Analyzing grammarly software for corrective feedback: Teacher's perspective on affordances, limitations and implementation

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ABSTRACT

Providing support and feedback in the development of ESL writing skills is imperative for engineering students. The goal of the current study is to assess the potential of using Grammarly software in editing the writing of ESP students while taking into account the current technological advancements in providing computer-mediated corrective feedback and the propensity of engineering students to use digital tools. 35 short essays submitted by first-year students at the University of Novi Sad's Faculty of Technical Sciences were examined in the study. A random selection of essays was made from a pool of online essays written by students during the academic year 2021/2022. In order to compare Grammarly-provided suggestions with the teacher's corrections, the selected essays were corrected by both the teacher and Grammarly software. For the purpose of determining the affordances and limitations of using this digital tool to provide corrective feedback, the authors examined the differences between Grammarly-suggested corrections and teacher-made corrections by classifying them into five groups. According to the results, this tool can be beneficial to ESP classes to some extent, but teacher feedback still plays an important role.

Introduction

Developing English as a Second Language (ESL) writing skills is crucial for engineering students, and providing feedback along the way is paramount for facilitating this learning process. According to Canh (2015), writing is the most difficult language skill for English language learners to acquire. It is therefore not surprising to find that students face many challenges in the process of learning how to write well in a second language, especially at an

advanced level or in a specific professional context. However, it is a skill that many of them will need in their future professional environment. In the case of future engineers, good writing skills are instrumental for successful communication with colleagues and business partners, integration into a wider research community or effective communication within an international work environment. For that reason, developing writing practice should have a place in engineering students' English classes. In addition, mastering this language skill helps ESL students to develop their critical thinking skills (Moqsith, 2022).

Digital technology has become an integral part of our everyday lives and has influenced almost every area and activity (Moqsith, 2022, Söğüt, 2024). Education is also greatly influenced by technology and numerous educational software programs can nowadays facilitate English language learning. Given the current technological advances in providing computerized correction, it seems advantageous to explore this potential in aiding the development of second-language students' writing skills. This study aims to examine the use of Grammarly software to correct ESL students' writing. Providing corrective feedback to the students is crucial for developing ESL writing skills, and it is generally used to indicate different writing errors such as grammatical and content errors (Wichadee, 2013). By giving feedback, teachers can facilitate the learning process and help students to improve and develop their skills (Bhattarai, 2007).

Grammarly is a grammar checker and proofreading tool that not only checks spelling, punctuation, grammar, and sentence structure, but also provides real-time feedback to improve the content's clarity, cohesiveness, fluency, and vocabulary. This digital tool analyzes part of the written content for errors related to grammar, punctuation, spelling, readability, etc. Both a free and a premium version are available. Grammar and spelling checks are available in the free version, while the premium version also offers writing style improvement, plagiarism detection, and expert writing suggestions.

The combination of cutting-edge technologies that integrate rules, patterns, and artificial intelligence techniques like machine learning, deep learning, and natural language processing provides the basis for the successful work of Grammarly software. Using these advancements, it parses a piece of writing to detect mistakes and then offers suggestions on how these can be resolved. It is up to the user to decide whether to accept them or not. The software uses AI (artificial intelligence) to identify and search for an appropriate alternative for the mistake it finds (Zinkevich & Ledeneva, 2021). Artificial intelligence (AI), according to Encyclopedia Britannica, is the ability of a digital computer or computer-controlled robot to carry out operations that are typically associated with intelligent beings (https://www.britannica.com/technology/artificial-intelligence). In general, AI systems function by consuming enormous volumes of data, analyzing them for correlations and patterns, and then using these patterns to anticipate future states (https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence). Furthermore, learning, reasoning, and self-correction are the three cognitive skills that AI programming focuses on. Data is gathered during the learning process, and algorithms are created to organize the data into useful information and provide guidelines for task completion. The reasoning phase selects an appropriate algorithm, and the self-correction phase fine-tunes those algorithms to produce the most accurate results possible

(https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence).   In addition, machine learning trains algorithms to do tasks by giving them a large number of examples instead of giving algorithms a set of rigidly prescribed procedures. According to Mitchell (1997), a characteristic of this more sophisticated form of AI is that machines learn automatically, relying on their experience.

