

INVESTIGATING THE USE OF AUTOMATED WRITTEN CORRECTIVE FEEDBACK TO IMPROVE UNDERGRADUATE EFL STUDENTS' WRITING PERFORMANCE

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ABSTRACT

Studies on automated written corrective feedback have shown how it can help improve students' overall writing performance. Nonetheless, it has also been found that the improvement is not always significant, especially when compared to traditional feedback provided by the teachers. Considering that there have been contradicting results regarding the effectiveness of automated written corrective feedback in improving learners' writing, this study is aimed at exploring how Grammarly affects undergraduate EFL students' writing performance, more specifically their grammar, spelling, capitalization, punctuation, and vocabulary. This research employs an experimental design as it seeks to examine the effectiveness of utilizing Grammarly in improving students' writing. The respondents for the current study are second-semester students of the English Department at Bunda Mulia University. They have been selected for this research as they are all currently taking the Writing 1 subject and their overall English writing proficiency range from novice to intermediate, meaning that most of them still tend to make some grammatical, spelling, capitalization, punctuation, and vocabulary errors in their writing. The students are divided into two groups, namely the control group, in which the students receive feedback from the lecturer, and the experimental group, in which Grammarly is employed. The paired samples T-test is used to analyze the result of the pretest and posttest from both groups and the data is calculated using the SPSS version 23 software. The result of both groups is compared to find out whether Grammarly is more effective in comparison to the traditional feedback given by the lecturer. In addition, the students are asked to fill out a questionnaire regarding their perception of the feedback from Grammarly and their lecturer. The result of the questionnaire for both types of feedback is also compared to see which of the two are considered more beneficial for them. The findings of the study reveal that between the feedback provided by the lecturer and the feedback from Grammarly, the latter is more effective in improving the students' writing. In addition, the students from both groups generally have a positive view of the necessity of the feedback and feel that they are more or less able to improve their writing after receiving the feedback, either from the lecturer or from Grammarly.

Keywords: *automated written corrective feedback, writing performance, Grammarly*

ABSTRAK

Penelitian tentang umpan balik korektif tertulis otomatis telah menunjukkan bagaimana hal ini dapat membantu meningkatkan kinerja menulis siswa secara keseluruhan. Meskipun demikian, ditemukan pula bahwa peningkatan tersebut tidak selalu signifikan, terutama jika dibandingkan dengan umpan balik tradisional yang diberikan oleh para pengajar. Mempertimbangkan bahwa ada hasil yang bertentangan mengenai efektivitas umpan balik korektif tertulis otomatis dalam meningkatkan tulisan pelajar, penelitian ini bertujuan untuk mengeksplorasi bagaimana Grammarly mempengaruhi kinerja menulis mahasiswa bahasa Inggris, khususnya dalam tata bahasa, ejaan, kapitalisasi, tanda baca, dan kosakata mereka. Penelitian ini menggunakan desain eksperimental karena berusaha untuk menguji keefektifan penggunaan Grammarly dalam meningkatkan kemampuan menulis siswa. Responden untuk penelitian ini adalah mahasiswa semester dua jurusan Bahasa Inggris di Universitas Bunda Mulia. Mereka dipilih untuk penelitian ini karena saat ini sedang mengambil mata pelajaran Writing 1 dan kemampuan menulis bahasa Inggris mereka secara keseluruhan berkisar dari pemula hingga menengah, yang berarti bahwa sebagian besar dari mereka masih cenderung membuat beberapa kesalahan tata bahasa, ejaan, kapitalisasi, dan tanda baca dalam tulisannya. Mahasiswa dibagi menjadi dua kelompok, yaitu kelompok kontrol, di mana mahasiswa menerima umpan balik dari dosen, dan kelompok eksperimen, di mana Grammarly digunakan. Paired sample T-test digunakan untuk menganalisis hasil pretest dan posttest dari kedua kelompok dan data dihitung dengan menggunakan perangkat lunak SPSS versi 23. Hasil dari kedua kelompok dibandingkan untuk mengetahui apakah Grammarly lebih efektif dibandingkan dengan umpan balik tradisional yang diberikan oleh dosen. Selain itu, mahasiswa diminta untuk mengisi kuesioner mengenai persepsi mereka terhadap umpan balik dari Grammarly dan dosen mereka. Hasil kuesioner untuk kedua jenis umpan balik ini juga dibandingkan untuk melihat mana yang lebih menguntungkan bagi keduanya. Temuan penelitian menunjukkan bahwa antara umpan balik yang diberikan oleh dosen dan umpan balik dari Grammarly, yang terakhir lebih efektif dalam meningkatkan tulisan siswa. Selain itu, mahasiswa dari kedua kelompok umumnya memiliki pandangan positif tentang perlunya umpan balik dan merasa bahwa mereka sedikit banyak dapat meningkatkan tulisan mereka setelah menerima umpan balik, baik dari dosen maupun dari Grammarly.

