kerman Branch, were selected. Before initiating the 15-session treatment, a pretest including 20 questions based on four different variables such as definite and indefinite articles, punctuations, passive voice, and correct spelling was administered. The participants were randomly divided into control and experimental groups. At the end of the treatment and based on the principles of noticing hypothesis, a posttest was administered to evaluate the impact of each intervention on the final writing skill in each group. Employing the independent samples *t*-test, the data analysis revealed that there was a significant relationship between the use of Grammarly® software and learners' writing achievement in each of the four writing skills variables. The experimental group outperformed the control group. In addition, the results indicated that utilizing Grammarly® software had a positive effect on EFL learners' attitudes. The pedagogical implications of this study are that both teachers and students should learn to employ different technology-based applications to improve language learning.

Keywords: Corrective feedback; Grammarly®; Noticing; Writing skill

INTRODUCTION

With English becoming the dominant language of international business and communication, digitalization has introduced technologies that not only demonstrate student learning but also facilitate student learning. These technologies may be synchronous (done in real-time). In order to improve EFL students writing skills the use of computer-based writing-aided software has been growing swiftly over the past two decades as specific writing-aided interventions (Ahmadi, 2018; Hazarika, 2017; Rao, 2017; Salehi & Amiri, 2019). These applications are expected to gradually replace the role of

correction by language teachers in the classroom.

Among the four language skills, writing as an integral part of any language is associated with the complicated structures related to word spelling, pronunciation, vocabulary, and grammatical structure. Language teachers strongly believe that it is one of the most difficult language-learning skills for many EFL learners. Indeed, the different technology-based pedagogical applications that are used in writing skills are derived from various problems in traditional teaching and learning methods. The problem which is related to the learner's underachievement in grammatical and writing skills is twofold. In the Iranian EFL

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context, very little attention is paid to writing as a major skill of language learning. In addition to the rapid development of technology, new writing-based software interventions are rarely used in learning methods as a solution to receive better feedback.

Unfortunately, in the Iranian EFL context, many teachers are not aware of the importance of different technology-based writing software with immediate corrective feedback (CF) and only some are interested in utilizing them. Moreover, many language teaching institutions and even universities lack the required infrastructures for administering CF software (Aleek, 2016). Indeed, some teachers are still feeling the authority at risk within the classes and have an indecisive view in utilizing technology-based pedagogical tools in their classrooms (Ahmadi, 2018). Moreover, large classes and the time the teacher can assign to correct every student is not enough and many of the students' mistakes and writing problems remain uncommented.

Studies into noticing (Schmidt, 2010) linguistic features in the output so far have revealed that learners mostly focus on lexical and other surface levels of linguistic processing, with little focus on grammar (Hanaoka & Izumi, 2012). This problem is mainly related to the wrong use of punctuation, passive voice, wrong spelling, and wrong use of definite and indefinite articles among English learners. An in-depth analysis of which grammar-related features learners spontaneously attend to has not been conducted so far. Rao (2019) believed that "Learning to write in a first (L1), second (L2) or foreign language (FL) seems to be the most difficult skill for language learners to acquire in academic contexts" (p. 196). Therefore, the main objective of the current research was to evaluate the empirical use of a grammar-checking software called Grammarly® on the writing skill among EFL learners.

Grammarly® is one of the newest online software with different CFs, specifically designed to immediately correct and assist English learners' errors and to improve students' writing skills through noticing (Ghufron & Rosyida, 2018). The impact of

Grammarly® on improving writing skills has been evaluated in different studies (Ahmadi, 2018; Bikowski, 2018; Chirimbu & Tafazoli, 2013; Ghafoori, Dastgoshadeh, Aminpanah & Ziaei, 2016; Parra & Calero, 2019; Qassemzadeh & Soleimani, 2016). However, these studies were limited to one or two grammar-checking features. Thus, the significance of the current study that makes it innovative compared to the previous studies is that it aimed at employing Grammarly® to analyze the impact of the immediate CF on improving EFL students' four different writing skills like correcting the word spelling, the correct usage of definite and indefinite articles, passive and active voice correction, and punctuation correction. Moreover, unlike previous studies that only considered self-correction in utilizing Grammarly®, this research significantly focused on the noticing hypothesis through the immediate CF ability in Grammarly® that can increase the users' attention, aiming to observe the possible improvement in learners' noticing and attention in different writing skills. However, it is worth mentioning that although these grammatical features may not be very important at the average language learning level, if used incorrectly or inappropriately, they may lead to serious distortion and breakdown in communication.