Grammarly's AI system integrates machine learning with various approaches to natural language processing. Human language can be analyzed and processed at many different levels, ranging from signs and single words to grammatical constructions and sentences, and sometimes even paragraphs or entire texts. Machines learn to comprehend and process human language using natural language processing and conduct complex operations such as machine translation, text analytics, essay grading, and writing advancement (https://www.grammarly.com/blog/how-grammarly-uses-ai/).

The next component in this process is deep learning which represents a subset of machine learning that effectively removes some of the data pre-processing usually associated with machine learning (https://www.ibm.com/cloud/learn/deep-learning). In addition, the algorithms can consume and process non - structured data such as text and images, as well as perform automated feature extraction, reducing the reliance on human experts (https://www.ibm.com/cloud/learn/deep-learning). The information the system receives from humans when they dismiss a suggested proposition helps the system become significantly more intelligent and gives human linguists working with the machine input on how to upgrade the system. The more text the systems processes, the more relevant its suggestions become (https://www.ibm.com/cloud/learn/deep-learning).

Literature Review

Using computer software such as Grammarly to improve students' writing skills in ESP classrooms can be a positive and rewarding experience. In that respect Grammarly software can be a useful tool for university students to improve their writing skills, and it can be used as a complementary tool to help with paraphrasing, summarizing, and synthesizing, and providing electronic feedback on students' writing. Several authors have pointed out the significance of implementing computers in writing and stressed their potential for improving second language learning (Chappelle, 2001; Zhao, 2003; Zhang & Hyland, 2018; O'Neill & Russel, 2019). Anson (2006) emphasizes that automated writing evaluation has the potential to help teachers in correcting students' writing but also questions the ability of computer software to provide useful feedback. Calma, Cotronei-Baird and Chia (2022) examined the usefulness of Grammarly as an educational tool for improving students' written work in higher education using a sample of one hundred group reports. Their results indicate that the depth of feedback provided by this software can be useful and can be incorporated as an instructional tool in higher education to enhance students' writing skills. At the same time, Stevenson and Phakiti (2014), who also analyzed the affordances of computer software in providing feedback and the influence it has on the quality of students' writing, suggest that this feedback is more useful when combined with teacher comments (Stevenson & Phakiti, 2014). Furthermore, Dizon and Gayed (2021) examined the impact of Grammarly on the writing quality of Japanese L2 English students. They explored whether this software had a significant effect on the grammatical accuracy, lexical diversity, writing fluency, or syntactic complexity of writing by L2 students in comparison to writing without

Grammarly assistance. The findings indicated a reduction in grammatical errors and an increase in lexical diversity among students who utilized Grammarly for assistance.

The study by Fitriana and Nurazni (2022) aimed to investigate the effectiveness of Grammarly application in the writing process as perceived by English language students. The authors used qualitative research and collected data through interviews and questionnaires. The findings of the study indicated that students had positive perceptions of using this software to assist them in analyzing their writing. They found Grammarly helpful in identifying and correcting grammar errors in their writing. The students also appreciated the instant feedback provided by Grammarly, which helped them improve their writing skills. Additionally, the study highlighted that Grammarly was seen as a valuable tool for self-directed learning in writing.

