# Effect of Automated Writing Evaluation in Higher Education Academic Writing Performance

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**Abstract**

This study aimed to identify the effects of Automated Writing Evaluation (AWE) in the academic writing of thirty-seven (n=37) higher education students as it is believed to address common errors encountered by higher education students in academic writing, specifically in grammar (S-V-A and verb tense). The study used a one-group pretest-posttest design that determined the specific effect of the formulated AWE treatment on the participants. The statistical evidence showed that the AWE tool (*Grammarly*) feedback provision, when paired with the teacher's role as facilitator, significantly improved students' academic writing in terms of S-V-A and verb tense. The findings also imply that the AWE, if integrated within the instruction using its feedback provision, can significantly improve students' grammar usage and, consequently, their overall academic writing. These inarguable positive results of the AWE intervention used in this study create new assumptions to redefine not only the teachers' feedback provision in students' academic writing but also teaching writing in general.

Keywords: *Grammarly, Academic Writing, Subject-Verb Agreement, Verb tense, AWE*

## INTRODUCTION

Automated Writing Evaluation (AWE), according to Cotos (2014), is a technology that scores and evaluates written prose. AWE works by comparing a written text to a large database of the writing of the same genre written in answer to a specific prompt or rubric (Hockly, 2019). It is a popular educational technology that saves teachers time assessing writing, enables more writing practice, and supplements writing instruction (Wilson & Roscoe, 2019). With its possible implications in teaching writing and in response to the need to break the barriers that teachers face with instructional Feedback [in the written outputs of the students], research on the effects of using the AWE program as a tool that supports writing improvements has been carried out during the last decade, mainly because it has provided noteworthy support to meet from the needs of diagnostic feedback to the needs of summative assessment on aspects of writing (Warschauer & Grimes, 2008; Warschauer & Ware, 2006; Grimes & Warschauer, 2010).

Considerably, AWE has always been an open subject for research in improving writing as it mainly enforces the importance of developing writing in education (Huisman et al., 2019). In line with this, as higher education still sternly emphasizes academic writing as its central practice in teaching and learning (Tran, 2014), AWE is being considered by many researchers to carry out goals in education. Rahimi and Zhang (2018) stressed that academic writing might be a difficult, emotional, and complex process that both native and international students find challenging (Campbell, 2019), compounded by issues with linguistic and educational limitations (Hanauer et al., 2019). Unfortunately, in higher education, there is relatively less preparation for students to enhance their writing skills as it has been revealed in the study of Lim and Phua (2019) that teachers consider it time-consuming, labor-intensive, and subjective to monitor the writing process and to provide good and constructive comments to students.

Contextually, in the Philippines, different writing difficulties and challenges are faced by students, as reported in the studies of Pablo and Lasaten (2018), Portillo-San Miguel (2021), Pangket et al. (2023) and Masangya and Lozada (2009). Within these challenges, grammar was always pointed out as one of the topmost writing difficulties of students (Alinsunod, 2014). These difficulties have been evident in a higher education institution in the northern part of the Philippines where the current researcher was employed. A number of the students' academic writing outputs in the said institution were considerably lacking in meeting "literacy expectations" (Bacha, 2010), particularly on the aspect of grammar in academic writing.

Hence, this study focused on resolving grammar in the academic writing of students identified as a writing difficulty among Filipino higher education ESL students.

AWE, as promoted by researchers (Parra & Calero, 2019), was viewed as a key to meeting the needs of the students as well as the needs of teachers in providing sufficient feedback on students' written outputs as the AWE allows real-time receiving of feedback on their written outputs of students (Li et al., 2015; Fahmi & Cahyono,2021; Erni,2018; Fitria,2021; Kaharuddin,2021; and Yulianti, 2017). Despite the overwhelming research on the capabilities of AWE on individual writers' success, it is evident from the reviewed studies that the identification of the effects of using AWE in the academic writing of higher education students by categorizing specific errors it prompts in relevance with the identified common grammatical errors as emphasized by Singh et al. (2003) and being prompted by the AWE based on the taxonomy provided by Dodigovic and Tovmasyan (2021) were not yet discussed. Additionally, limited research was conducted regarding the integration of AWE into academic writing instruction in higher education to improve academic writing (Ware, 2012).

Henceforth, the present study aimed to identify the effects of integrating AWE in the academic writing of higher education students as it is believed to address common errors encountered by higher education students in academic writing as postulated.

Specifically, the study formulated the following questions:

1. What was the academic writing performance of the participants before using the AWE intervention in terms of subject-verb agreement and verb tenses?

2. Was there a significant difference in the participants' writing performance before and after the AWE intervention in terms of subject-verb agreement and verb tenses?