Based on the stated problems and goals, the following research questions were proposed.

Q1. Are there any significant differences between EFL learners in control and experimental groups in definite and indefinite articles pretests and posttests?

Q2. Are there any significant differences between control and experimental groups in their overall performance including passive voice questions in the pretest and posttest?

Q3. Are there any significant differences between control and experimental groups in their overall performance including punctuation questions in pretest and posttest?

Q4. Are there any significant differences between control and experimental groups in their overall performance including correct spelling questions in pretest and posttest?

Q5. Are there any significant differences between control and experimental groups in their overall performance including all four variables in pretest and posttest?

Q6. Is there any significant difference between Iranian EFL learners' attitudes prior to and after utilizing the Grammarly® software to provide immediate corrective feedback?

LITERATURE REVIEW

Technology-Enhanced Language Learning (TELL)

Technology as an effective tool and a significant part of the learning and teaching process can support, facilitate and evaluate different aspects of language in the curriculum so that learners can improve their learning of different language skills (Ahmadi, 2018; Al Shekaili, 2016; Bikowski, 2018; Chapelle, Cotos, & Lee 2015; Ghufuron & Rosyida, 2018; Parra & Calero, 2019; Qassemzadeh & Soleimani, 2016). According to Patel (2013), technology refers to “the use of the computer as a technological innovation to display multimedia as a means of complementing a teaching method” (p. 1). Different studies (Chirimbu & Tafazoli, 2013; Ghanizadeh & Razavi, 2015; Gilakjani & Sabouri, 2017) attempted to evaluate the impact of utilizing technology on different aspects of language learning such as reading, speaking, listening, and writing. Ghanizadeh and Razavi (2015), for example, examined the possible impact of multi-media techniques (MTs) in high schools on students' L2 learning attitudes, anxiety, and language proficiency. Through a quasi-experimental design and quantitative method, Ghafoori, Dastgoshadeh, Aminpanah, and Ziaei (2016) investigated the application of computers (CALL) to the grammar of writing. Bikowski (2018), focusing on the use of technology in grammar instruction, believed that it will develop students' communicative competence, necessitating tasks that allow for noticing and consciousness-raising of grammatical forms, and their usage. Salehi and Amiri (2019), aimed to investigate the effects of using Microsoft Office Word on Iranian EFL lecturers' grammar knowledge. And Enayati and Gilakjani (2020) aimed at analyzing the

impact of technology on improving vocabulary learning skills. Thus, from the results of these studies, it can be concluded that the true combination of technological applications and teaching methodology is very important to attract learners' attention to English language learning.

Grammarly® Software

One of the computer software (automatic internet-based software) that can be implemented in EFL writing class is ‘Grammarly®’. Initially released in 2009, Grammarly® is a grammar-checking tool in a software package or online versions to be installed on the Microsoft Office Word platform to correct grammatical mistakes that enhances writing significantly during typing. This application offers grammar checking, spell checking, passive voice misuse, punctuations in compounds, correcting hard-to-read texts, wordy sentences, and plagiarism detection services along with suggestions about writing clarity, concision, vocabulary, delivery style, and tone. Additionally, it can discover the error that Grammarly® adds at the end of every record to be an efficient way of showing just how much editing and enhancing the job the user has left. One study conducted by Ghufuron and Rosyida (2018) found this software to be more effective to reduce errors in terms of vocabulary usage (diction), language use (grammar), and mechanics of writing (spelling and punctuation). However, it is less effective to improve the content and organization of students' EFL writing. Apparently, this application has had its advantages in promoting not only the writing skill of EFL learners but also may have benefits for learning the language with appropriate teacher's monitoring and guidance.

