International Journal of Research in English Education (IJREE)

Original Article **Published online: 20 June 2023.**

Proceedings of the First National Virtual Conference on English Language Teaching in the Iranian Mainstream Education System

The Effect of Employing Grammarly on Iranian EFL Learners' Writing Performance

Reza Mohammadi[1], Pourya Borna[1] , & Rashideh Zoghi[2*]

* Correspondence:
R_zoghi1987@yahoo.com
1. Department of English Language, Payame Noor University, Tabriz, Iran
2. Department of English Language, Azad University, Tabriz, Iran

Proceedings of the First National Virtual Conference on English Language Teaching in the Iranian Mainstream Education System

Abstract

The present quasi-experimental investigation examines how well Grammarly promotes EFL students' writing in Iran. The process of selecting seventy male learners was non-random. Out of a total of 70 learners, a group of 43 students at the intermediate level was selected through OPT results. The study employed a non-random assignment of participants into two groups, namely the experimental group (N = 22) and the control group (N = 21). Subsequently, the experimental group went through treatment using the Grammarly tool, whereas the control group received traditional instruction. Following the completion of eight treatment sessions, the participants received a post-test in writing. Two raters assessed the writing tests according to the Jacobs' ESL Composition Profile which was served as the standard for evaluating the writings of the students. The gathered data were analyzed through the utilization of an independent sample t-test in the SPSS software. The research findings indicated that Iranian EFL students' writing performance was significantly influenced by Grammarly. Hence, the utilization of Grammarly has the potential to enhance the level of Iranian EFL students' ability to write. The researcher expects that this investigation will yield additional insights into this matter and that educators will apply the knowledge gained from this study to enhance their students' writing proficiencies.

Keywords: CALL, technology, grammarly, writing performance

1. Introduction

The utilization of online writing programs has become achievable for students to enhance and foster their writing skills, due to the progress in technology. The significance of writing proficiency has increased in modern times because of digitalization, and the enhancement of writing abilities among students is a crucial aspect of acquiring a second language (Ghoorchaei et al., 2010). The process of conveying abstract notions and thoughts in an organized way through the utilization of symbols such as alphabetical characters, punctuation marks, and spaces is commonly referred to as writing. Although the use of technology in language learning is effective, some factors such as gender make a difference in students' performance. The Grammarly software is an automated tool designed to check grammar and offer a range of advantageous features that are commonly employed by students. (Nova, 2018). This tool facilitates the improvement of students' writing abilities by targeting sentence structure and spelling inaccuracies.

In this digital era, writing in English and using online writing software gain a significant eminence in recent years in the whole world especially in Iran at different educational levels. According to studies, many EFL school and university students have difficulty to write in English successfully (Valencia & Buly, 2004). Westwood (2008) stated some factors in this field include; limited vocabulary knowledge, limited knowledge of grammatical structures, lack of accuracy and fluency, inadequate use of effective writing strategies, problems in writing down the information, problems with processing information, and lack of familiarity with the subject matter. One way for overcoming these shortcomings and problems can be by using Grammarly software. At schools for passing certain grades and at universities for the growing body of academia, students and researchers need to submit papers in English to international journals to retain their positions or promote. This creates a flood of writing demands that want to acquire writing skills easily and practically which they can also learn independently at home. One way for improving EFL writers and eliminate the shortcomings and problems mentioned above can be by using Grammarly software. By using Grammarly, students are able to bounce the online correction system of artificial intelligence of Grammarly software.

This study is significant because it explores the possible advantages of utilizing a grammar and spelling checker tool like Grammarly on Iranian EFL learners' writing performance. It could provide valuable insight into the effectiveness of employing such technology in the classroom. If students work with online writing software, they can theoretically act more because they write independently. While using Grammarly, you can first correct your sentences and then read them aloud for the whole class and it cut down learners' embarrassment and stress. The findings of this study may also aid instructors in promoting improved methods of language education and addressing any gaps in their learners' knowledge of the English language. In real classes, it takes much time to get feedback from your teacher because of the large number of students, but using Grammarly software allows them to get instant feedback while writing. Furthermore, this study will provide scholars and those in charge of creating curricula with new information about how technology might improve language learning. Hence, this study has the potential to benefit both educators and researchers alike by providing an understanding of how using Grammarly can improve English fluency for Iranian EFL learners.