In order to answer the research questions formulated, this study followed an IPO (Input-Process-Output) conceptual framework as its procedure. The input was the assessment of the student's academic writing through writing a conference paper, specifically, the research introduction, which was assessed by three (3) human raters and the AWE tool. After that, the results from the three (3) human raters and the AWE tool were statistically treated. The pretest and posttest results were separately analyzed to show the difference in the performance of the students in terms of the use of S-V-A and Verb tenses with and without the use of AWE intervention in their writing.

**LITERATURE REVIEW**

White (2017) discussed that academic writing is a formal style utilized in colleges and institutions. It is what students are supposed to generate from lectures and what instructors and academic researchers utilize to write scholarly papers. This definition includes writing abstracts, academic journal articles, book reports, theses, conference papers, research papers, and essays (Björk et al., 2003). These academic writing examples are considered critical components of the writing process, which, according to Hayes and Flower (1987), include (1) being goal-oriented, (2) that writing objectives are arranged hierarchically, and (3) that these objectives are achieved through three recursive processes: planning, sentence generation, and revision. Among all these components and even on the three recursive processes, proficiency in grammar is considerably one of the most important elements. Thus, it is needless to say that grammar instruction is a critical stage among higher education students in order to write any academic papers.

Hinke (2003) argued that grammar instruction, which aims to prepare students for academic studies, needs to be designed to develop learners' practical and useful skills directly relevant to producing academic texts. This is still quite unpopular in higher education and has eventually resulted in the incompetence of students in this area, according to the studies of Özkayran and Yilmaz (2020), Singh et al. (2017), Garcia (2014) and Kaharuddin (2021).

Singh et al. (2017) found that among all indicated grammatical errors committed by higher education students, errors in subject-verb agreement (SVA) and verb tenses are the most common or prevailing errors of the students in their writing. This is where Automated Writing Evaluation (AWE) can be of much help to students, as it is one of the technological programs that support language learners to acquire better language ability (Nova, 2018) through its feedback provision (Kaharuddin, 2021), as it is also being used in highlighting the students' grammatical problems (Jiang et al., 2020).

AWE works by comparing a written text to a large database of the writing of the same genre written in answer to a specific prompt or rubric (Hockly, 2019). Wilson & Roscoe (2019) discussed that AWE is also a popular educational technology that saves teachers time in assessing writing, enables more writing practice, and supplements writing instruction. These researchers from various contexts and educational environments have reported that AWE had a significantly positive effect on the academic writing of students based on findings of similar studies conducted by Parra and Calero (2019) and Hockly (2019).

With that being said, this study used Grammarly as an example of an AWE tool (Khosnevisan, 2019) that potentially helps in improving the grammatical constraints of the students writing (Feng & Chukharev-Hudilainen, 2022), particularly on the two grammatical categories (subject-verb agreement and verb tense) as they are both seen as two of the most committed grammatical blunders in any academic writing tasks in English (Özkayran, & Yilmaz, 2020); and as it can also be observed that most of the research written relative to the unraveling of AWE's positive effects in writing primarily shows a consistent inclusion of verb forms or tense and subject-verb agreement errors as mostly being addressed (Li, 2021; Zhang, 2020).

While all the reviewed studies suggested the use of AWE in developing academic writing for higher education students, they have not covered AWE's effect on the academic writing of students and the process of how AWE should be used in academic writing.

## METHOD

### Research Design

The researcher utilized a quantitative approach, specifically quasi-experimental research under the category of action research (Sagor, 2011), with a one-group pretest-posttest design (Choueiry, 2021). Quasi-experimental design was used since the present research sought to evaluate an intervention – which, in this case, is the integration of AWE in academic writing of higher education students without randomization to demonstrate causality between an intervention and an outcome (Harris et al., 2006).This type of quasi-experiment tends to yield an outcome of interest after completing two assessments – once before and once after exposing a non-random set of participants to a particular intervention (Choueiry, 2021), which in this case is the integration of AWE in the academic writing of students.

### Participants

The participants of the study were thirty-seven college students (n=37) from a state university in the northern part of the Philippines. The group consisted of fifteen male (n=15) and twenty-two female (n=22) participants whose ages ranged from 19 to 25. They were facilitated by a seasoned professor (n=1) at the same university. Since it is a one-group pretest-posttest design, it is perceptible that the group of students was selected using purposive sampling to represent the whole population of students as the group has the same nature of English writing proficiency level and they all have enrolled in similar subjects, including GECC 102b Purposive Communication, which has a primary objective to equip students with

the necessary communicative skills that include writing professional/ academic outputs. The input for this study is included in the assessments required in the subject in mid-semester, which is writing a conference paper that falls under the category of academic writing outputs (Bjork et al, 2003; Conference Papers - The Writing Center, 2014).

**Data Collection and Analysis Methods**

*Writing Assessment Tool*

Two (2) writing assessments were used in the study. Both writing assessments required students to write an introduction of a conference paper following the steps stipulated in the Conference Papers - The Writing Center (2014) and reflecting on the format of Yamakami (2003) based on the APA 7th edition. The instructor has provided substantial instruction and samples in the pre-writing stage of students following the conventional pedagogies in teaching writing as stipulated by Chew (2006).