In their study, Ghufron and Rosyida (2018) have given a detailed list of the research articles that analyze the use of online grammar checkers such as Grammarly in EFL writing class (Razak, Saeed, & Ahmad, 2013; Naba'h et al., 2009; Barani, 2011; Chappelle, 2004; Daniels & Leslie, 2013; Fageeh, 2011; Qassemzadeh & Soleimani, 2016; as cited in Ghufron & Rosyida, 2018). Looking at the affordances and limitations of the online grammar checkers analyzed in these studies, they point out that all the articles indicated the positive effects of using computer software, especially in higher education (Ghufron & Rosyida, 2018). For example, Qassemzadeh and Soleimani (2016) point out that the use of Grammarly software can help students identify and reduce the number of errors in their writing. Furthermore, Bailey and Rakushin Lee (2020) analyzed the use of Grammarly by comparing error types, error frequencies, and writing complexity for university students in their L2 writing context. They indicated that this computer software was the most appropriate for surface-level errors such as articles, prepositions and verb-noun agreement. Huang, Li and Taylor (2020) also investigated the effectiveness of using Grammarly in EFL writing during a 16-week experimental period at the university in China. The findings indicated a significant improvement in students' writing performance. In addition, the results of the study suggest that applying Grammarly software in writing classes is an effective approach for EFL students in developing their writing skills. Lazic, Thompson, Pritchard, and Tsuji (2020) explored the use of Grammarly as a complementary tool to improve the writing skills of EFL students. Overall, their study provides further evidence that Grammarly is a useful tool for improving the writing skills of EFL students. It can offer immediate feedback, enhance self-directed learning, and improve students' perceptions of writing.

Daniels and Leslie (2013) who analyzed the main aspects of using Grammarly in EFL classrooms conclude that this digital tool could help facilitate the development of students` writing skills but they also emphasize certain limitations of this computer software for students with lower levels of English language proficiency. Speaking of limitations of using Grammarly, Ghufron and Rosyida (2018) indicate that although Grammarly helped the students in their study with vocabulary use, grammar and punctuation, the use of this software was less effective in detecting the students' errors regarding content, organization, and paragraph coherence. In addition, they have emphasized that these indicators have improved significantly when teacher feedback was included (Ghufron & Rosyida, 2018).

Another potential limitation of using computer software for corrective feedback is students` lower level of English proficiency which could ultimately lead to misunderstanding

of the provided feedback and result in overwhelming the students (Dikli, 2010; O'Neill & Russell, 2019).

While several studies looked at the potential benefits of using software-provided feedback by comparing its effectiveness to human-provided feedback (Ghufron & Rosyida, 2018; Dembsey, 2017), the present study has a somewhat different approach. It focuses on the discrepancies between the errors detected by Grammarly and the errors detected by a teacher in correcting ESL students' writing and the suggestions provided for their correction. Given the current stage of AI development, it is clear that a software tool like Grammarly can provide useful grammar support for ESL students but the effectiveness of this support can be better understood if it is compared to human-provided intervention on the same piece of writing.

Methodology

The study uses a descriptive qualitative method. The research corpus consists of 35 short essays submitted by first-year students of the Faculty of Technical Sciences, University of Novi Sad during the 2021/2022 academic year. The essays were randomly selected from a pool of online essays related to different aspects of modern technology and were approximately 200 words long. The selected essays were corrected first by the teacher (the first author of this paper) and then by the Grammarly software with the purpose of comparing errors and suggestions reported by Grammarly and those suggested by the teacher. An attempt was made to make a classification of these differences in order to determine the effectiveness of Grammarly as a writing tool in an ESL class. A number of writing errors related to spelling, punctuation, grammar, vocabulary, sentence structure and text organization as well as elements of style were examined to determine the advantages and limitations of using this digital tool for providing corrective feedback. The study addresses the following research questions:

1. Are the mistakes that the teacher corrected in students' writing the same as those that were subsequently identified by the Grammarly software?
2. What discrepancies can be noticed between teacher-identified mistakes and Grammarly-identified mistakes?
3. What are the limitations of using Grammarly for correcting mistakes in ESL student writing?