Corrective Feedback (CF)

Nowadays, the emergence of new technology-based pedagogical tools has changed the shape of CF. As Long (1996) mentioned, EFL teachers extensively have used CF essential tools in different forms such as exam papers, exercise books, oral tests, or even through the lessons to provide useful comments on

students' answers. Nassaji and Kartchava (2017) defined CF "as a response to the learner's erroneous output to improve the accuracy of the targeted form" (p. 14). Traditionally, feedback has been used as a pedagogical instrument to correct writing, speaking, listening, and other skills among English language learners. The teachers, however, in oral CF may choose to respond immediately to correct the learner or follow the delayed feedback rules. In written CF, Ellis (2009) described that the correction is always delayed to allow for teachers to collect written work and respond.

The recent development in utilizing different computer-mediated tools (Belali & Sadeghi, 2019; Bikowski, 2018; Chirimbu & Tafazoli, 2013; Enayati, & Gilakjani, 2020; Ghufon & Rosyida, 2018; Parra & Calero, 2019; Qassemzadeh & Soleimani, 2016; Salehi & Amiri, 2019; Seiffedin & El-Sakka, 2017) resulted in reducing the time of CF and facilitated the learning of the English language, assisting the learners to improve their skills quickly. Findings from the study conducted by Belali and Sadeghi (2019) showed that in the case of behavioral and emotional engagement, there was a statistically significant difference between the two CF conditions. Enayati and Gilakjani (2020) found that CALL produced better results in vocabulary learning than traditional vocabulary teaching methods. Ghufon and Rosyida (2018) believed the software to be more effective to reduce errors in terms of vocabulary usage (diction), language use (grammar), and mechanics of writing (spelling and punctuation). All these studies found that computer-mediated CF was more beneficial and effective in controlling students learning as compared to teachers' feedback in the traditional way.

Noticing Hypothesis

Attention and noticing play a significant role in language uptake and learning. According to Schmidt (2001), the term noticing refers to "focal awareness, and at this level, one can pay attention to a certain stimulus as a private experience and report it verbally" (p. 82). Schmidt (1994) argued that attention and

noticing along with awareness and consciousness are the key elements in practical language learning. Understanding the significant role of noticing in learning can guide the students to learn the language with much more attention, paying more attention to the details and different possible ways to acquire the necessary information. As Ünlü (2015) stated, most grammatical and linguistic features go unnoticed by learners, and learners never even pay the slightest attention to them; therefore, technology can be assumed as a great help to increase the students' conscious and unconscious noticing and attention. Arifah (2014) believed that technology can increase learners' noticing through different tools like the internet, multimedia, and software and students can learn meaningfully when technology is used. Studies on noticing have revealed little focus on grammar, and an in-depth investigation of grammar noticing has not been conducted so far (Geist, 2017). The present study attempts to fill this gap by having learners deal with their noticing in the process of writing without teacher intervention.

METHOD

Participants

To conduct this study, 75 sophomore EFL students—25 males and 50 females, ranging from 20 to 26 years old, in Kerman Azad University Branch (2019-2020 Academic Year) participated in this study. To ascertain the homogeneity of participants in terms of their general English language proficiency, the Oxford Online Placement Test was administered. The participants whose scores were one standard deviation above and below the mean were selected as the main population of the study. Consequently, 40 sophomore students, 10 males, and 30 females, ranging from 20 to 26 ($M=23$), were chosen as the final participants of the current research. Then, the participants were randomly divided into two different groups; the control group receiving the traditional writing-aided approaches and the experimental group receiving the Grammarly® writing-aided approach. The frequency distribution of the participants is presented in Table 1.

Table 1
Frequency Distribution of Participants in Each Group

Group	Frequency	percent
Control	20	50%
Experimental	20	50%
Total	40	100%

Materials and Instruments

Different instruments were employed to collect statistical data for the current study.

Oxford Online Placement Test

Before running the study with the final selected participants, the Oxford Placement Test (OOPT) including 50 multiple-choice questions was administered in order to homogenize the final 40 participants.