The term "Net Generation" or "digital natives" are commonly used to describe today's students. Students can easily write their assignments through online applications or software and the teacher also can analyze their assignments with a variety of automated writing tools. Few studies have looked into the advantages of Grammarly software on writing performance, particularly in Iran. In contrast, the use of online writing software in second language classes has been thoroughly researched and its benefits are well established. The intention of the current investigation is to find out whether implementing Grammarly has a noteworthy influence on the writing competencies of Iranian EFL students. Based on the stated issues and aims, the research question and null-hypothesis were formulated as below;

Q1: Does *Grammarly* have any significant effect on writing performance of Iranian EFL learners?

H01: *Grammarly* does not have any significant effect on writing performance of Iranian EFL learners.

2. Review of Related Literature

According to Soleimani (2021), CALL combines the four ideas of computer-assisted language testing (CALT), computer-assisted language teaching (CALT), computer-assisted instruction (CAI), and electronic learning (e-learning). Computer-supported classroom instruction, hybrid instruction, and entirely online instruction are the three categories into which CALL may be divided. Chapelle (2001) explained CALL as the domain of second language

instruction and acquisition and technology. Soleimani (2021) claims that the utilization of computers and associated technology may be beneficial in the facilitation of language acquisition and instruction. CALL is a general term that encompasses all other terminology concentrating on language learning and teaching using computers along with related technologies, such as MALL, TELL, CALT, CAI, and NBLT (Network Based Language Teaching).

The Internet offers strong, adaptable, and effective new tools for technology-enhanced learning (Darayani et al., 2018), however, studies on online writing checkers are few (Caveleri & Dianati, 2016). According to Ghufron and Rosyida (2018), Grammarly has been recognized as a valuable resource for educational institutions and students since it was recognized as one of the automatic writing assessment systems created in the twenty-first century. Based on Nova (2018), Grammarly has four main characteristics. To begin with, the program allows for self-assessment and presents beneficial feedback to improve the student's learning experience. The following benefit is the simplicity of downloading. The downloading of the test results is not problematic for students. Thirdly, quick assessment rates. Students can evaluate and edit their academic work more quickly. Subsequently, the results of Grammarly's free service are superior to those of other automatic writing evaluations. On the other hand, feedback from Grammarly often leads to new ideas that differ from the author's original goal (Nova, 2018), which suggests that Grammarly also has drawbacks, including misleading feedback, excessive reference list checking, and difficulty checking content and context.

The objective of the research that Ashrafganjoe et al. (2022) carried out was to screen the outcomes of using Grammarly® software on the writing accomplishments of EFL students. Forty Iranian EFL students from Kerman branch of the Islamic Azad University were chosen to work toward this aim. The control and experimental groups were determined at random. A post-test was given after the treatment to assess the influence that each intervention had on each group's overall writing ability. This evaluation was conducted according to the concepts of detecting hypothesis and took place after the treatment had been completed. The outcomes pointed out that there was a meaningful correlation between the use of the Grammarly tool and the level of writing accomplishment attained by learners across all four factors on writing abilities. The results indicated that the experimental group enjoyed more favorable findings than the control group.

Grammarly is an AI-based writing feedback tool evaluated by Chang et al. (2021) to see how well it improved EFL writing performance and how well students accepted this new technology. This quasi-experimental research enrolled 53 Chinese English learners from multiple classes. The experimental and control groups were randomly allocated. The students who were a part of the experimental group (EG) used Grammarly to edit and rewrite their writings, while the students who were a part of the control group (CG) got conventional training without any involvement from Grammarly. Regarding their post-test writing skills, students in the EG considerably outperformed those in the CG, as shown by the findings of an independent t-test.