Analysis

The first result of our analysis is the finding that the students whose essays were analyzed did not use Grammarly software to correct their essays. All 35 essays included in this study contained errors that could have been omitted if their authors had used Grammarly. This is contrary to our intuitive assumption that some of the students in the group could be familiar with this writing tool since, being engineering students, they like technological innovations and are generally familiar with various online applications and tools. In addition, they were writing their essays online where Grammarly is easily available (and frequently advertised). In spite of this, the presence of simple, surface level errors indicates that Grammarly was not used as a writing aid.

When we inspected the essays we found discrepancies between the corrections suggested by the Grammarly software and the corrections made by the teacher who taught the course. Upon a closer analysis of these differences, we were able to classify them into five groups:

1. Teacher oversight

2. Grammarly suggests unnecessary corrections

3. Grammarly suggests wrong corrections

4. Grammarly fails to identify errors

5. Grammarly identifies errors but fails to suggest the right correction

Needless to say, there were numerous examples where both the teacher and Grammarly identified the same writing errors and made the same corrections but these are not interesting for our analysis as we want to focus on the affordances or limitations of two types of error correction. In the following section, we will discuss and illustrate the five types of divergences.

1**. Teacher oversight** – A group of errors that were identified by Grammarly but were not noticed by the teacher. Typically these include punctuation, spelling mistakes or a missing article. These can be interpreted as an oversight as the teacher was working with a large group of students and was focused on providing quick feedback on students' writing.

2. **Grammarly suggests unnecessary corrections –** This group of discrepancies refers to a situation when a suggestion for correction was provided by Grammarly but not by the teacher. In this case, both authors of this paper reviewed the student's essay in view of the Grammarly suggestion of this type and agreed it was unnecessary.

The suggestions of this type were further analyzed and were found to belong to one of the following groups:

2a. Grammarly suggests replacing the phrase because it "may be wordy", e.g. for the sentence

> *They are able to store pictures, songs, books and documents digitally.* (E2)

from Essay 2 (E2), Grammarly suggests the following change:

> *They can store pictures, songs, books and documents digitally*. (G)

and similarly for the sentence:

> *AI aims to replicate human intelligence and behavior in order to approach problems more naturally and solve them as efficiently as possible.* (E29)

Grammarly suggests

> *AI aims to replicate human intelligence and behavior to approach problems more naturally and solve them as efficiently as possible.* (G)

2b. Grammarly suggests using active instead of passive: e.g. in a sentence

> *However, verbal communication is only effective if it is used to amplify existing strong relationships.* (E6)

whereas the teacher found that passive voice was in fact more appropriate in this sentence.
2c. Grammarly consistently suggests replacing *which* with *that* as in the example:

> *For instance, when you need information <u>which</u> needs to be recorded (phone numbers, addresses, etc.) on your device you will definitely use text messages.* (E27)

The teacher would find that *which* is acceptable in this sentence.

2d. Grammarly suggests that a word is unnecessary, e.g.

> *…in some people's hands can prove to be <u>really</u> dangerous.* (E10)

> *Virtual assistants like Siri, Alexa or Google assistant are able to understand us because they take our audio file that is recording on our phone and they upload it on cloud where the processing into words is <u>actually</u> done.* (E5)

> *It is <u>absolutely</u> absurd how spoiled the modern-day child has become…*(E4)

> *For instance, when you need information which needs to be recorded (phone numbers, addresses, etc.) on your device you will <u>definitely</u> use text messages.* (E27)

As the above examples illustrate, Grammarly suggests that words like *personally, actually, really, absolutely, definitely* be omitted. The teacher would not make the same suggestion in these examples and finds that their use as intensifiers is appropriate in this context.

3. Grammarly suggests wrong corrections – Grammarly indicates an error in a text which is correct and where a teacher would not make any suggestions for change, e.g.

> *Retinal recognition technology captures and analyzes the patterns of thin nerve capillaries located in the background of the eyeball that <u>process</u> the light that enters through the pupil.* (E13)

Grammarly falsely identifies a problem with subject-verb agreement and suggests changing *process* into *processes*.