Achievement Tests

To have a standard criterion to evaluate the students' achievements after training, a pretest was designed by the researcher including 20 questions to statistically evaluate the students' prior knowledge of different variables. A pool of 20 multiple-choices test items was distributed among all participants including five items for definite and indefinite articles, five items for the correct form of passive voices, five items for the correct use of punctuations, and five items for the correct spelling of the words (see Appendix 1). The meaningful statistical results obtained from Independent-Samples t-Test analyses were calculated. The same test with different questions was designed and employed as a posttest (see Appendix 2). Then, the significant difference between the English sophomore students in the control and experimental groups was discussed.

In the current study, the rating score for each test was based on a 20-point scale, allocating 5 points to each variable with no penalty for wrong answers. The scale adopted for this study included the appropriate use of definite and indefinite articles, passive voice, punctuation, and correct spelling. Participants' answer to each item was rated from 1 to 5. Twenty multiple-choice questions rating from 1 to 20 points, five scales for each variable, were

designed in three different versions for all achievement tests. Two professional English teachers- having more than ten years of English teaching experience at Kerman University- validated all the questions to make sure they were sufficiently compatible with the aims of the study. The inter-rater reliability was 0.87 which is considered an acceptable level of reliability.

Questionnaire

In the present research, a questionnaire was designed to collect the test-group subjects' opinions about the Grammarly® software both before and after using this software. It conceded 15 items. The reliability of the questionnaire was then evaluated using Cronbach's alpha. Based on the results, Cronbach's alpha was 0.62 and 0.75 for the pretest and posttest stages, respectively, reflecting the internal consistency and high reliability of the questionnaire among the test-group individuals at both stages (Appendix A-B).

Procedure

The current study was designed to evaluate the impact of a computer-based intervention named Grammarly® on writing skill improvement among the experimental groups, compared with the traditional-based learning approaches in the control groups. Initially, the researcher aimed to select the final participants from a total number of 75 sophomore learners who were studying Teaching English as a Foreign Language, English Translation Theories, and English Literature at Kerman Azad University Branch. To this end, an Oxford Online Placement Test was administered to select the final participants of the study. Consequently, 40 sophomores were chosen and then based on random sampling they were divided into equal groups of experimental (N= 20) and control

groups (N=20). Students were assured that this test was not related to their university scores but just a study conducted to check their grammar and writing ability.

One week before initiating the English writing classes, a pretest was conducted for all forty participants to collect the students' final scores before exposing them to two different interventions. The student's prior knowledge in writing skills was examined through a pretest (see Appendix 1) as the standard criteria to be compared with the final results. The test included twenty multiple-choice questions to be answered in thirty minutes. The validity and reliability (0.87) of the pretest and posttest were considered.

After running the pretest, the English classes were initiated. The control groups received writing intervention through teacher-centered approaches where the learners had to check their class activity with the teacher to get the correction feedback. Meanwhile, the experimental groups employed the Grammarly® software intervention as the immediate CF in writing skill achievements. Both groups received the same treatment to learn four basic writing skills including definite and indefinite articles, passive voice, punctuation, and correct spelling. The independent variable was the writing skill learning method, which was teacher-directed and Grammarly® software. The teacher prepared the pedagogical content related to the four-mentioned variables to teach the student for half an hour. The last 30-minutes of each session were allocated to a writing activity where teachers used the same topics for all students. The teacher in the control group attempted to prepare as much CF as possible though it was not possible to correct all students because of time limitations. On the contrary, the teacher in the experimental group, as an observer in writing activities, asked the students to type in Microsoft Office software and observe their immediate CF through Grammarly® activation. After the end of all fifteen sessions, a posttest with different questions was administered. By running the

post-test (see Appendix 2), it was easy to observe which methods had resulted in much more significant writing skill achievements in the four different variables among the participants. The scores obtained from the posttest were also collected. At the end of the fifteen sessions, to study the effects of each intervention on both the control and experimental groups, the data collected from the pretest and posttest were calculated through SPSS statistical software.

In order to probe into the experimental groups' attitudes before and after utilizing the Grammarly® software treatment as the immediate corrective feedback, the questionnaires were distributed among the experimental groups. They had 15 minutes to fill in the questionnaires.