*Writing Assessment Rubric for Human Raters*

The conference papers of the students from the pretest and posttest were read, analyzed, and scored by the three (3) selected human raters using a modified rubric used in the study of Portilla and Giovanny (2019). The analytic rubric was used to evaluate different written language aspects associated with academic writing: spelling, punctuation, grammar, sentence structure, vocabulary, style, and plagiarism (Portilla & Giovanny , 2019).

Descriptors were added to the rubric of Portilla and Giovanny (2019), creating a denotation of the value point given to a specific aspect of language use in the academic writing activity.

*Grammarly as an AWE intervention.*

Written outputs from the pretest and posttest were also assessed using an automated writing evaluation (AWE) tool, specifically the Grammarly tool. Since it was the intervention

| 1.00-1.80 | Poor | Did not follow SVA rules/ use proper verb tense with 8 and above errors on sentence composition |
| 1.81-2.60 | Weak | Followed some SVA rules/ use proper verb tense but committed 3-7 violations |
| 2.61-3.40 | Adequate | Followed SVA rules/ use proper verb tense but with 1-2 violations to SVA which lead to ambiguous sentence composition. |
| 3.41- 4.20 | Good | Followed SVA rules/ use proper verb tense with at least 1 violation which lead to an ambiguous sentence composition |
| 4.21-5.00 | Outstanding | Followed all SVA rules/ / use proper verb tense with no anaphoric references that leads to sentence ambiguity |

used in the study, it served as a guiding tool for the students upon writing the introduction of their conference papers.

The researcher followed the three main procedures in the conduct of quasi-experimental research with a one-group pretest-posttest design as stated by (Choueiry, 2021): (1) pre-intervention measurement, (2) intervention, and (3) post-intervention measurement**.**

*Pre-intervention: Classroom instruction and Initial Independent Writing*

The instructor, with the guidance of the researcher, presented the topic on Day 1, which is *Communication for Academic Purposes*. The instructor presented samples of conference papers from Yamakami *(2003).* The processes, goals, and academic writing type of conference paper were also clearly elaborated to the students based on the discussions in Conference Papers - The Writing Center (2014).

After discussing and providing the format of the content of the students' introduction of conference papers, which are parts of *Step 1: sampling and modeling and Step 2: analyzing and brainstorming* (Yan,2010), the instructor conducted *Step 3: joint constructing* (Yan,2010)*,* wherewith the instructor created a dummy sample of the conference paper introduction with the students. Then, the instructor required the students to do Step 4: *first independent drafting* to answer RQ1 with the guidelines formulated wherein the students wrote two-hundred fifty (250) to three-hundred (300) words of the introduction of the conference paper for a research proposal within one (1) hour and thirty (30) minutes only.

After collecting the written introduction of conference papers as pretest academic writing assessments of students, the researcher used Grammarly to evaluate their outputs. Also, a copy of the students' outputs was reproduced from the original outputs and was forwarded to the three (3) human raters for a separate evaluation using the rubric.

*Intervention: AWE integration in the class*

After the pre-test, to answer the RQ2 or the intervention – which is the AWE tool (Grammarly) feedback integration, was applied on Day 2. This was done through the distribution of Grammarly feedback to the students, wherein the students individually received a copy of printed and digital Grammarly feedback for their individual pre-test outputs. This was done in order for the students to reflect on their outputs individually. On Day 3, the instructor and the researcher immediately conducted a conference and discussion with the students where they were told of their common errors and specifically highlighted their S-V-A and Verb tense errors prompted by the AWE tool. On day 4, they were allowed by the researcher to use the *Grammarly Premium Account* to navigate the AWE application and to

individually scrutinize and edit their works using the application during their independent editing. The total hours of intervention conducted were composed of twenty-seven (27) hours, including the time that they spent on editing their works using the Grammarly Premium Account.

*Post-intervention: Final independent writing*

In order to answer RQ3, on day 5, the instructor tasked the students to write an introduction of a conference paper with a different topic from the pre-test as their final independent drafting, but with similarly designed post-test assessment material with the guidelines formulated where the students also wrote two-hundred fifty (250) to three-hundred (300) words of the introduction of the conference paper for a project proposal within one (1) hour and thirty (30) minutes. After collecting the data from the post-test of the students, the researcher forwarded the second batch of papers to be evaluated and scored by three similar (3) human raters who evaluated the pre-test outputs of the students.

The students participated in the class pre-intervention assessment, intervention, and post-intervention assessments in the modality of face-to-face. Subsequently, all scores, both provided by human raters and the AWE tool, were treated statistically using a t-test, particularly a paired t-test.