4. **Grammarly fails to identify an error** – Conversely, there are cases when Grammarly fails to identify an error that a teacher would correct, as in the example:

> *The headsets are offered in various price brackets – from the budget headsets that <u>can be had</u> for as cheap as 300 dollars, to the top of the line headsets costing as much as 1000 dollars.* (E11)

Grammarly recognizes an idiom *to be had,* but does not recognize that its meaning (= to be *tricked or fooled by someone*) does not fit within the context of this sentence. The teacher recognizes this as an inadequate transfer from the student's first language and suggests a correction (e.g. *can be bought, can be obtained*).

Similarly, in the next example, a teacher would correct a wrong choice of the verb:

> *Google assistants help you find whatever you need just by <u>speaking </u>to the devices to find it for you.* (E22)

whereas Grammarly treats this sentence as correct.

In another error-ridden sentence (the teacher-identified mistakes are underlined), Grammarly corrects only a spelling mistake and the use of a capital letter:

> <u>*The man the legend that crack*</u> *the enigma code was <u>non the less</u> <u>then</u> Alan Turing (on his <u>turing's</u> machine our technology is based), by doing that <u>he shorten the war</u>.* (E30)

Implementing Grammarly's suggestions would result in: *The man the legend that crack the enigma code was non the less than Alan Turing (on his Turing's machine our technology is based), by doing that he shorten the war.* (G)

The failure to identify errors is particularly frequent in long, run-on sentences, such as:

During <u>the World war</u> II different <u>armys</u> used different technologies to overpower the enemy, but there was an importance of communicating without the enemy knowing or if knowing then not understanding, that's when germans invented <u>enigma machine,</u> in Latin enigma means puzzle. (E30)

Grammarly-provided corrections are limited to capitalization, articles and punctuation (even without making all the correctness in that domain, i.e. *germans*) without further suggestions regarding the structure/length of the sentence. After implementing the suggestions made by Grammarly the sentence reads:

During <u>World war II,</u> different <u>armies</u> used different technologies to overpower the enemy, but there was an importance of communicating without the enemy knowing or if knowing then not understanding, that's when germans invented <u>the enigma machine,</u> in Latin enigma means puzzle. (G)

In another example, the teacher finds a whole sentence unclear but Grammarly treats it as correct:

To abstain from being foiled by the enemy, these weapons would be intended to be to a great degree hard to just "kill," so people could conceivably lose control of such a circumstance. (E20)

5. Grammarly identifies an error but fails to suggest the right correction – This was the most interesting case in our analysis. Grammarly identified the parts of the text that were incorrect but the suggestions that were made did not address the problem in the right way. For example for the sentence:

<u>Smartphone in an apt</u> and every day is an example of how we use artificial intelligence. (E19)

the suggestion for correction was:

<u>Smartphones</u> in an apt and every day is an example of how we use artificial intelligence.

Similarly for:

Most of our obligations <u>are made off</u> <u>buy</u> this new technology <u>devices</u>, it made our lives simpler. (E21)

Grammarly suggests the following correction:

Most of our obligations are made off <u>buying these</u> new technology devices, <u>which</u> made our lives simpler. (G)

The following example is interesting because it illustrates how the software approaches the correction process:

<u>Hower</u> as with all things there are bad sides to it. (E28)

Grammarly identifies the problem with the first word and suggests the right correction (*Hower* should be *However*) but simultaneously treats it as the subject (personal noun) later in the sentence. So the second correction in the sentence refers to the verb: "*The plural verb **are** does not appear to agree with the singular subject **Hower**. Consider changing the verb form for subject-verb agreement*".

Discussion

Our analysis of the errors in ESL students' writing focused on the comparison of the corrections provided by the Grammarly software and the teacher-made corrections. The analysis showed that although a large number of errors were identified and treated identically by Grammarly and the teacher there were also some discrepancies. These will be discussed here to analyze the affordances and limitations of computer-mediated corrections.

