

# AWE Tools in English Academic Writing: Improving Grammar with Grammarly and Google Docs Grammar Checker

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## Introduction

This research investigated the effectiveness of using automated writing evaluation (AWE) tools, Grammarly (Grammarly. FAQ, n.d.) and Google Docs Grammar and Spell Checker (Check your spelling & grammar in Google Docs, n.d.), in EFL writing classes. The study aimed to examine the effectiveness of automated instant feedback provided by Grammarly vis-à-vis another automated corrective feedback provided by Google Document Grammar and Spell Checker (GDGSC) to improve students' grammar performance.

Previous research has demonstrated that AWE has potential in L2 writing as it provides students with almost instant feedback. This, in turn, affects learning uptake, student motivation and boosts student's learning autonomy.

Most of the research on Grammarly focused on users' perceptions (e.g., O'Neil & Russell, 2019, Zhang, Ozer, & Bayazeed, 2020). Some of the research was conducted in a university setting (Ghufon, 2019, Huang, Li, & Taylor, 2020, O'Neil & Russell, 2019, Qassemzadeh & Soleimani, 2016, Ventayen & Orlanda-Ventayen, 2018, Zhang et al., 2020) among Chinese, Indonesian, Iranian, Filipino and a mix of native speakers and other speakers of English. Our previous study (Lazic et al., 2020) investigated the use of Grammarly by Japanese learners of English.

In terms of focusing on teaching grammar using Grammarly, a study conducted in Iran (Qassemzadeh & Soleimani, 2016) focused on passive forms, as these were relevant to that teaching context. However, there was a need for a study that will address Japanese ELF learners' grammatical needs as these differ from EFL learners coming from other L1 backgrounds.

GDGSC was part of previous studies on Google Docs as tool for collaborative learning and/or peer/teacher feedback. For example, Khalil (2018) looked at the use of Google Classroom/Google Docs as online collaborative tools in learning of grammar. However, this was an action-based study measuring students' perceptions and not actual improvements in grammar accuracy.

Thus, our study asked about any short-term improvements in students' grammar skills concerning the use of articles and prepositions after using Grammarly and GDGSC, overall improvement in student's grammar skill after the intervention and students' perceptions about the two tools.

## Study Design and Preliminary Results

Students taking two different academic courses participated in this study (six different groups). Three groups used an AI-based AWE tool Grammarly. The other three groups. Students received training before the start of the study. The intervention was repeated five times during class hours. Students were assigned related homework. In addition, at the end of the study, participants changed their groups; e.g., students who used only GDGSC had an opportunity to use Grammarly for three weeks and were guided by the instructors. All students in all groups had access to the tools and completed all the activities. In total, 84 students used both tools during Q3 and Q4. However, we only present the data from students who gave their consent to participate in the study (Grammarly group N=29; GDGSC group N=30).

Results and the data presented are only a snapshot of the collected and analyzed data. To answer the first research questions, we present descriptive statistics of pre- and post-grammar judgment tests (percentages of correct answers, Table 1. As for the measurement of students' performance on pre- and post-writing task, we present one account of students' grammar (Table 2).). Answers to a 6-point Likert item questionnaire (Table 3 and 4) were used to measure students' perceptions of the AWE tools

### DATA SNAPSHOT: Percentages of correct answers pre and post-test. Overall grammar errors.

Table 1. Pre- and post-grammar judgement test: correct answers averages

	Pre-Test	Post-Test
GDGSC Participants	62%	65%
Grammarly Group Participants	64%	68%

Note: Grammarly group pre-test n=28; Grammarly group post-test=n27; GDGSC group pre-test n=26, GDGSC group pre-test n=27

Table 2. A sample of grammar errors in pre- and post-writing task (one participant)

	Pre- Writing Task			Post-Writing Task		
	Total	Articles	Prepositions	Total	Articles	Prepositions
GDGSC Participant	6	3	1	11	3	0
Grammarly Group Participant	5	0	2	1	0	0

### DATA SNAPSHOT: Student's Perceptions

Table 3. Students' Perceptions about GDGSC (n=28)

Likert Item	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	Median (IQR)
I know how to revise my paragraph or essay based on the feedback provided by GDGSC.	0%	4%	7%	43%	46%	0%	4(1)
After using GDGSC for some time, it is easier to find/identify grammar errors.	0%	0%	32%	36%	25%	7%	4(2)
I think my (English) grammar has improved after using GDGSC.	0%	7%	7%	68%	18%	0%	4(0)
GDGSC is user-friendly.	0%	4%	4%	57%	32%	4%	4(1)

Table 4. Students' Perceptions about Grammarly (n=27)

Likert Item	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree	Median (IQR)
I know how to revise my paragraph or essay based on the feedback provided by Grammarly.	0%	0%	7%	52%	22%	19%	4(1)
After using Grammarly for some time, it is easier to find/identify grammar errors.	4%	11%	22%	30%	33%	0%	4(2)
I think my (English) grammar has improved after using Grammarly.	0%	11%	19%	48%	10%	4%	4(1)
Grammarly. is user-friendly.	0%	4%	4%	52%	30%	11%	4(1)

## Discussion and Future Work

The preliminary analysis of pre- and post-grammar judgement tests has indicated that there has been only a slight improvement in the use of both articles and prepositions. Both groups have shown the same degree of improvement. This means that both tools, Grammarly and GDGSC, have the same degree of influence of students' improvements of grammar skills.

The Grammarly group student has made overall fewer mistakes in the sample of the post-writing task. The student has shown a slight improvement in the use of prepositions; the student committed no errors in the use of prepositions in the sample of post-writing task compared to a few errors in the sample of the pre-writing task. The GDGSC group student, on the other hand, has not shown an overall improvement in her writing. On the contrary, interestingly, the analysis of the writing samples has revealed an increased number of overall grammatical errors in the post-writing task. The number of errors in the use of articles has remained the same while the sample of the post-writing task contained no errors in the use of prepositions compared to the pre-writing task.

Overall, students in both groups have had positive perceptions about the two AWE tools used in the study and have found the tools easy to use. Most participants have found them useful in addressing shortcomings in their grammar knowledge. Furthermore, participants in both groups have felt that due to the intervention, they were able to spot their grammar errors in general. Further analysis will show if there is any difference between the groups (e.g., year of study and majors).

Consequently, the next step is to check if there was a substantial decrease in the number of grammatical errors in terms of their paragraph writing before and after the interventions. Additionally, it is necessary to refine the statistical analysis for the pre- and post- tests and see if there were any, even minor, effects of the intervention (e.g., apply inferential statistics such as a t-test, possibly with bootstrapping as the sample sizes in both groups are small) on the students' grammatical knowledge.

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