*Analysis of Data*

The following descriptive equivalent is used in interpreting the results of the student's academic writing performance in terms of S-V-A and Verb tense, which were modified based on the rubric's descriptors that were used by the human raters. The pretest and posttest data from the human raters and from the AWE tool were interpreted using the criteria under "*Grammar*" provided by Portilla and Giovanny *(2019)* which was divided into two (2), hence five (5) points for S-V-A and another five (5) points for verb tense as follows:

*Ethical Considerations*

The researcher sent letters requesting the conduct of the study to the dean of the academic unit of the target school, which is a state university in the northern part of the Philippines. The researcher immediately conducted the data gathering after the approval of the request. Additionally, a letter was sent to the participating human raters who are professors with expertise in the English language (graduates BS/MA/Ph.D. in English Language) through the proper channels. They served as human raters or evaluators of the students' outputs. A consent form was also sent to the participants of the study. They were also requested to sign an

attendance sheet and were requested to be documented during the conduct of the study for the purpose of recording.

**FINDINGS AND DISCUSSION**

Overall, the results showed that the AWE intervention made significant positive results in the students' academic writing in the post-test as compared to the initial pretest academic writing of the students.

*Pretest of Academic Writing Performance of the Participants in terms of S-V-A and Verb Tense*

The data presented in Table 1 and Table 2 were specifically from the scores provided by the human raters and from Grammarly, specifically referring to the number of flagged errors committed by the students in the areas of S-V-A and Verb Tense.

**Table 1**

*Pretest S-V-A Mean: Grammarly & Human Raters*

|  | Mean | SD | DE |
|---|---|---|---|
| Grammarly | 4.054 | 0.848 | Good |
| Human Raters | 4.027 |  | Good |

**Table 2**

*Pretest Verb Tense Mean: Grammarly & Human Raters*

|  | Mean | SD | DE |
|---|---|---|---|
| Grammarly | 2.703 | 1.331 | Adequate |
| Human Raters | *3.604* |  | Good |

As evidenced in the numerical results from the students' pretest academic writing scores in terms of the S-V-A and verb tense, the students initially performed "Good" and "Adequate" in the area of S-V-A and verb tense based on the assessment provided both by the human raters and AWE tool Grammarly *(see Table 1 and Table 2).* This critically suggests that the student's knowledge of subject-verb agreement as applied to their academic writing in the pretest is considered to be appropriate to their level (collegiate level).

To elaborate on the committed errors on S-V-A, eight (8) students from the set of participants (n=37) who took the pretest of academic writing deliberately committed an error on S-V-A as prompted by the AWE from the submissions made by the participants.

One of their deliberate error in S-V-A is that they misuse the adding of *-s* or omission of *-s/-es* on the verb in reference to subject/s, which were in the form of pronouns, nouns, and infinitive phrases (functioning as subject). These are actually not new findings on evaluating the lexicogrammar ( Halliday & Matthiessen, 2013) of a certain written discourse wherewith beginner ESL writers tend to confuse themselves in whether or not to use a singular or plural form of a verb with a subject having two or more pronouns antecedents.

Another deliberate error can be traced to some of the participants' confusion on whether or not to use the singular or plural form of the copula verb. Presumably, there are two logical factors that can perhaps explain these premises. One is that the writers may not have enough idea if the subject is a countable or uncountable noun, or two, the writers may have been referring to a collective noun. In this case, sufficient reading resources and time for reading were fairly given to the participants. Thus, these examples of deliberate misuse of the copula verb forms may be due to the insufficient understanding of the writers on distinguishing the number of subjects.

Another S-V-A error that has been deliberately committed by a participant is the overt contention on the use of a simple present tense form of the verb instead of its progressive form. Although this issue should fall into the discussion of verb tense, it can perceptibly denote the student's lack of idea on what appropriate verb form should be used if a sentence has two (2) or more subjects.

Moreover, some of the participant's outputs have their verb tense use being corrected due to their faulty use of a copula and the base form of the verb, which should supposedly be a combination of a copula (be-verb) and the past tense (or participle) of the verb. This is a naturally occurring error even in simple writing activities for ESL students (Hinkel, 2013), especially if they have not yet been known to complex sentence constructions, specifically on using a combination of auxiliary verbs (basically known as "helping verbs), copula or linking verbs and main verbs.

Another is a participant's use of present tense instead of present perfect tense to describe a past action that continues now (Folse, 2009). This is not an isolated case of error committed by writers as Hinkel (2013) undoubtedly described the present perfect tense in his work as the "most difficult" tense to learn since it has many misleading uses based on the provided definition by Folse (2009).

Some other corrections made by the AWE in the academic writing of the participants in terms of verb tense are the following: in terms of using a verb as an adjective, it should either be in its past tense or past participle or in progressive form, not in the present tense; and, that whenever they use transitive verbs in a sentence with progressive function, it should be in a progressive form.

