



Research Article

Supporting Independent Writers: How Grammarly Shapes Learner Autonomy and Writing Performance in the Ecuadorian Foreign Language Context

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Abstract: This mixed-methods study examines Grammarly's impact on learner autonomy and writing performance among Ecuadorian undergraduate English as a foreign language (EFL) students. The research involved 106 participants from a public Ecuadorian university. Data collection incorporated multiple instruments: a learner autonomy survey, pre-and post-intervention writing assignments, and semi-structured interviews. Quantitative and qualitative analyses revealed two key findings: first, students demonstrated significant improvements in writing performance between pre-and post-intervention tasks; second, Grammarly had a modest but statistically significant positive effect on students' perceived learning autonomy. While existing literature explores technology's role in language learning, research specifically examining Grammarly's dual influence on autonomy and writing development remains limited. This study addresses this gap by providing empirical evidence of how artificial intelligence (AI)-powered writing tools can simultaneously support independent learning and writing skill development in EFL contexts.

Keywords: Grammarly, learner autonomy, Ecuador, undergraduate students, English as a foreign language, EFL writing

1. Introduction

Learner autonomy, a powerful and relevant concept in foreign language learning, empowers students to take control of their learning process. It is about making choices based on their preferences and needs and fostering positive emotions, intrinsic motivation, and self-efficacy (Duchatelet & Donche, 2019; Maican & Cocoradă, 2021). When teachers support learner autonomy, they enhance learners' beliefs about their abilities and the value of learning, influencing their levels of boredom and achievement (Porter et al., 2022). Foreign language teachers who encourage autonomy in their students provide opportunities for active communication, exposure to authentic content, and challenging but scaffolded learning activities, enhancing their self-efficacy and motivation.

The rise of writing assistance tools like Grammarly has sparked debates in the field of language education, primarily due to the potential impact it could have on learner autonomy. While these tools can undoubtedly enhance writing accuracy (Dewi, 2023) and provide valuable feedback (Koltovskaia, 2020), there are concerns that an overreliance on Grammarly's technology might hinder students' ability to develop their writing and critical thinking skills (Raheem et al., 2023). It is crucial to understand the potential dangers of these tools, as excessive use can lead to dependency, severely impairing students' confidence and limiting their opportunities to produce authentic language. Therefore, language educators must exercise caution, using these tools judiciously to ensure students' active

participation in the writing process and maintain a sense of ownership over their work. This responsibility of using Grammarly judiciously empowers educators to be proactive in maintaining the balance between technology and student autonomy (Rapanta et al., 2021).

Writing clearly and accurately is a critical skill that students across all disciplines in higher education must attain. Nonetheless, many learners need help developing strong writing skills, which can hinder their academic performance. Student autonomy is crucial in developing lifelong learning skills and fostering intrinsic motivation (Blaschke, 2021). Grammarly, an AI-powered writing assistant tool, has gained recognition for providing automated feedback and suggestions for grammar, spelling, punctuation, and style in students' writing pieces (Thi & Nikolov, 2021). While the potential benefits of this automated assistant tool for improving writing mechanics have been documented, it also presents a unique challenge to student autonomy. However, the potential benefits of Grammarly in improving writing skills and fostering student autonomy make it a topic that inspires optimism and further exploration.

In Ecuador's higher education system, English as a Foreign Language (EFL) students face significant challenges developing proficient writing skills, particularly in academic contexts. Recent studies in Ecuador have shown that university students struggle with basic writing mechanics, academic discourse, and independent learning strategies (Estrella, 2024). This situation is particularly concerning as writing clearly and accurately is a critical skill that students across all disciplines must attain for academic and professional success. The development of student autonomy, which is notably low among Ecuadorian EFL learners (Soto et al., 2025), is crucial in managing lifelong learning skills and fostering intrinsic motivation (Blaschke, 2021). To address these challenges, many Ecuadorian institutions are exploring technological solutions. One is Grammarly, an AI-powered writing assistant tool that provides automated feedback and suggestions for grammar, spelling, punctuation, and style in students' writing pieces (Thi & Nikolov, 2021). While the potential benefits of this automated assistant tool for improving writing mechanics have been documented globally, its effectiveness and impact on student autonomy in the Ecuadorian EFL context remains understudied. Understanding how Grammarly influences both writing skill development and learner autonomy among Ecuadorian university students presents an important area for investigation.