Kata kunci: *umpan balik korektif tertulis otomatis, kinerja menulis, Grammarly*

INTRODUCTION

Making mistakes is common whenever people learn a second language. The mistakes can be in their speech or writing, and they may include various aspects such as grammar, word choice, spelling, etc. Considering that these mistakes are quite common, especially for language learners, it is the responsibility of the teachers to help the students learn from their mistakes so that they do not repeat them over and over again.

In order to make the students aware of their mistakes in writing, teachers normally provide feedback on the students' work, more specifically written corrective feedback (WCF). Although teachers and sometimes peers are normally the ones to give the feedback, nowadays, students can get them from other sources as well, more specifically from software or applications that provide proofing tools. These kinds of feedback are considered as automated written corrective feedback (AWCF). Barrot (2021) defines AWCF as "the information provided by an AWE tool to its users about the grammatical lapses in their written work". AWE here stands for automated writing evaluation. One of the main differences with traditional WCF is that AWCF can provide more real-time and comprehensive direct corrections on the students' errors in a very short time, which in the end, can give students more time to revise their work. One application which provides AWCF that is commonly used by millions all over the world is Grammarly.

In recent years, several studies have been conducted on AWCF. For instance, a study by Link, Mehrzad, and Rahimi (2020) examined the impact of automated writing evaluation on the teacher's feedback, as well as on the students' revision, and writing improvement. Similarly, Ranalli (2018) and Shiyao (2021) explored the effect of using automated written corrective feedback on students' writing. Other studies have compared between automated corrective feedback and feedback provided by either peers or teachers (Luo & Liu, 2017; Shang, 2019; Tursina, Susanty, and Efendi, 2021). In addition, many researchers have focused on one specific application that provides automated written corrective feedback, namely Grammarly, and investigated its effect on students' writing (O'Neill & Russell, 2019; Ghufron, 2019; Barrot, 2021; Guo, Feng, & Hua, 2021). While there have been several studies on this topic, it should be noted that the results are quite varied in the sense that different researchers have different views regarding the effectiveness of AWCF in improving students' writing.

Although applications like Grammarly have become increasingly popular nowadays, some have argued that they are not too effective when it comes to improving learners' writing overall. Considering that there are varying views concerning the effectiveness of using applications such as Grammarly to improve students' writing, the writers have become interested in investigating the extent to which Grammarly can help improve students' writing in comparison to the feedback provided by the lecturer. Based on this, two research questions are formulated as follow:

- 1) How do the lecturer's feedback and the feedback from Grammarly improve the students' writing performance in terms of their grammar, spelling, capitalization, punctuation, and vocabulary?
- 2) What is the students' perception of the feedback provided by the lecturer and Grammarly?