*AWE Intervention Used in Developing the Academic Writing of the Students*

After the pretest administration, the researcher and the instructor started the intervention of AWE tool (Grammarly) feedback integration in the class as reflected in the Sharing and teacher feedback provision step of the eclectic approach of Yan (2010), where the following steps were followed:

Step 1: AWE feedback provision - The feedback and corrections in the academic writing of the students were distributed or applied on Day 2. The students individually received a copy of printed and digital Grammarly feedback for their individual reflections.

Step 2: Conferencing and discussion- After the students received the Grammarly feedback, the instructor conducted a conference with the students on Day 3, where the students were told of their committed errors as evaluated by the AWE, and highlighted their S-V-A and Verb tense errors prompted by the AWE tool. A discussion on S-V-A and Verb tense errors was also conducted in order to address the following grammatical errors.

Step 3: Initial editing with AWE- On Day 4, The students were allowed by the researcher to use the Grammarly Premium Account to individually scrutinize and edit their works using the application. This part was individually done by the students outside the scheduled meeting under the intensive guidance and close supervision of the instructor and researcher through conducting online supervision and timely responses and updates to the student's queries.

*Posttest of Academic Writing Performance of The Participants in terms of S-V-A and Verb Tense*

**Table 3**

*Posttest S-V-A Mean: Grammarly & Human Raters*

|  | Mean | SD | DE |
|---|---|---|---|
| **Grammarly** | 4.970 | 0.164 | Outstanding |
| **Human raters** | 4.973 |  | Outstanding |

**Table 4**

Posttest Verb Tense: Grammarly & Human Raters

|  | **Mean** | **SD** | **DE** |
|---|---|---|---|
| **Grammarly** | 4.970 | 0.164 | Outstanding |
| **Human Raters** | *4.595* |  | Outstanding |

*Table 3* and *Table 4* illustrate that both results from the AWE tool Grammarly and human raters on the student's academic writing posttest performance in terms of S-V-A and verb tense suggest that the student's performance has been "Outstanding" after the AWE tool intervention

*The Significant Difference Between Students' Pretest and Post-Test Academic Writing Performance in Terms of S-V-A and Verb Tense*

Burnie (2020) generally defined that in subject-verb agreement, the subject and the verb in the sentence should be consistent in terms of plurality and singularity. Which, collegiate students should have already mastered as it is a prerequisite even in high school-level English speaking and writing, considering the statement of Fayol et al., (1999) that subject-verb agreement is frequently learned even in early childhood education. Nevertheless, these definitive statements should not be taken in a form of a roughly imposed generalization to all students since our knowledge of grammar varies from situation/ context, duration and level of use, and our native language.

As shown in *Table 5*, the AWE tool Grammarly paired t-test results of the pretest and post-test in terms of S-V-A showing a t-value of *(-7.03),* which suggests that the post-test results of S-V-A *(M=4.97)* are positively greater than the result of the students' pre-test *(M=4.05).* These results reveal a significant difference in the pretest and posttest performance of the participants in terms of the S-V-A after the participants were exposed to the AWE tool intervention. Hence, the academic writing performance of the participants improved in terms of S-V-A after using the AWE tool Grammarly in academic writing.

Additionally, the students' posttest academic writing performance *(M=4.97)* in terms of S-V-A as evaluated by the three human raters has significantly been higher than their pretest (M=4.03) based on the paired t-test result *(-7.063)* as also shown in *Table 5*.

**Table 5**

*Paired t-test result of S-V-A from Grammarly*

|  | Mean | s.d. | t-value | p-value |
|---|---|---|---|---|
| **Pretest** | 4.05 | 0.848 | (-7.03)** | 0.000 |
| **Posttest** | 4.97 | 0.164 | | |

*Paired t-test results of S-V-A from Human raters*

|  | Mean | s.d. | t-value | p-value |
|---|---|---|---|---|
| **Pretest** | 4.03 | 0.833 | (-7.063)** | 0.000 |
| **Posttest** | 4.97 | 0.164 | | |

Sample sentences from four (4) participants showed similar error types on S-V-A wherewith the writers misuse the adding of -s or omission of -s/-es on the verb in reference to subject/s which in these cases were in the form of pronouns, nouns, and infinitive phrase (functioning as subject). These are actually not new findings on evaluating the lexicogrammar (Halliday & Matthiessen, 2013) of a certain written discourse wherewith beginner ESL writers tend to confuse themselves in whether or not to use a singular or plural form of a verb with a subject having two or more pronouns' antecedents.

Sample sentences from three (3) other different participants revealed that these participants confused themselves on whether to use the singular or plural form of the copula verb. Presumably, there are two logical factors that can perhaps explain these premises. One is that the writers may not have enough idea if the subject is a countable or uncountable noun, or two, the writers may have been referring to a collective noun. In this case, sufficient reading resources and time for reading were fairly given to the participants. Thus, these examples of deliberate misuse of the copula verb forms may be due to the insufficient understanding of the writers on distinguishing the number of subjects.