This study examines how Grammarly, an AI writing tool, supports undergraduate Ecuadorian polytechnic students in enhancing their foreign language writing skills by improving self-correction, boosting learner autonomy, and elevating overall writing performance. Focusing on this specific context sheds light on the potential of AI tools to enhance independent learning in regions with limited resources. The findings aim to guide language educators in integrating Grammarly into teaching practices, help technology developers design tools that better foster autonomy, and inform policymakers about the value of AI in improving writing instruction. By connecting technology with education, this research contributes to understanding how AI can empower students to take charge of their learning in an evolving digital landscape.

2. Literature review

2.1 *Learner autonomy*

Learner autonomy is an extensively researched concept. It refers to learners' ability and willingness to take control and responsibility for their learning process (Little, 2007). Autonomous learners are proactive and self-motivated and can identify their learning needs, set goals, select appropriate learning strategies, monitor their progress, and assess their learning outcomes (Little, 1991).

Learner autonomy can be viewed from a technical, psychological, or political perspective (Benson, 2015). The technical perspective focuses on developing skills and strategies that let students manage the learning process effectively. The psychological perspective emphasizes learners' attitudes, beliefs, and motivations that contribute to their autonomy. The political perspective considers the institutional and sociocultural contexts where learning occurs and how it affects learner autonomy.

According to Nunan (2014), learner autonomy is a continuum concept, and students can develop various degrees of autonomy depending on their characteristics and learning context. Moreover, Benson (2015) claims that learner autonomy is a dynamic process that involves negotiation and adaptation. The author continues and ascertains that autonomy is not a learning situation but a characteristic inherent to learners.

Promoting learner autonomy has been shown to have several benefits, such as increased motivation, better language proficiency, and the development of lifelong learning skills (Little, 2007). Nonetheless, fostering learner autonomy can be challenging since a shift in the teacher-student roles and creating supportive learning environments are required to encourage self-regulation and learner agency (Reinders, 2010).

Learner autonomy can be cultivated by the influence of various factors such as perceived teacher autonomy support (PTAS), self-determined motivation, basic psychological needs (BPN), and relatedness (Ekatushabe et al., 2021). Research has shown that PTAS, self-efficacy, and task value are associated with students' levels of boredom during learning activities, emphasizing the importance of autonomy-supportive behaviors by teachers (Kunst et al., 2019). Also, self-determined motivation and BPN positively predict experience and enjoyment. Furthermore, relatedness is crucial in maintaining learner autonomy (Leyton-Román et al., 2020). Cultivating intrinsic interest and personal development motivation are vital to promoting sustainable foreign language learning autonomy.

Grammarly can enhance learner autonomy by fostering self-regulation, as students may learn to monitor their progress and self-correct. The tool is expected to promote motivation and self-efficacy, addressing psychological dimensions while potentially providing support in diverse contexts.

2.2 Writing assistance tools

Writing Assistance Tools (WATs) are software applications designed to help individuals improve their writing skills while improving their writing pieces. These tools encompass collaborative text editors, concept-mapping programs, proofreading software, and writing cohesion support applications (Salvagno et al., 2023). Also, artificial intelligence (AI) chatbots have emerged as valuable tools for academic writers, assisting them in organizing material, generating drafts, and proofreading content. However, human judgment should not be replaced (Martínez-López et al., 2019). For instance, Wordtune offers suggestions for writing texts in different tones and lengths, helping EFL writer express their ideas effectively in written English (Zhao, 2022). While some WATs are standalone applications, others are integrated into word processors or online writing platforms. WATs aim to enhance the writing experience, improve efficiency, and promote better writing quality.

Writing assistance tools play a significant role in improving the writing skills of foreign language students. According to the existing literature, online feedback modes such as screencast feedback in Google Drive (Bakla, 2020), text editors that can automatically summarize texts (Dang et al., 2022), and automated feedback tools like Grammarly (Thi & Nikolov, 2021), have been effective in enhancing student writing quality. Tools like those help address micro and macro-level writing issues, furnish external perspectives, help with content revision, and integrate better text structuring. Also, using digital scaffolding has shown positive impacts on English literacy, mainly in word analysis, written conventions, and writing strategies (Janghorbani et al., 2019). Integrating these writing tools can benefit non-native speakers in developing their writing skills in a foreign language.

The proliferation of Writing Assistance Tools has changed academic writing for foreign language learners. These digital solutions offer comprehensive support across multiple dimensions of writing, from basic grammar and mechanics to higher-order concerns like content organization and stylistic refinement. Among these tools, Grammarly has emerged as one of the most widely adopted platforms, meriting closer examination of its features and effectiveness in academic contexts.