RESEARCH METHOD

The main data which is used to answer the first research question is taken from the result of the pretest and posttest from both the control and experimental groups. The respondents are the second semester students from the English Department at Bunda Mulia University. A total of 40 students are included in this study, 20 for each group. The second semester students are selected as they are all currently taking the Writing 1 subject and their overall English writing proficiency range from novice to intermediate, meaning that most of them still tend to make some grammatical, spelling, capitalization, punctuation, and vocabulary errors in their writing. The control group consists of the students who receive the traditional written corrective feedback (WCF) from the lecturer, while the experimental group is made up of the students who receive the automated written corrective feedback (AWCF) from Grammarly. The data for the second research question is taken from the result of the questionnaire on the students' perception of the feedback provided by the lecturer and Grammarly. The questionnaire is adapted from O'Neill & Russell (2019) and Chen, Nassaji, and Liu (2016).

To collect the data for the first research question, a pretest and posttest are delivered to the students from both the experimental and control groups. All of the tests are in the form of a narrative paragraph. In other words, for both the pretest and posttest, the students are asked to write a narrative paragraph. This particular type of paragraph is selected since it is in accordance with the material found in

the syllabus. Moreover, the researchers felt that this kind of paragraph would be more suitable for the students since they are most likely already familiar with this and it is somewhat less complicated compared to the other types of paragraphs found in the syllabus. The pretest is given to the students in the second meeting, while the posttest is given to the students in the seventh meeting. The students from the experimental group are given feedback from Grammarly on their work starting from the third until the sixth meeting, while the students from the control group receive the feedback from the lecturer during the same meetings. For the second research question, the students are asked to fill out a questionnaire regarding their perception of the feedback provided by the lecturer and Grammarly. This questionnaire is distributed to the students in the following week.

After all of the data has been collected, the result of the pretest and posttest from both groups are analyzed quantitatively using the paired samples T-test, which is calculated using the SPSS version 23 software in order to find out whether there is a significant difference between the result of the pretest and posttest. This result is also compared between the two groups to find out whether it is more effective to use the feedback from the lecturer or from Grammarly to improve the students' writing. In terms of the pretest and posttest, the scores are taken from Grammarly, as it can give a score based on the students' performance on their grammar, spelling, capitalization, punctuation, and vocabulary. It should be noted that the version of Grammarly that is utilized in this research is the free version, in which the feedback provided by Grammarly is more focused on these five aspects of the students' writing. Lastly, the result of the questionnaire regarding the students' perception of the feedback are analyzed qualitatively. In other words, the result is analyzed only using frequencies and percentages.

FINDINGS AND DISCUSSION

The result of the first research question regarding how the feedback from the lecturer and Grammarly improved the students' writing performance in terms of their grammar, spelling, capitalization, punctuation, and vocabulary is presented below. The first result is from the control group which received the feedback from the lecturer and the second is from the experimental group with the feedback from Grammarly.

Table 1. Descriptive Statistics of Control Group

	N	Range	Minimum	Maximum	Mean
Pretest_Control	20	55	28	83	59.40
Posttest_Control	20	63	27	90	66.20
Valid N (listwise)	20				

Table 2. Paired Samples Result of Control Group

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pretest_Control - Posttest_Control	-6.800	15.939	3.564	-14.260	.660	-1.908	19	.072

Based on the result from Table 1 above, it can be seen that there is an increase in average between the pretest and posttest, where the mean of the pretest is **59.40**, while the mean of the posttest is **66.20**. Nonetheless, the result of Table 2 shows that even though there is an increase in mean score, the increase is not really significant. More specifically, the observed t-test score is **1.908** (ignore the minus sign), whereas the t-test table scores for the 5% and 1% level of significance are **2.09** and **2.86** respectively. Since the observed t-test value is lower than that of the t-test table at both significance levels, the null hypothesis that there is no significant difference between the result of the pretest and posttest is accepted. In addition, the observed sig. 2-tailed score of **0.072**, which is higher than **0.05**, supports the acceptance of the null hypothesis and the rejection of the alternate hypothesis. Hence, it can be said that even though the students were able to improve their writing overall in terms of their grammar, spelling, capitalization,

punctuation, and vocabulary after they received the feedback from the lecturer, the improvement was not significant enough.