Maulidina and Wibowo (2022) carried out a study to find out how Grammarly-using students' activities enhance their writing skills. Thirty-three class X DKV-E students participated in current paper. The present investigation was carried out employing the action research procedures of observing, reflecting, acting, and planning under the Arikunto model. In this investigation, data were collected using observations, questionnaires, interviews, and tests. The findings showed that the students' writing abilities had increased.

Ebadi et al. (2022) looked at how using the automated writing assessment tool Grammarly helped Iranian EFL students solve their article errors. Convenience sampling was used to choose ninety students from Iran who were majoring in English language and literature. Three groups were formed: one received both Grammarly and instructor input (experimental group 1), another received just Grammarly feedback (experimental group 2), and the third received only teacher feedback (control group). The statistical analysis involved the utilization of both descriptive and inferential methods. Data collected via pre-and post-tests, surveys, and interviews. The post-test findings showed that the group using Grammarly and instructor feedback did better than the other groups.

Daniels and Leslie (2013) conducted further studies on the use of Grammarly in EFL contexts. They examined three online spelling and grammar tools, including Microsoft Word (MW), Grammarly, and Ginger, to see how much they might aid L2 students in their writing. The results demonstrated that Grammarly was able to spot missing spaces, spelling errors, and offer a number of alternatives for words that were misspelled; however, when Grammarly identified

fragments and offered guidance on the verb form, it did not always provide suggested corrections, and its error clarifying were complex.

3. Methodology

3.1 Design

This examination applied a research design that existed in the form of a quasi-experimental. Randomization is not possible in the quasi-experimental design, and a key characteristic of this research approach is that it consists of at least one experimental and one control groups that are homogeneous (Mackey & Gass, 2015). Furthermore, this study employed a pre-test, post-test, and treatment to ensure the efficacy of the research variables in relation to the experimental group.

3.2 Participants

Seventy learners were chosen non-randomly from Avaye Danesh Language institute in Ahar, Iran. Due to institute regulation, only male learners were chosen. The participants' overall level of English ability was then established by administering the Oxford Placement Test. The study's homogenous sample consisted of learners whose results in tests were around 1 standard deviation (SD) from the mean. Forty-three students were then chosen as the study's final sample using OPT. Participants were split up into two distinct groups, an experimental group (N=22) and a control group (N=21), in a non-random sampling method. The students were intermediate-level students who spoke Azerbaijani Turkish as their native tongue. Additionally, they ranged in age from 14 to 16.

3.3 Instruments

3.3.1 Oxford Placement Test (OPT)

The assessment of the participants' competence was verified through the Oxford Placement Test. This test has 60 multiple-choice questions on it, encompassing cloze tests, grammar, and vocabulary tests. The Cronbach's Alpha consistency prediction was used to assess the reliability of the test, and the findings showed that it was 0.86 which means highly reliable.

3.3.2 Writing Pre-test and Post-test

Prior to the beginning of the study, a pre-test was provided to verify that all participants offered comparable and consistent writing proficiencies. Participants were asked to compose between 100 and 150 words about one of the two provided topics in 30 minutes. A writing post-test like the pre-test was conducted after the treatment and the results were compared. Two raters scored the writings. The raters evaluated students' writings by using an analytical grading scale (ESL Composition Profile). The raters' inter-rater reliability was also determined, and Table 2 displays the correlation coefficient between the two raters.

3.3.3 ESL Composition Profile

The Jacobs (1981) ESL Composition Profile was used to assess the students' written work. This profile includes standards for assessing each student's level of writing skill in terms of vocabulary, content, language use, mechanics and organization. The four categories (Very Poor, Fair to Poor, Good to Average, and Excellent to Very Good) for each section of this profile vary in scores from 7-9, 10-13, 14-17, and 18-20, respectively. Using criteria, the raters gave scores.