2.3 Grammarly

According to Fitria (2021), Grammarly is an online AI-powered writing assistant and grammar-checking tool. The literature shows this tool is more effective than traditional teacher feedback in reducing writing errors. Ghufon and Rosyida (2018) researched Indonesia and concluded that the corrective feedback provided by Grammarly was more effective than that provided by the teacher. This writing assistant tool, explains Pratama (2020), helps students identify and correct vocabulary, grammar, spelling, and punctuation issues.

Grammarly gives writers suggestions to refine their writing and develop their language skills autonomously (Huang et al., 2020). Thus, Grammarly fosters a more student-centered learning environment where students are responsible for improving their work (Ghufon & Rosyida, 2018). Furthermore, Grammarly is driven by a networked system that combines artificial intelligence principles, advancements, and methods such as natural language processing, deep

learning, and machine learning (Fitria, 2021).

Several features of Grammarly have been deemed to benefit EFL writing students. According to the literature, Grammarly's advantages include providing easy-to-understand feedback, saving time for students by efficiently checking grammar, offering suggestions to improve writing accuracy, and being a helpful tool for students to correct their writing (Huang et al., 2020). Furthermore, using Grammarly's Tone Detector helps learners compose pragmatic texts (Winans, 2021). Also, higher education students show positive attitudes and high satisfaction levels with the grammar advice obtained from Grammarly compared to traditional methods (Rao et al., 2019). Moreover, learners perceive Grammarly as an effective tool for enhancing their writing quality. EFL students favorably deem Grammarly as an online grammar checker that assists in identifying stylistic errors and improving their writing skills. Ultimately, students acknowledge Grammarly's role in enhancing paraphrasing skills, improving vocabulary, and making error correction more accessible (Dewi, 2023).

Although Grammarly may be a powerful tool for writers, it has limitations. One constraint is its potential for error (Barrot, 2020). It has been reported that Grammarly can struggle with complex sentence structures, plagiarism detection, and stylistic choices (Zinkevich & Ledeneva, 2021). The tool also does not replace human judgment. It first highlights potential issues, leaving the final decision to the user. This can be a disadvantage for people with limited grammar knowledge since they could need help understanding the suggestions effectively (Raheem et al., 2023).

While Grammarly stands out as a powerful AI-powered writing assistant, its effectiveness must be viewed within the context of its limitations. Despite challenges with complex structures and the necessity for user discretion in implementing suggestions, research consistently demonstrates its value in fostering independent writing skills among EFL students. This intersection between automated assistance and learner independence raises questions about how tools like Grammarly influence learner autonomy, a topic that warrants deeper examination through empirical research.

2.4 Previous research on the impact of Grammarly on learner autonomy

After lengthy literature research, the researcher found one document focusing on Grammarly's impact on LA. However, several papers depict the effects of technology on LA in a more general way.

Melvina et al. (2021) conducted focus group research on five English teachers in Indonesia. The researchers concluded that these teachers had a positive attitude toward using technology to promote learner autonomy. Moreover, most teachers have used applications like Quizlet and Grammarly in their classes to promote LA effectively.

In another paper, Khalawi and Halabi (2020) used a quantitative survey to explore the perceptions of 20 teachers and 22 students regarding the relationship between virtual classes and LA. The results suggest that using virtual courses to teach English as a foreign language helps learners foster their LA.

Al-Shehab (2020) investigated 40 female students of English as a foreign language at a Kuwaiti university. Questionnaires and observations were used as data collection tools. According to the researcher, mobile digital assistance can increase learner autonomy.

Challob (2021) investigated the effects of flipped learning on students' English writing performance, autonomy, and motivation in learning English writing. Fifteen third-year students from an Iraqi university were chosen to take part in the investigation. Triangulation of pre-and post-study writing tasks, post-study interviews, diaries, and observation was done. The results showed that this learning environment influences students' motivation, autonomy, and English writing proficiency.

Conversely, Dizon and Gold (2023) explored Grammarly's effects on 58 Japanese students' foreign language anxiety and learner autonomy. The investigators used pre-and post-surveys and written reflective reports as data collection tools. Results suggest that Grammarly positively affected foreign language anxiety and learner autonomy.

This study was designed to fill this gap in the literature by obtaining data that will provide insight into Grammarly's impact on foreign language undergraduate students who have to do writing assignments during their coursework. To fulfill this objective, the researcher posed the following research questions:

RQ1: To what extent does Grammarly support Ecuadorian undergraduate students in independently improving their writing skills?

RQ2: How do Ecuadorian undergraduate students perceive Grammarly about developing their autonomy in writing?

RQ3: How significant is the impact of Grammarly on Ecuadorian undergraduate students' learner autonomy?