As for the result of the experimental group, the descriptive statistics and the paired samples t-test result are presented in the following two tables.

Table 3. Descriptive Statistics of Experimental Group

	N	Range	Minimum	Maximum	Mean
Pretest_Experimental	20	59	32	91	62.90
Posttest_Experimental	20	63	35	98	72.25
Valid N (listwise)	20				

Table 4. Paired Samples Result of Experimental Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest_Experimental - Posttest_Experimental	-9.350	16.017	3.582	-16.846	-1.854	-2.611	19	.017

Similar to the control group, Table 3 above reveals that for the experimental group, there is also an increase in average score between the pretest and posttest, i.e., from **62.90** to **72.25**. Moreover, the result of Table 4 indicates that this increase is significant as the observed t-test score of **2.611** is higher than the t-test table score at the 5% level of significance with a value of **2.09**. In other words, the null hypothesis is rejected and the alternate hypothesis that there is a significant difference between the result of the pretest and posttest is accepted. This is further supported by the observed sig. 2-tailed score of **0.017**, which is lower than **0.05**. Nevertheless, it should be noted that this difference is only significant at the 5% level but not at the 1% level of significance since the t-test table value at this level is **2.86**, which is still higher than the observed t-test value which is only **2.611**.

Looking at these results, it can be said that the feedback from Grammarly is able to improve the students' writing performance more successfully compared to the feedback from the lecturer. This is actually quite surprising since the researchers felt that Grammarly did not always provide feedback for some of the errors made by the students (perhaps due to the limitation of the free version of this application). In other words, there were some errors in the students' writings that were not addressed by Grammarly. On the other hand, the lecturer was quite thorough in highlighting the grammatical, spelling, capitalization, punctuation, and vocabulary errors in the writings of the students in the control group. The lecturer also provided some general comments on the organization and content of the writings, something that is not present in the feedback from Grammarly. Nonetheless, it should be noted that the lecturer merely highlighted the errors without providing an explanation and revision for them. In contrast, the feedback from Grammarly was quite comprehensive as the errors were not only highlighted, but a suggested revision and explanation were also given for them. This is perhaps the reason why the students were able to learn from their mistakes and avoid repeating similar ones when doing the posttest.

In addition, with regards to the second research question concerning the students' perception of the feedback from the lecturer and from Grammarly, the following tables illustrate how the students perceive the feedback.

Table 5. Lecturer's Feedback - Questionnaire Results

No.	Corrective Feedback - Necessity	Strongly disagree	Disagree	Agree	Strongly agree	Total
1	It is important for me to get feedback on grammar in my writing.	-	-	7 (35%)	13 (65%)	20 (100%)
2	It is important for me to get feedback on spelling, punctuation, and capitalization in my writing.	-	-	7 (35%)	13 (65%)	20 (100%)
3	It is important for me to get feedback on vocabulary/word choice in my writing.	-	1 (5%)	7 (35%)	12 (60%)	20 (100%)
4	It is important for me to get feedback on content	-	-	9 (45%)	11 (55%)	20 (100%)

	in my writing.					
5	It is important for me to get feedback on organization in my writing.	-	-	11 (55%)	9 (45%)	20 (100%)
No.	Corrective Feedback - Effect	Strongly disagree	Disagree	Agree	Strongly agree	Total
1	I feel that I was able to improve my grammar in my writing from the feedback I received from the lecturer.	-	1 (5%)	9 (45%)	10 (50%)	20 (100%)
2	I feel that I was able to improve my spelling, punctuation, and capitalization in my writing from the feedback I received from the lecturer.	-	-	8 (40%)	12 (60%)	20 (100%)
3	I feel that I was able to improve my vocabulary/word choice in my writing from the feedback I received from the lecturer.	-	1 (5%)	9 (45%)	10 (50%)	20 (100%)
4	I feel that I was able to improve the content in my writing from the feedback I received from the lecturer.	-	2 (10%)	8 (40%)	10 (50%)	20 (100%)
5	I feel that I was able to improve the organization in my writing from the feedback I received from the lecturer.	-	1 (5%)	11 (55%)	8 (40%)	20 (100%)