3.4 Procedure

In this research, the researcher choice non-randomly 70 participants. Next, the researcher selected 43 intermediate male learners for the current research by employing the OPT. After that, the individuals were split up into two separate groups, which were identified as the experimental and control groups. The experimental group consisted of 22 learners and in the control group there were 21 learners.

The present investigation employed the pre-test/post-test methodology as a crucial component of data gathering. Both groups were required to complete an exam that contained the same topics on their pre-and post-tests. The students of experimental group utilized Grammarly as a form of treatment during the composition phase of their essays. The

intervention covered a period of four weeks and comprised eight sessions, with each session having a duration of 60 minutes. Subsequent to the treatment phase, the post-test of writing was provided to both the treatment and control groups in order to assess the writing proficiency of the students and the efficacy of Grammarly as the intervention. The steps outlined in the experimental group are as follows:

The investigator assigned a topic to the experimental group, subsequently providing them with relevant literature, scholarly publications, and updated data regarding the aforementioned topic. The circumstances were deliberately organized in such a manner that the only way of gathering all of the data is through exploring provided papers. Prior to attending class, the students utilized the online software, Grammarly, to compose their essays. The participants were aided by the immediate online writing checker through software. The educator stopped providing any form of assistance to the learners. Upon the conclusion of the session, students offered their essays to the entire class and subsequently submitted a hard copy of their written work to their educator.

In the control group with 21 participants, there was no specific instruction. The researcher provided a topic and subsequently spread scholarly literature, publications, and new ideas related to the stated topic. The order of the given topics in the list was the same as the experimental group. There was no specific help from other students, teachers, or the Grammarly software. The teacher took the papers home and corrected them and wrote corrective feedback or explained them verbally to the students. This trend continued for the other eight sessions.

3.5 Data Analysis

Both descriptive and inferential statistical analyses of the collected data were done through the SPSS program. Firstly, the normal distribution was checked by checking ratios of skewness and kurtosis. To evaluate the null hypothesis, the Independent-Samples T-test was performed. Moreover, the inter-rater reliability between the two raters was measured through the Pearson correlation coefficient.

4. Results and Discussion

A total of 70 students participated in a proficiency examination. The final sample of the study was selected through the scores of students who scored 1 SD around the mean. Forty-three participants were purposefully chosen and split into two homogeneous groups in non-random method of sampling, namely the experimental group (N=22) and the control group (N=21).

4.1 Testing Normality Assumption

Calculating the skewness and kurtosis ratios (Table 1) allowed researchers to investigate the normality of data. Based on the findings reported by Tabachnick and Fidell (2007), it can be inferred that the normality assumption was confirmed, as the absolute values of the ratios were situated within the -1.96 and +1.96 range.

Table 1. Testing normality of data

	Group	N	Skewness			Kurtosis		
		Statistic	Statistic	Std. Error	Ratio	Statistic	Std. Error	Ratio
OPT	Experimental	22	-.477	.491	-0.98	-.702	.953	-0.74
	Control	21	.109	.501	0.21	-1.065	.972	-1.10
Writing Pre-test	Experimental	22	-.576	.491	-1.18	.214	.953	0.23
	Control	21	-.418	.501	-0.84	-.051	.972	-0.05
Writing Post-test	Experimental	22	-.536	.491	-1.10	.118	.953	0.13
	Control	21	-.461	.501	-0.92	.687	.972	0.71

4.2 Inter-Rater Reliability of Raters

The writing pre-tests and post-tests were evaluated by two separate raters. Pearson correlations were conducted to examine the degree of agreement among the raters. Table 2 displays the reliability coefficient of 0.807 in the pre-test and 0.873 in the post-test. This demonstrates that there is a high and significant degree of consistency between the raters and that it is significant at 0.05 (0.00 < 0.05). It can be inferred that there existed substantial correlation between the two evaluators.