On the other hand, the students' posttest academic writing performance in verb tense *(M=4.59)* as evaluated by the AWE tool Grammarly had also been significantly higher than their pretest *(M=2.70)* based on the t-value *(-10.229)* illustrated in *Table 6.* This suggests that the participants also performed better in using verb tense in their academic writing after they were exposed to the intervention.

Reid (1988, as cited in Hinkel, 2013) stated that writing conventions require specific verb tenses in different academic writing situations. In this case, the students wrote an introduction of a conference paper wherewith the tenses of the verb should be in a past tense or present perfect tense (Reid, 1988) as they have included carefully studied research and

reports. As evaluated by the AWE tool Grammarly, it can be perceived that most errors were committed in this area based on the tallied errors reflected in the number of students and based on the results of the averages from the pretest scores (human raters and Grammarly) as compared to the posttest averages in *Table 6*.

This is only a reproof of the reports from Hinkel (1992) and (Alzuhairy, 2016) that verb tense is one of the challenges that English language learners have trouble with when they attempt to acquire the language. This means that the students were more likely to have less knowledge or awareness of using the appropriate verb tense in their academic writing, as referred to in the study of Reid (1988).

Contrastingly, as shown in *Table 6*, the paired t-test results *(-5.84)* from scores provided by the human raters in terms of their use of verb tense indicate that the students' academic writing performance in terms of verb tense had also been significantly higher in their posttest *(M=4.97)* than their performance in the pretest *(M=4.03)*. This only indicates that the students performed better in using verb tense in their academic writing after they were exposed to the treatment.

**Table 6**

*Paired t-test results of verb tense from Grammarly*

|  | Mean | SD | t-value | p-value |
|---|---|---|---|---|
| **Pretest** | 2.70 | 1.331 | (-10.229)** | 0.000 |
| **Posttest** | 4.59 | 0.599 |  |  |
| *Paired t-test result of verb tense from Human raters* |  |  |  |  |
| **Pretest** | 3.62 | 0.833 | (-5.84)** | 0.000 |
| **Posttest** | 4.59 | 0.164 |  |  |

**CONCLUSION**

It can be gleaned in the results and findings that the students' academic writing performance has significantly improved in terms of S-V-A and verb tense, and consequently their overall academic writing through the AWE intervention applied. Henceforth, satisfying the aim of the study to identify the effects of AWE in the academic writing of higher education students upon addressing common errors on S-V-A and verb tense. It can be deduced that the AWE tool Grammarly feedback when matched with teachers' role as a facilitator while following a certain recurring scheme of drafting and editing, students' academic writing will

exponentially improve not only in their use of language technicalities in writing but also their overall writing skill.

Even so, the present study's AWE intervention was based on the eclectic approach pedagogy of teaching writing by Yan (2010), teachers may still use the same pedagogy or deviate from it but integrating AWE in the same step particularly on *Sharing and teacher feedback provision* step (Yan, 2010). Additionally, premium version of Grammarly was used, which allowed the students who participated in the study to use the tool under the login details of the researcher who purchased the product by batch online. If some university administrators will consider the findings and results which have been carefully discussed in this study, then it would be better too if they will provide every teacher and student under their institution fair access to use any AWE software (preferably Grammarly).

Lastly, the study also has made use of a one-group pretest-posttest design which, based on Choueiry (2021), is good in identifying the effects of treatment within the same group. Although, it has a low generalizability. Researchers who might want to conduct similar studies on the AWE intervention used in this study should consider having controlled group and uncontrolled groups in order to maximize the generalizability of the future findings.

# References

Alinsunod, J. (2014). A study of common writing errors of engineering students: A asis for curriculum development. *European Journal of English Language and Literature Studies*, 2(3), 7-15.

Alzuhairy, U. (2016). The Frequency of The Twelve Verb Tenses in Academic Papers Written by Native Speakers. Electronic Theses and Dissertations. https://stars.library.ucf.edu/etd/5282/

Bacha, N. N. (2002). Developing Learners' Academic Writing Skills in Higher Education: A Study for Educational Reform. Language and Education, 16(3), 161–177. https://doi.org/10.1080/09500780208666826

BjörkL. A., Netlibrary, I., & Al, E. (2003). *Teaching academic writing in European higher education*. Kluwer Academic Publishers.

Diane Dewhurst Belcher, & Braine, G. (1995). Academic Writing in a Second Language. Praeger.

Bujang M.A, Khee H.Y, & Yee L.K. (2022). *A step-by-step guide to questionnaire validation research.* Institute for Clinical Research, NIH, Malaysia.
Campbell, M. (2019). Teaching academic writing in higher education. *Education Quarterly Reviews*, 2(3). https://doi.org/10.31014/aior.1993.02.03.92

Campbell, D. T., & Stanley, J. C. (2015). *Experimental and Quasi-Experimental Designs for Research*. Ravenio Books.