Table 6. Grammarly Feedback - Questionnaire Results

No.	Corrective Feedback - Necessity	Strongly disagree	Disagree	Agree	Strongly agree	Total
1	It is important for me to get feedback on grammar in my writing.	1 (5%)	-	7 (35%)	12 (60%)	20 (100%)
2	It is important for me to get feedback on spelling, punctuation, and capitalization in my writing.	1 (5%)	-	8 (40%)	11 (55%)	20 (100%)
3	It is important for me to get feedback on vocabulary/word choice in my writing.	1 (5%)	1 (5%)	10 (50%)	8 (40%)	20 (100%)
4	It is important for me to get feedback on content in my writing.	-	3 (15%)	8 (40%)	9 (45%)	20 (100%)
5	It is important for me to get feedback on organization in my writing.	1 (5%)	1 (5%)	8 (40%)	10 (50%)	20 (100%)
No.	Corrective Feedback - Effect	Strongly disagree	Disagree	Agree	Strongly agree	Total
1	I feel that I was able to improve my grammar in my writing from the Grammarly feedback I received.	1 (5%)	-	10 (50%)	9 (45%)	20 (100%)
2	I feel that I was able to improve my spelling, punctuation, and capitalization in my writing from the Grammarly feedback I received.	-	1 (5%)	9 (45%)	10 (50%)	20 (100%)
3	I feel that I was able to improve my vocabulary/word choice in my writing from the Grammarly feedback I received.	1 (5%)	2 (10%)	11 (55%)	6 (30%)	20 (100%)
4	I feel that I was able to improve the content in my writing from the Grammarly feedback I received.	-	2 (10%)	14 (70%)	4 (20%)	20 (100%)
5	I feel that I was able to improve the organization in my writing from the Grammarly feedback I received.	1 (5%)	1 (5%)	14 (70%)	4 (20%)	20 (100%)

Based on these two tables, the students' overall perception of the feedback is divided into two main sections, namely their views on the necessity of the feedback and their opinions on the effect of the feedback on their writing. Table 5 and 6 above shows that in general, the students have a positive view towards corrective feedback in the sense that they consider feedback on grammar, spelling, punctuation, capitalization, and vocabulary to be quite important. To be precise, most of the students from the control group either agree or strongly agree with the statements with only 1 student disagreeing on the statement related to vocabulary. As for the students from the experimental group, there are some students who disagree and strongly disagree with the statements. In addition to feedback on these five aspects, the students are also asked about their views on the feedback on content and organization, and the result shows that both groups mostly feel that it is necessary to get feedback on these two aspects as well. Of

course, there are some students from the experimental group who feel that feedback on these two are not really important. Hence, it could be said that compared to the experimental group, the students from the control group generally have a more positive view of the feedback on all seven aspects and feel that they are quite important. Moreover, out of these seven aspects in writing, the one that is perhaps considered the least important for the control group is the feedback on vocabulary, while feedback on content is the least important for the experimental group.

Nonetheless, when it comes to their views on the effects of the feedback, both groups have some students who feel that their writing did not really improve after receiving the feedback, either from the lecturer or from Grammarly. This can be seen from Table 5 and 6 above where some students from the control group disagree on the statements, and some students from the experimental group disagree and strongly disagree that the feedback they received from Grammarly lead to improvement in their writing, especially in these seven aspects. Furthermore, it is actually quite surprising that not more students feel more negatively towards the feedback from Grammarly on content and organization since Grammarly does not provide specific feedback on these two. With regards to the control group, it is quite understandable that some students feel that their writing did not really improve, especially in terms of grammar, spelling, punctuation, capitalization, and vocabulary, since the feedback from the lecturer is not as detailed as the feedback from Grammarly. However, considering that in the end, the students from the experimental group performed better after receiving the feedback from Grammarly, it is also quite unexpected that more students, compared to the control group, feel more negatively towards the effect Grammarly has on their writing. In other words, looking back at the result of the paired samples t-test which shows that the students' writing generally improved, it was expected that the students from the experimental group would have a more positive view of the effect of the feedback from Grammarly. Of course, it should also be highlighted that only few students have negative views from both groups, and the majority of the students still feel that the feedback, either from the lecturer or from Grammarly, is able to more or less improve their writing performance.