The biggest affordance of using Grammarly software is that the feedback that students receive when using this online writing tool is provided immediately while teacher-provided feedback comes later and at a time when students may not be so actively involved with the particular piece of writing. In fact, a teacher who is aware of the benefits of providing timely response to students' writing may be striving to provide a rapid corrective feedback and thus overlook some of the mistakes related to correct spelling or use of articles as was noticed in our analysis (Group 1 of the differences between mistakes identified by the teacher and those identified by Grammarly).

The benefit of using Grammarly software is most obvious in areas such as spelling, punctuation and grammar. The software identifies and corrects these mistakes consistently whereas a teacher can overlook some of the article omissions or a missing letter (Group 1 of the identified teacher–Grammarly differences). Although our analysis indicates that there were some cases when Grammarly failed to suggest a correction in this domain e.g. *germans* in Essay 30), this seems to be restricted to overly long sentences with complex structure and numerous other mistakes. In other situations, Grammarly can be relied upon to detect errors of this type and suggest adequate corrections. In that respect our analysis seems to confirm the position of Calma et al. (2022) that Grammarly is more effective in identifying 'micro' writing issues (such as spelling, punctuation and grammar) than 'macro' writing issues (idea development, organization, argumentation).

This opinion is also reflected in the research by Ghufron and Rosyida (2018) who find that Grammarly software is more effective in detecting errors related to vocabulary usage, language use and mechanics of writing but is less effective on the indicators related to content and organization. We could relate this to Group 4 of teacher-Grammarly discrepancies identified in our analysis. This group of discrepancies refers to instances where the software fails to detect a problem and suggest any changes in a situation where a teacher would require clarification or reformulation. For example, in Essay 20 in our analysis (in a sentence included in section 2.1 above), Grammarly treats the sentence as correct whereas the teacher thinks that the ideas expressed are totally unclear and the argumentation is incoherent.

The discrepancies between Grammarly-provided suggestions and the corrections made by the teacher also showed the limitations of software-mediated corrections. These limitations may be related to the decisions concerning language use that have been implemented in the Grammarly software. Those identified in our analysis concern the use of voice where active is preferred to passive, the use of relative pronouns where *that* is preferred to *which* or the use of

intensifiers such as *really, definitely, personally*, etc. which is consistently discouraged together with the use of expressions like *in order to* or *for that reason* which the software finds "too wordy". These are found in Group 2 of teacher-Grammarly differences where Grammarly suggests corrections which the teacher finds unnecessary. The explanation for this may be that a teacher correcting a particular essay makes individual decisions about these language issues every time they are encountered. For that reason, she may sometimes find that, for example, in a certain context a passive construction is acceptable or, in fact, preferable to an active one. Similarly, a teacher may conclude that the use of intensifiers to show emphasis is suitable in developing argumentation of a given essay and that a relative pronoun *which* has a place in a particular sentence. Similarly, Grammarly suggestion that an expression may be too wordy may be applied too generally and does not reflect an individual writer's choice given a particular style of a text. As Dembsey (2017) finds in her study on the use of Grammarly in writing centers, the generic suggestions provided by the software may not apply to every student and every piece of writing.

Other discrepancies between Grammarly-provided feedback and teacher-provided feedback (groups, 3, 4, and 5 in our analysis) further illustrate the software's shortcomings. These seem to be related to longer or more complex sentences where the software sometimes has problems identifying the sentence subject and consequently falsely indicates problems with subject-verb agreement (Group 3). Additionally, Grammarly may highlight proper names and technical terms which are not in the software database as mistakes. This may not present a serious issue as these falsely identified errors will be recognized as such by the users.