RESULTS

To statistically conduct the current dominant quantitative research, four main dependent variables were evaluated in two different tests. Utilizing the Independent-Samples t-test, the data collected from the control and experimental groups were analyzed statistically in two quantitative steps; initially by comparing the mean scores between both groups at two different times namely pretest and post-test, and then, analyzing participants' mean performance in pretest and posttest in the control group and the participants' mean performance in pretest and posttest in the experimental groups.

After collecting and summarizing the data, the Independent-Samples t-Test technique was used to answer all questions of the study.

Research Question 1

Research question (1) attempted to analyze the significant differences between the control and experimental groups in responding to definite and indefinite articles questions in the pretest and posttest. Employing an independent samples t-test, the results obtained from a comparison between the control and experimental groups in pretest and posttest were presented in Table 2.

Table 2
Independent Samples t-Test for Definite and Indefinite Articles in Pretest and Posttest

Year	Group	Control (n1=20)		Experimental (n2=20)		t	df	Sig
		Mean	Std. Deviation	Mean	Std. Deviation			
Sophomores	Pretest	2	0.97	1.95	0.69	-.19	38	.9
	Posttest	3.1	0.79	4.4	0.60	-5.88	38	.000

In the pretest, the mean score and standard deviation of the definite and indefinite articles' grammatical skills in the control group were computed through an independent samples t-test as M=2, SD=.97, compared to M=1.95, SD=.69; $t(38) = -0.19$ in the experimental group. No significant difference ($p > .05$) was observed between the control and experimental groups in the pretest. In the posttest, however, there was a significant difference between the means scores in the control group (M=3.1, SD=.79) and the experimental group (M=4.4, SD=.60; $t(38) = -5.88, p < .05$). Consequently, utilizing Grammarly® as a pedagogical definite

and indefinite article intervention significantly improved the learners' achievement in writing skills compared to participants in the control group.

Research Question 2

Analyzing the significant differences between the control and experimental groups in responding to the passive voice questions in the pretest and posttest were considered in the second question of the study. The independent samples t-test analysis of the results between the pretest and post-test scores was shown in Table 3.

Table 3
Independent Samples t-Test for Passive Voice in Pretest and Posttest

Year	Group	Control (n1=20)		Experimental (n2=20)		t	df	Sig
		M	SD	M	SD			
Sophomore	pretest	2	0.92	2.15	0.99	-.50	38	.6
	posttest	3.45	0.76	4.45	0.60	-4.61	38	.000

In the pretest, the passive voice skill scores in the control group (M=2, SD=.92) were not significantly different from the results in the experimental group (M=2.15, SD=.99; $t(38) = -0.50, p > .05$). On the contrary, there was a significant difference between the means scores in the control group (M=3.1, SD=.79) and the experimental group (M=4.4, SD=.60; $t(38) = -4.61, p < .05$) in the posttest. Thus, the independent samples t-test showed that the use of Grammarly® in correcting the passive voice errors resulted in a significant improvement in

writing learning achievement in the experimental group.

Research Question 3

The third question attempted to analyze the significant differences between the control and experimental groups in responding to the punctuation questions in the pretest and posttest. The results obtained from a comparison between pretest and posttest through conducting an independent samples t-test were presented in Table 4.



Table 4
Independent Samples t-Test for Punctuation in Pretest and Posttest

Year	Group	Control (n1=20)		Experimental (n2=20)		t	df	Sig
		M	SD	Mean	SD			
Sophomore	Statistics Time							
	pretest	1.85	0.93	1.95	0.94	-.34	38	.7
	posttest	3	0.86	4.15	0.75	-4.52	38	.000

In the pretest, the mean score and standard deviation of the punctuation grammatical skill in the control group were calculated through an independent samples t-test as $M=1.85$, $SD=.93$, compared to $M=1.95$, $SD=.93$; $t(38) = -0.34$ in the experimental group. As table 4 showed, no significant difference ($p > .05$) was observed between the two groups in the pretest. In the posttest, however, there was a significant difference between the means scores in the control group ($M=3$, $SD=.86$) and experimental group ($M=4.15$, $SD=.75$; $t(38) = -4.52$, $p < .05$). Therefore, utilizing Grammarly® as a pedagogical punctuation intervention

significantly improved the learners' achievement compared to the participants in the control group.