CHED (2017). Commission on Higher Education (CHED) Memorandum Order No. 20 series of 2013. https://ched.gov.ph

Chew, P. G. L. (2006). Asian realities in language learning: The case of Singapore. https://hdl.handle.net/10497/16151

Choueiry, G. (2021, September 14). One-Group Pretest-Posttest Design: An Introduction. https://quantifyinghealth.com/one-group-pretest-posttest-design/

Conference Papers - The Writing Center. (2014). The writing center. https://writingcenter.unc.edu/tips-and-tools/conference-papers/

Cotos, E. (2014). Automated writing evaluation. *40–64.* https://doi.org/10.1057/9781137333377_3

Dodigovic, M., & Tovmasyan, A. (2021). Automated writing evaluation: the accuracy of Grammarly's feedback on form. *International Journal of TESOL Studies*, 3(2), 71-87.

Erni, Y. R. (2018) Utilizing Grammarly in teaching writing recount text through genre based approach. *International Journal of Science, Technology and Society. Vol. 6,* DOI: 10.11648/j.ijsts.20180601.11

Fahmi, M. A., & Cahyono, B. Y. (2021). EFL students' perception on the use of Grammarly and teacher feedback. JEES (Journal of English Educators Society), 6(1), 18–25. https://doi.org/10.21070/jees.v6i1.849

Fayol, M., Hupet, M. & Largy, P. The acquisition of subject-verb agreement in written French: From novices to experts' errors. *Reading and Writing* 11, 153–174 (1999). https://doi.org/10.1023/A:1008038127807

Feng, H.–H., & Chukharev-Hudilainen, E. (2022). Genre-based AWE system for engineering graduate writing: Development and evaluation. *Language Learning & Technology*, 26(2), 58–77. https://doi.org/10125/73479

Fitria, T. N. (2021). Grammarly as AI-powered English Writing Assistant: Students' Alternative for Writing English. *Metathesis: Journal of English Language, Literature, and Teaching*, 5(1), 65. https://doi.org/10.31002/metathesis.v5i1.3519

Folse, K. S., & Betty Schrampfer Azar. (2016). *Keys to teaching grammar to English language learners: a practical handbook*. University of Michigan Press.

Garcia, J. N. C. (2014). Writing and research in the Philippines: Comparative notes. *Kasarinlan: Philippine Journal of Third World Studies.*

Grimes, D. (2010, March 2). *Utility in a Fallible Tool: A Multi-Site case study of Automated writing evaluation*. https://ejournals.bc.edu/index.php/jtla/article/view/1625

Grimes, D., & Warschauer, M. (2010). Utility in a fallible tool: A multi-site case study of automated writing evaluation. *The Journal of Technology, Learning and Assessment,* 8(6). https://ejournals.bc.edu/index.php/jtla/article/view/1625

Halliday, M. A. K., & Matthiessen, C. M. (2013). *Halliday's introduction to functional grammar*. Routledge.

Hanauer, D. I., Sheridan, C. L., & Englander, K. (2018). Linguistic injustice in the writing of research articles in English as a second language: Data from Taiwanese and Mexican researchers. *Written Communication*, 36(1), 136–154. https://doi.org/10.1177/0741088318804821

Harris, A. D., McGregor, J. C., Perencevich, E. N., Furuno, J. P., Zhu, J., Peterson, D. E., & Finkelstein, J. (2006). The use and interpretation of quasi-experimental studies in medical informatics. *Journal of the American Medical Informatics Association*, *13*(1), 16–23. https://doi.org/10.1197/jamia.m1749

Hayes, J. R., & Flower, L. (1987). On the structure of the writing process. Topics in Language Disorders, 7(4), 19–30. https://doi.org/10.1097/00011363-198709000-00004

Hinkel, E. (2003). *Teaching academic ESL writing: Practical techniques in vocabulary and grammar.* Routledge.

Hinkel, E. (2013). Research Findings on Teaching Grammar for Academic Writing. English Teaching, 68(4), 3–21. https://doi.org/10.15858/engtea.68.4.201312.3

Hockly, N. (2018). Automated writing evaluation. *ELT Journal*, 73(1), 82–88. https://doi.org/10.1093/elt/ccy044

Huisman, B., Saab, N., Van Den Broek, P., & Van Driel, J. (2018). The impact of formative peer feedback on higher education students' academic writing: a Meta-Analysis. *Assessment & Evaluation in Higher Education*, 44(6), 863–880. https://doi.org/10.1080/02602938.2018.1545896

Jiang, L., Yu, S., & Wang, C. (2020). Second language writing instructors' feedback practice in response to automated writing evaluation: A sociocultural perspective. *System*, 93, 102302. https://doi.org/10.1016/j.system.2020.102302

Kaharuddin, K. (2021). Assessing the effect of using artificial intelligence on the writing skill of Indonesian learners of English. *Linguistics and Culture Review*, *5*(1), 288–304. https://doi.org/10.21744/lingcure.v5n1.1555

Khoshnevisan, B. (2019). The affordances and constraints of automatic writing evaluation (AWE) tools: A case for Grammarly. *ARTESOL EFL Journal*, 2(2), 12-25.