Table 2. Pearson correlation; Inter-rater reliability of raters

		Rater 2 pre-test	Rater 2 post-test
Rater 1 pre-test	Pearson Correlation	.807**	
	Sig. (2-tailed)	.000	
	N	43	
Rater 1 post-test	Pearson Correlation		.873**
	Sig. (2-tailed)		.000
	N		43

**. Correlation is significant at the 0.01 level (2-tailed).

4.2 Oxford Placement Test

Table 3 clarifies that the experimental group (M = 34.68, SE = 1.11) and control group (M = 32.66, SE = 1.65) revealed almost similar means on the OPT.

Table 3. Descriptive statistics of OPT

	Group	N	Mean	Std. Deviation	Minimum	Maximum	Std. Error Mean
OPT	Experimental	22	34.68	5.213	24	42	1.111
	Control	21	32.66	7.604	21	44	1.659

According to the findings of the independent t-test, as indicated by a p-value greater than .05, there was no significant distinction observed between the average scores of the two groups on the OPT, as presented in Table 4. It can be asserted that the participants possessed equivalent levels of overall language proficiency prior to the primary investigation.

Table 4. Independent Samples t-test of OPT

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OPT	Equal variances assumed	2.533	.119	1.018	41	.315	2.015	1.980	-1.984	6.014
	Equal variances not assumed			1.009	35.219	.320	2.015	1.997	-2.038	6.069

4.3 Pre-test of Writing

For calculating the statistical significance of the distinction between the experimental and control groups on the pre-test of writing, an independent-sample t-test was applied.

Table 5. Descriptive statistics of writing pre-test

	Group	N	Mean	Std. Deviation	Std. Error Mean
Writing Pre-test	Experimental	22	75.81	10.507	2.240
	Control	21	71.45	9.423	2.056

Table 5 displays the descriptive statistics indicating that the experimental group achieved a mean score of 75.81, while the control group attained a mean score of 71.45 in the writing pre-test.

Table 6. Independent Samples t-test; Pre-test of writing by groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Writing Pre-test	Equal variances assumed	.385	.538	1.432	41	.160	4.365	3.048	-1.791	10.523
	Equal variances not assumed			1.436	40.84	.159	4.365	3.040	-1.776	10.507

The findings of the independent-samples t-test, as presented in Table 6, indicate that there was no statistically significant distinction between the experimental and control groups with respect to the writing pre-test ($p > .05$).

4.4 Exploring the Null-Hypothesis

The assumption behind the null hypothesis was that Iranian EFL students did not experience a statistically significant improvement in their writing abilities as a result of using Grammarly. Means on the post-test were calculated for both the experimental and control groups and an independent-sample t-test was applied to determine whether or not the null hypothesis should be rejected.

Table 7. Descriptive statistics of writing post-test

	Group	N	Mean	Std. Deviation	Std. Error Mean
Writing Post-test	Experimental	22	88.81	4.147	.884
	Control	21	75.95	6.053	1.321

Table 7 displays the descriptive statistics indicating that the experimental group achieved a mean score of 88.81, while the control group attained a mean score of 75.95 in the writing post-test.

Table 8. Independent Samples t-test of writing post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Writing Post-test	Equal variances assumed	2.308	.136	8.163	41	.000	12.865	1.576	9.682	16.048
	Equal variances not assumed			8.093	35.20	.000	12.865	1.589	9.639	16.092

The findings of the independent-samples t-test, as presented in Table 8, indicate a statistically significant distinction between the groups with respect to the writing post-test ($p < .05$). To be more precise, the achievement of the experimental group was considerably higher than that of the control group. The rejection of the null hypothesis was observed. To clarify, the utilization of Grammarly software had a noticeable effect on the writing proficiency of Iranian EFL students.

5. Conclusion and Discussion

5.1 Discussion

The current study sought at finding out whether and how employing Grammarly optimized the writing abilities of Iranian EFL pupils. The study utilized independent samples t-tests to address the research question by conducting various statistical analyses. The study's findings indicate that the null hypothesis was rejected and that learners who were part of the Grammarly group presented superior writing skills compared to those in the control group. This demonstrates that the writing proficiency of students was influenced by the use of Grammarly.