Research Question 4

Analyzing the significant differences between the control and experimental groups in responding to the correct spelling questions in the pretest and posttest were considered in the fourth question of the study. Employing the independent samples T-test analysis, the results between the pretest and posttest scores were shown in Table 5.

Table 5
Independent Samples t-Test for Correct Spelling in Pretest and Posttest

Year	Group	Control (n1=20)		Experimental (n2=20)		t	df	Sig
		M	SD	M	SD			
Sophomore	Statistics Time							
	pretest	1.6	0.50	1.7	0.73	-.50	38	.6
	posttest	2.9	0.64	4.1	0.72	-5.58	38	.000

In the pretest, the correct spelling scores in the control group ($M=1.6$, $SD=.50$) were not significantly different from the results ($M=1.7$, $SD=.73$; $t(38) = -0.50$, $p > .05$) in the experimental group. On the contrary, there was a significant difference between the means scores in the control group ($M=2.9$, $SD=.64$) and experimental group ($M=4.1$, $SD=.72$; $t(38) = -5.58$, $p < .05$) in the posttest. Consequently, the use of Grammarly® software and its feature in correcting the spelling errors for students resulted in a significant improvement in

language learning achievement in the experimental group.

Research Question 5

Analyzing the significant differences between the control and experimental groups in responding to four variables in the pretest and posttest were considered in the fifth question of the study. The independent samples t-test analysis of the results between the pretest and post-test total scores in four different sets of questions ($N=20$) was shown in Table 6.

Table 6
Independent Samples t-Test for Four Variables in Pretest and Posttest between Control and Experimental Groups

Statistics	Mean	SD	df	T	sig
Pretest & Posttest Control	2.49	.37	38	-5.98	.000
Pretest & Posttest Experimental	3.11	.27			

Independent-samples t-test was run to analyze the overall significant difference between participants' mean performance in pretest and post-test in the control group and the participants' mean performance in pretest and post-test in the experimental group. Indeed, four different writing-skill variables namely, definite and indefinite articles, passive voice, punctuation, and correct spelling of words were summed as one main variable, showing the final language achievement among participants. The mean scores of the pre-test and post-test in the experimental group (M=3.11, SD=.27) were significantly higher than the mean scores in the control group (M=2.49, SD=.37; $t(38) = -5.98, p < .05$), showing, thus, a significant difference between the participant's performance in the control and experimental group.

Consequently, the analysis showed a significant difference in improving four writing skills in favor of the experimental group, emphasizing the impact of Grammarly® software as an immediate CF on final achievement among participants through the significant increase of the students' noticing and attention in various writing skills.

Research Question 6

The last question examined whether there was any significant difference between Iranian EFL learners' attitudes prior to and after utilizing the Grammarly® software to provide immediate corrective feedback. To this end, an independent samples t-test was run to compare the attitudes before and after the treatment. Table 7 presents the results.

Table 7
Independent Samples t-Test for Attitudes in Pretest and Posttest

Levene's Test for Equality of Variances									
t-test for Equality of Means									
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
								Lower	Upper
Equal variances assumed	1.309	.255	-2.73	19	.007	-2.800	1.024	-4.828	-.772
Equal variances not assumed			-2.73	117.61	.007	-2.800	1.024	-4.828	-.772

According to Table 7, since Levene's Test is not significant ($p > 0.05$) equal variances assumed are examined. In the t-test for Equality

of Means, $p < 0.007$ is less than significance



level $\alpha = 0.05$, thus, it is concluded that the mean scores for the attitudes in the post-test are significantly different from that of the pretest. That is to say, the experimental group's

students in the post-test and pretest significantly different, and utilizing had a positive effect on the experimental group's attitudes.