Lim, F. V., & Phua, J. Y. (2019). Teaching writing with language feedback technology. *Computers and Composition*, 54, 102518. https://doi.org/10.1016/j.compcom.2019.102518

Li, J., Link, S., & Hegelheimer, V. (2015). Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction. *Journal of Second Language Writing*, 27, 1–18. https://doi.org/10.1016/j.jslw.2014.10.004

Masangya, E. M., & Lozada, L. (2009). An investigation on the relationship between the language exposures and errors in English essays of high school students. *Philippine ESL Journal*, 2, 31.

Nova, M. (2018). Utilizing Grammarly in evaluating academic writing: Anarrative research on EFL students' experience. *Premise: Journal of English Education and Applied Linguistics*, 7(1). 2089-3345. https://doi.org/doi.org/10.24127/pj.v7i1

Özkayran, A., & Yilmaz, E. (2020). Analysis of Higher Education Students' Errors in English Writing Tasks. *Advances in Language and Literary Studies*, 11(2), 48–58. https://eric.ed.gov/?id=EJ1267155

Pablo, J. C. I., & Lasaten, R. C. S. (2018). Writing difficulties and quality of academic essays of senior high school students. *Asia Pacific Journal of Multidisciplinary Research,* 6(4), 46-57.

Pangket, W. F., Pangesfan, S. K. K., Cayabas, J. P., & Madjaco, G. L. (2023). Research writing readiness of graduate students in a Philippine state college. *International Journal of Learning, Teaching and Educational Research*, 22(4), 141-159.

Parra G., L., & Calero S. , X. (2019). Automated Writing Evaluation Tools in the Improvement of the Writing Skill. International Journal of Instruction, 12(2), 209–226. https://eric.ed.gov/?id=EJ1211027

Portillo-San Miguel, E. J. (2021). Writing difficulties encountered by humanities and social sciences students in Philippine politics and governance. *International Journal of Language and Literary Studies*, 3(3), 156-167

Rahimi, M. & Zhang, L. J. (2018). Writing task complexity, students' motivational beliefs, anxiety and their writing production in English as a second language.

Reid, J. M. (1988). *The process of composition*. Prentice-Hall.

Sagor, R. (2011). *The action research guidebook: A four-stage process for educators and school teams*. Corwin Press.

Singh, C. K. S., Jageer Singh, A. K., Abd Razak, N. Q., & Ravinthar, T. (2017). Grammar errors made by ESL tertiary students in writing. *English Language Teaching*, 10(5), 16. https://doi.org/10.5539/elt.v10n5p16

Portilla, T., & Giovanny, M. (2019). Virtual writing tutor software in the development of

academic writing skills. *Repositorio.uta.edu.ec*.
http://repositorio.uta.edu.ec/jspui/handle/123456789/29599

Ware, P. (2011). *Computer-generated feedback on student writing*. Tesol Quarterly.

Warschauer, M., & Grimes, D. (2008). Automated writing assessment in the classroom. *Pedagogies: An International Journal*, 3(1), 22–36. https://doi.org/10.1080/15544800701771580.

Warschauer, M., & Ware, P. (2006). Automated writing evaluation: Defining the classroom research agenda. *Language Teaching Research*, 10(2), 157-180.

White, M. G., MA. (2017). Definition of academic writing with examples. In YourDictionary. https://grammar.yourdictionary.com/word-definitions/definition-of-academic-writing.html

Wilson, J., & Roscoe, R. D. (2019). Automated writing evaluation and feedback: Multiple metrics of efficacy. *Journal of Educational Computing Research,* 58(1), 87–125. https://doi.org/10.1177/0735633119830764

Yamakami, T. (2003). Impact from mobile SPAM mail on mobile internet services. *Lecture Notes in Computer Science* (pp. 179–184). https://doi.org/10.1007/3-540-37619-4_19

Yan, Y. (2010). Towards an Eclectic Framework for Teaching EFL Writing in a Chinese Context. (Vol. 7). ERIC. https://eric.ed.gov/?id=ED511226

Yulianti, E. (2018). Utilizing grammarly in teaching writing recount text through genre based approach. *International Journal of Science, Technology and Society*, 6(1), 1. https://doi.org/10.11648/j.ijsts.20180601.11

Zhang, Z. V. (2020). Engaging with automated writing evaluation (AWE) feedback on L2 writing: Student perceptions and revisions. Assessing Writing, 43, 100439. https://doi.org/10.1016/j.asw.2019.100439