In short, with regards to the two research questions of this current study, it is found that the feedback from Grammarly is more effective in improving the students' writing in terms of grammar, spelling, punctuation, capitalization, and vocabulary compared to the feedback from the lecturer. To be precise, the students from the experimental group are generally able to learn from their mistakes from the feedback provided by Grammarly and avoid repeating them again when doing the posttest. Although, it should be noted that both groups actually showed improvement since both groups performed better in the posttest compared to the pretest. However, the improvement was only significant for the experimental group. Lastly, in terms of the students' perception concerning the necessity and effect of the feedback, the result of the questionnaire reveals that the students generally have a positive view, with only a few students having negative views. In other words, it is found that the students from both groups more or less feel that the feedback on the seven aspects of writing emphasized in this study are indeed important, and that the feedback from either the lecturer or Grammarly is able to more or less improve their writing.

CONCLUSION AND SUGGESTIONS

The topic of written corrective feedback has been debated by various scholars and researchers over the years. Some are of the opinion that learners need feedback so that they may improve their writing overall, while others believe that it is not really necessary as they seldom make significant improvements even when given feedback on their work. Others have also argued that the improvements are only temporary, and in the long run, the learners may make the same mistakes repeatedly. In addition, on one hand, it has been argued that automated written corrective feedback (AWCF) is not as effective as traditional feedback, but on the other hand, some find it to be a good alternative to traditional feedback provided by teachers since they can give more comprehensive and direct corrections more quickly, which in the end could give students more time to revise their work. Therefore, this study aims to explore this matter further by directly comparing the effectiveness of AWCF from Grammarly and traditional WCF from the lecturer.

The result of this study indicates that between these two, the AWCF from Grammarly is found to be more effective than the WCF provided by the lecturer. Although, it should be noted that the difference between the pretest and posttest for the experimental group is only significant at the 5% level of significance but not at the 1% level. Moreover, it is also found that both groups actually performed better in the posttest compared to the pretest, which shows that the feedback from the lecturer still has a positive effect on the students' writing performance. As for the students' perception of the feedback, they

generally believe that it is necessary to receive feedback on the seven aspects highlighted in this study, namely, grammar, spelling, punctuation, capitalization, vocabulary, content, and organization. They mostly also think that their writing more or less improved after receiving the feedback, either from the lecturer or from Grammarly. Hence, it can be concluded that written corrective feedback itself is important for the students, and that the lecturers need to provide them so that the students can learn from them and improve their writing. Moreover, considering that the result of this study reveals that AWCF is more effective than WCF, if the lecturer cannot provide feedback on the students' work for one or another reason, then Grammarly can be considered as an alternative to get the feedback they need since even the free version of this application can give quite comprehensive feedback, especially on grammar, spelling, punctuation, capitalization, and vocabulary.

To conclude, the researchers are aware of the many limitations of this study. Therefore, some suggestions for future studies are proposed. First of all, seeing as the number of participants included in this research is quite limited, it is highly suggested that future studies on AWCF incorporate a larger number of participants to provide more convincing evidence on the effectiveness of AWCF. Second, it is also suggested that the paid version of Grammarly is utilized in upcoming studies since it is equipped with more comprehensive features which would most likely enrich the feedback given to the students. Lastly, it would be beneficial to investigate other applications that can provide AWCF since Grammarly is only one out of several that are available. A direct comparison of the various applications may enlighten learners on the benefits and drawbacks of different proofing tools, which in the end may be beneficial since they would be able to choose the one that best fits their needs.

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