DISCUSSION

Analyzing the first question of the study, the results of the independent-samples t-test revealed a significant difference between the control group ($M=3.1$) and experimental group ($M=4.4$) in utilizing computer-based Grammarly® software in improving definite and indefinite article writing skills. In line with the findings of Bailey and Lee (2020), where employing Grammarly® significantly increased ($M=2.68$) the students' skills in utilizing the correct for of definite and indefinite articles, the findings of this study also revealed significant differences between the experimental and control groups and the increase of experimental group learners' noticing and attention was because of the immediate CF nature of Grammarly® software in improving students' definite and indefinite article writing skills.

In contrast to Qassemzadeh and Soleimani's (2015) study who found the effect of the teacher on learning passive structure, in pretest and post-test, more than the effect of Grammarly® Software on learning the passive structure, the results of the second research question through running an independent-samples t-test also showed the significant impact of the Grammarly® software as an immediate CF in decreasing the passive voice writing errors among the experimental group learners ($M=4.45$), compared to the control group ($M=3.45$), because of the important role of Grammarly® software in assisting the learners to increase the noticing and attention while writing. However, the results of Qassemzadeh and Soleimani's (2015) research in delayed post-test supported the impact of Grammarly® Software feedback on learning passive structures among the EFL Experimental group ($M=4.4$) and control group ($M=3.1$) learners.

Consistent with the findings of the study conducted by Ghufon and Rosyida (2018) on analyzing the impact of Grammarly® on punctuation and correct spelling learning

achievement among EFL learners, the third question of the study was seeking the significant differences between the control group ($M=3$) and experimental group ($M=4.15$) in responding to the punctuation questions in the pretest and posttest. Therefore, the results obtained from the independent-samples t-test were accompanied by significant differences ($M=1.15$) in the correct usage of the punctuations among the experimental group participants in the posttest as the result of employing the Grammarly® software with immediate CF ability.

Indeed, the fourth question considering the impact of Grammarly® software on the correct spelling of words among participants through the independent-samples t-test revealed a significant difference between the control group ($M=2.9$) and the experimental group ($M=4.1$); the students in the experimental group were successful to answer the questions with fewer errors because of the significant impact of Grammarly® software as an immediate CF in improving the learners' noticing and attention and, consequently, resulting in a decrease of the misspelling in writing. Similar to Ghufon and Rosyida (2018), the results of the study conducted by Karyuatry (2018) support the findings of the current study where Grammarly® software significantly improved the students' grammar and diction.

The fifth question of the study summed four writing features as one main variable in order to analyze the overall significant difference between participants' mean performance in pretest and post-test in the control group and the participants' mean performance in pretest and post-test in the experimental group. In line with the findings of Park (2020), Huang, Li, and Taylor (2020), Enayati and Gilakjani (2020), and Parra and Calero (2019), the results obtained from the independent-samples t-test revealed that the mean scores of the pretest and posttest in the experimental group ($M=3.11$, $SD=.27$) were significantly higher than the means scores in the control group ($M=2.49$, $SD=.37$; $t(38) = -5.98$, $p < .05$), showing, thus, a significant difference between the participant's performance in the control and experimental group. Consequently, utilizing

Grammarly® software as an immediate CF intervention resulted in increasing the students' noticing and attention, and significantly higher improvement in four different writing skills achievement among the experimental group, compared to the control group.

The finding of the last research question revealed that the learners had a positive attitude towards utilizing Grammarly® software as a corrective feedback tool. Such a positive attitude can be attributed to the nature and unique characteristics of the educational software. They allow instructors to practice with their learners individually or in small groups. Needless to say, just as educational software has established itself firmly in the world of business and communication technology, they have also been successful in acquiring a basic role in educational contexts. This role is becoming more essential as software becomes cheaper, smaller, adaptable, and easier to utilize.

Considering the mentioned similarities between the results of this study and other mentioned researches, it can be argued that concerning the role of technology-based immediate feedback in correcting errors, Grammarly® can significantly improve the students' final achievement writing skills, and positively increase the students' attention in English language learning process.