This is consistent with the results of several studies suggesting that Grammarly is better than conventional writing methods in terms of writing ability. Ashrafganjoe et al. (2022) investigated the effect of Grammarly software as an innovative technology-based kind of quick corrective feedback on the writing accomplishments of EFL students. The findings demonstrate a substantial correlation between the usage of Grammarly software and the writing performance of learners. Conclusions revealed that the experimental group expressed a higher level of effectiveness in their performance as compared to the control group.

Similar research was conducted by Chang et al. (2021) on the effectiveness of Grammarly, an artificial intelligence-based writing feedback tool, on the writing performance of EFL students. The results pointed out that the performance of students in the experimental group (EG) on the post-test was significantly superior to that of students in the comparison group (CG). A comparable study was conducted by Maulidina and Wibowo (2022) to investigate the efficacy of students' use of Grammarly in class. Students' writing skills were shown to have improved as a result of the research. In a similar vein, Ebadi et al. (2022) studied the impact of the writing evaluation app Grammarly on the

article-error rates of Iranian EFL students. The post-test findings showed that the group using Grammarly and instructor comments did better than the other groups.

Nevertheless, several investigations have reported that the utilization of CALL-based feedback, such as Grammarly, did not substantially enhance students' writing skills. As the system does not recognize whether or not the substance of students' work is suitable for the subject, it is less successful in terms of, content and structure (Ghufron & Rosyida, 2018). Whether or not a paragraph is coherent, the algorithm exhibits poor recognition of sentence movement within it. The use of instructor corrective feedback considerably improves both content and organization. In a similar vein, Van Beuningen et al. (2012) argue that students with little linguistic skills may struggle to manage the interlanguage interaction that happens during self-correction due to their lack of background in English. This demonstrates that not all online tools and resources can be relied upon.

5.2 Conclusion

The focus of this study was to determine whether or not Iranian EFL students would benefit from employing Grammarly in order to enhance their writing. According to the findings, it was discovered that Grammarly had a substantial influence on the Iranian EFL learners' writing ability. The results made it clearly evident that the experimental group exhibited a statistically significant enhancement in their writing ability in comparison to the control group. Grammarly as a tech-based tool was highly useful for Iranian EFL students who wanted to enhance their writing skills. In addition, Grammarly is a useful instrument that can be employed to attain educational goals more efficiently. It allows students with Internet access to enhance and develop their writing skills outside of the classroom whenever and wherever they want.

Additionally, replication research may be conducted with students of different English proficiency levels, from beginner to advance and replication studies are required to validate or reject the results of this research. In addition, it is strongly suggested that different age groups be included in the replications, as age recognized as a critical component in defining the significance of contributing factors in learning, and it is also suggested that in other studies, the gender of the subjects be taken into account. Teachers should encourage students and employ confidential methods to strengthen and awaken their brains and creativity to use technology in education to promote language learning and essay writing. These findings highlight the necessity of using the latest and most creative teaching methods and student resources while teaching English. So, instructional designers may use these insights to improve resources, tools, and textbooks.

References

Ashrafganjoe, M., Rezai, M. J., & Elhambakhsh, S. E. (2022). Providing computer-based feedback through Grammarly® in writing classes. *Journal of Language and Translation*, *12*(2), 163–176.

Caveleri, M., & Dianati, S. (2016). You want me to check your grammar again? The usefulness of an online grammar checker as perceived by students. *Journal of Academic Language and Learning*, *10*(1), 223–236.

Chang, T. S., Li, Y., Huang, H. W., & Whitfield, B. (2021). Exploring EFL students' writing performance and their acceptance of AI-based automated writing feedback. In *2021 2nd International Conference on Education Development and Studies* (pp. 31-35).

Chapelle, C. A. (2001). *Computer applications for second language acquisition: Foundations for teaching, testing, and research.* Cambridge university press

Daniels, P., & Leslie, D. (2013). Grammar software ready for EFL writers? *OnCue Journal*, *9*(4), 391–401.