More serious problems are found with complex sentences which Grammarly cannot process and correct effectively. Run–on sentences, sentences with serious grammar issues, or sentences that are unclear are found in this study to be corrected only for surface issues like punctuation or spelling when Grammarly software was used (Group 4, Essay 30). Sometimes a sentence that is unclear and incomprehensible is treated as completely correct (Group 4, Essay 20). In this case, a teacher would suggest a sentence revision which would include dividing it into shorter sentences and addressing some other issues such as lack of coherence and organization of the paragraph. What this means is that some serious writing issues are left undetected when Grammarly software is used and that problems that need to be addressed are not adequately dealt with. In that sense, our findings relate to those of Ghufron and Rosyida (2018) who found that in their study students who received corrective feedback from the teacher (as opposed to Grammarly software) tended to have better content and organization of their writing.

The underlying problem in situations like these is related to the fact that the software works with patterns and databases and, although it is programmed to recognize a (wide) set of grammar issues, it does not (and cannot) relate these structures to meaning. This is most clearly illustrated by the examples in the last group of teacher/Grammarly discrepancies (Group 5): although the software correctly identifies the problems, the suggested corrections do not improve the student's writing. In fact, the corrections that Grammarly suggests fit into the grammatical pattern of an immediate clause but are still grammatically incorrect within a larger context of a sentence and altogether do not render a meaningful text.

Conclusions

Our analysis of the differences between teacher-made corrections and Grammarly-suggested corrections indicated that the use of software for providing feedback for ESL students has some advantages but also numerous limitations. The main affordance of Grammarly provided feedback is its rapid, consistent and thorough approach which is useful in correcting problems related to the aspects of writing such as spelling and punctuation as well as the use of articles and prepositions. In this respect, the use of Grammarly software can be a valuable support for ESL students.

Another benefit that Grammarly has for students is that it offers the possibility to engage in self-directed learning during the writing process. This is possible since, in addition to suggesting a correction, the software also indicates what kind of mistake has been identified, e.g. article usage, word choice, subject-verb agreement, preposition, etc. In that sense, it can promote students' cognitive engagement and provide support for students who are willing to engage in self–learning: for example, they can consult dictionaries, use grammar books or online resources to clarify certain language issues. The research by Koltovskaia (2020) reveals different levels of students' engagement with Grammarly feedback from the cognitive perspective but showed that the students in her study favored automated feedback. Ghufron and Rosyida (2018) also identify this type of feedback as beneficial as it encourages students to be autonomous and independent learners. In that respect, we feel that the affordances of using Grammarly for providing corrective feedback should be considered in the process of developing ESL students' writing skills.

However, in this small study, Grammarly software is also found to make suggestions for changes that a teacher would find unnecessary, a fact that can be confusing or unproductive for students. The software limitations are most prominent in longer and more complex sentences where grammar issues span across phrases and clauses. Grammarly-provided correction is here inadequate as it treats mainly the surface issues and does not significantly improve students' writing. In these situations, teacher-made corrections are necessary as they are related to understanding a writer's intentions and the intended meaning of a sentence.

Although our study had a different design and focused on the discrepancies between Grammarly-provided feedback and teacher-provided feedback, our conclusion seems to echo the views of Calma, Cotronei-Baird and Chia (2022) who suggest that Grammarly should not be relied upon as the sole source of feedback for students' writing. We too, can conclude that it should be used in conjunction with teacher-provided feedback.

In view of the results of this study, students can be offered advice on how to use Grammarly software to maximize its potential for improving their writing. They can be provided with examples that illustrate both its affordances and limitations, which can help them become more skillful in exploring its capabilities. After a piece of student writing has been corrected in this way and handed in, the absence of some of the micro-level mistakes (Calma, Cotronei-Baird & Chia, 2022) would allow the teacher to focus on the issues that go beyond surface level errors and thus provide the kind of support that can further benefit students' progress.

Since a relatively small corpus was analyzed, further research is necessary for a more detailed assessment of the results of this study to further examine the potential of using Grammarly software in editing the writing of ESP students.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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