CONCLUSION

The results of the current study revealed a significant difference between the control and experimental groups in utilizing computer-based Grammarly® software in improving four different writing skill abilities. Utilizing Grammarly® as an immediate CF intervention resulted in increasing the students' noticing and attention in four obtained skills in writing. The main findings of different analyses through conducting independent-samples t-test revealed a significant impact of utilizing Grammarly® to improve the final grammar-learning achievements among participants in the experimental group, compared to the traditional-based EFL learners in the control group. The Grammarly® software providing immediate CFs for the participants had a

significant impact on increasing the students' noticing and attention to learning various writing skills. Therefore, analyzing different grammatical features through the Grammarly® software in pretest and posttest between the control and experimental groups showed that all features had a significant impact on the learners' final writing skill achievement. Therefore, the traditional teacher-oriented approaches to instructing grammar cannot prepare immediate feedback for students, reducing students' attention, and focus. Consequently, the students' improvements in learning writing skills can be accounted for by Schmidt's (2001) attention theory where students' attention and their class engagement may significantly be affected by the tools they employ as pedagogical interventions. In simple words, software's attractiveness, ease of use, accuracy, various capabilities, etc. are factors that impact learners' attention, resulting in more class participation.

Based on the findings of the study, it is concluded that there is still much to be revealed about utilizing Computer Assisted Instruction (CAI) educational software such as Grammarly®. What is of paramount significance is not the utilization of technology per se, but the quality of what is done with this medium of instruction. Thus, the utilization of instructional software alone cannot be enough in the ELT. According to Hazarika (2017), education can promote and develop learners' curiosity, creativity, and imagination and the utilization of educational materials and software plays a very influential role in education, which may assist and support learners to reach their ultimate potentialities. Because of the undeniable role of education in preparing learners to enter the new arena, there should be certainly a connection between the world and the educational context and education is a kind of reflection of the world in which it exists, otherwise, it would not be relevant for the learners. In fact, the application of educational software can be regarded as an effective supplement to fill the gap between the educational world and the technology world.

In addition, it is summed up that software as a means for ELT increases generally

independent learning and the specific software would be helpful for autonomous learning of foreign language teaching. No doubt, educational software has a great influence on all aspects of learners' lives. In particular, the Web is considered a type of technology mostly utilized in most educational contexts and ELT settings, as well. Accordingly, technology and language learning are closely integrated. Thus, by using the computer in educational settings, it is hoped that language skills can be enhanced once pictures or videos are supplemented into the language texts. Furthermore, if the language texts are designed in such a way that students interact with the text, ELT instruction will be so influential and conductive.

Last but not the least, since traditional teaching methods will be sooner or later replaced totally by computerized based methods, EFL learners should be familiarized with Web-based educational software to cope with the new technologies in the area of ELT. Furthermore, for the implementation and development of effective pedagogy in web-based instructional software programs, there is a dire need for both educators and learners to become active web-based educational software users and enhance their own language skills and strategies for choosing and managing web-based educational software materials.

As an inevitable part of any academic research, conducting the current study was faced with different challenges. It is worth noting that as one major limitation in this study, it was not possible to purchase the copy-righted original version of the Grammarly® software package due to the economic sanctions and inaccessibility to International Payments. Therefore, only a few features of the software that were free in the trial version could be evaluated during the study, and some basic writing features remained untouched. Based on the limited trial version of Grammarly®, the data and the results obtained from this study could be useful in any academic discussion, especially for those teachers who negatively interpret the use of computer-aided language skills as a pedagogical intervention. The potential of the Grammarly® software goes beyond providing simple practice and

reinforcement of four limited grammatical variables; therefore, other research consisting of different features in the original version can be conducted to evaluate different aspects of utilizing Grammarly® on improving the writing skill achievement in the pedagogical environments. Also, research with different populations and different types of writing or grammar courses should be conducted. Indeed, the impact of the Grammarly® software on each writing skill might help the students and teachers to determine the strengths and weaknesses of technology in learning different grammatical features. These areas of research can be of importance to universities where future English teachers are graduating. In that case, all educators, teachers, and especially the educational system would benefit from the results of the study. Consequently, due to the worldwide prevalence of COVID-19 and its drastic effects on the educational system, Grammarly® software with immediate CF can also assist the teachers to provide the learners with a useful self-corrective writing tool in online classes where teachers can't check all the students' writing mistakes, helping the students to immediately find the writing errors in offline classes when they have no access to their teachers.

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