Defazio, J., Jones, J., Tennant, F., & Hook, S. A. (2010). Academic Literacy: The importance and impact of writing across the curriculum- a case study. *Journal of the Scholarship of Teaching and Learning*, *10* (2), 34–47.

Ebadi, S., Gholami, M., & Vakili, S. (2022). Investigating the effects of using grammarly in EFL writing: The case of articles. *Computers in the Schools*, *40*(1), 85–105. https://doi.org/10.1080/07380569.2022.2150067

Ghoorchaei, B., Tavakoli, M., & Nejad Ansari, D. (2010). The impact of portfolio assessment on Iranian EFL students' essay writing: A process-oriented approach. *GEMA Online Journal of Language Studies, 10*(3), 35–51.

Ghufron, M. A., & Rosyida, F. (2018). The role of Grammarly in assessing English as a foreign language (EFL) writing. *Lingua Cultura*, *12*(4), 395-403.

Grammarly Inc. (2017). *Grammarly online website*. https://www.grammarly.com/about

Jacobs, H. L. (1981). *Testing ESL composition: A practical approach. English composition program*. Newbury House Publishers, Inc., Rowley, MA 01969.

Darayani, N. A., Karyuatry, L. L., & Rizqan, M. D. A. (2018). Grammarly as a tool to improve students 'writing quality. *Edulitics (Education, Literature, and Linguistics) Journal*, *3*(1), 36–42.

Levy, C. M., & Ransdell, S. (1995). Is writing as difficult as it seems? *Memory & Cognition*, *23*(6), 767–779. https://doi.org/10.3758/BF03200928

Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design.* Routledge.

Maulidina, P., & Wibowo, H. (2022). The use of Grammarly tools to enrich student's writing ability. *Lingua*, *18*(2), 179–189.

Meyers, A. (2005). *Gateways to academic writing: Effective sentences, paragraph, and essays.* Longman.

Nova, M. (2018). Utilizing Grammarly in evaluating academic writing: A narrative research on EFL students' experience. *Premise: Journal of English Education and Applied Linguistics*, *7*(1), 80–96.

ONeill, R., & Russell, A. (2019). Stop! Grammar time: University students' perceptions of the automated feedback program Grammarly. *Australasian Journal of Educational Technology*, *35*(1). https://doi.org/10.14742/ajet.3795

Qassemzadeh, A., & Soleimani, H. (2016). The impact of feedback provision by Grammarly software and teachers on learning passive structures by Iranian EFL learners. *Theory and Practice in Language Studies*, *6*(9), 1884–1894.

Soleimani, H. (2021). *Computer assisted language learning*. PNU Press, pp.26-47.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Pearson.

Valencia, S. W., & Riddle Buly, M. (2004). Behind test scores: What struggling readers really need? *The Reading Teacher, 57*(6), 520-531. https://www.jstor.org/stable/20205395

Van Beuningen, C. G., De Jong, N. H., & Kuken, F. (2012). Evidence on the effectiveness of comprehensive error correction in second language writing. *Language Learning, 62*(1), 1–41. https://doi.org/10.1111/j.1467-9922.2011.00674.x

Vanderpyl, G. (2012). *The process approach as writing instruction in EFL English as a foreign language classrooms* (Unpublished master's thesis). SIT Graduate Institute, Brattleboro, Vermont, USA.

Vygotsky, L. S. (1986). *Thought and language* (A. Kozulin, Ed.). MIT Press.

Warschauer, M. (1996). Computer-assisted language learning: An introduction. *Multimedia Language Teaching*, *320*. http://www.ict4lt.org/en/warschauer.htm

Westwood, P. (2008). *What teachers need to know about reading and writing difficulties*? Aust Council for Ed Research.

Zemach, D. E., & Rumisek, L. A. (2003). *Academic writing from paragraph to essay*. Macmillan.