3. Methods

This study employed an explanatory sequential mixed-methods design to investigate Grammarly’s effect on learner autonomy and writing performance. The research consisted of two phases: a quantitative phase involving surveys and writing assessments, followed by a qualitative phase using semi-structured interviews to explain and elaborate on the quantitative findings.

Data collection incorporated three primary instruments: (1) pre-and post-intervention surveys to measure learner autonomy, (2) pre-and post-intervention writing assignments to assess writing performance, and (3) semi-structured interviews to gather in-depth insights into participants’ experiences.

3.1 Participants

The study was conducted at a public Ecuadorian university with intermediate-level English as Foreign Language (EFL) students. Using convenience sampling, 106 students from an initial pool of 135 consented to participate in the study. The sample mainly comprised students from three faculties: Electricity and Computer Engineering (29.1%), Social Sciences and Humanities (25.5%), and Mechanical Engineering and Production Sciences (14%). The participants consisted of 67.4% men and 32.6% women, with the majority (55.8%) aged 18-21, followed by 33.4% aged 22-29, and 4.8% aged 30 years or older. Most participants (64%) had attended public high schools, while 36% came from private institutions. The majority (39.6%) had studied English for 7-10 years in various educational settings. Two inclusion criteria were established: (1) enrollment in intermediate-level courses as defined by the Common European Framework of Reference (CEFR), and (2) no prior experience with Grammarly (See Table 1).

Table 1. Study participants’ demographics

Demographics	Categories	N = 106	%
Gender	Male	71	67.4
	Female	35	32.6
Age	18-21	59	55.8
	22-25	35	32.5
	26-29	7	6.9
	30+	5	4.8
High school	Private	38	36.0
	Public	68	64.0
Faculty	Electricity and computer engineering	31	29.1
	Social sciences and humanities	27	25.5
	Mechanical engineering	17	16.3
	Others	31	29.1
Time studying English	1-3 years	36	33.7
	4-6 years	28	26.7
	7-10 years	42	39.6

3.2 Data collection tools

This study used three data collection tools: a survey, pre-and post-intervention writing assignments, and semi-structured interviews.

The survey was adapted from Yeung (2016) to measure students' readiness for autonomous learning of English writing. The researcher's original questionnaire contained 66 five-point Likert-scale questions comprising three dimensions: 1) students' preparedness for autonomous learning, 2) students' approach to writing, and 3) students' learning strategies. According to Yeung (2016), the questionnaire was assessed for internal consistency with a Cronbach's alpha of 0.6 and above for each of the three dimensions. This researcher reduced the number of items after running a pilot study. Internal consistency of the instrument was measured after the pilot, which yielded an alpha of 0.812, considered a good coefficient (Stadler et al., 2021). A factor analysis was run on the data, and only those items with an eigenvalue higher than 0.500 were selected for the study. The survey was administered before and after the intervention to see the changes in learner autonomy.

The researcher also obtained two writing samples from the participants, one before the Grammarly intervention started and a second after it had finished. The participants had to write a five-paragraph essay based on a question from the International English Language Testing System (IELTS) official website. This was done to evidence students' writing skill improvement after the intervention.

Finally, semi-structured interviews were used to obtain participants' opinions and enrich the results obtained from the quantitative section of the study. The interview protocol included eight questions designed by the researcher. These questions were also piloted to assess their clarity and appropriateness. A sample of six participants representing the population in terms of age, background, and English level were recruited. They were instructed to think aloud and provide feedback on the questionnaire's clarity, language appropriateness, relevance of the items, and overall experience. The protocol was revised with their feedback, questions were rephrased and refined, and timing issues were addressed.

3.3 Procedures

Data collection took place in three phases. In phase one, a pre-intervention writing assignment was administered during week two of the semester. The teacher-researcher gave participants a prompt from the IELTS official webpage to write a five-paragraph persuasive essay within one hour. Their writing was blind-marked to reduce biases and ensure fair grading that accurately reflects the quality of their work. Blind markers used a pre-established rubric that evaluated grammar, mechanics, clarity, and organization. Participants completed the Learner Autonomy in Writing Scale (Yeung, 2016) during week three of the semester. The survey employed a 39-item, 5-point Likert scale to measure students' preparedness for autonomous learning, learners' approach to writing, and their use of learning strategies in the writing process.

Phase two involved a four-week intervention period during which participants were introduced to Grammarly and received a brief training session on its functionalities. They were encouraged to use Grammarly throughout the intervention time on four essays they had to write in addition to the pre-and post-writing assignments.

Phase three, which took place in weeks eight and nine of the semester, involved completing the post-intervention writing assignment that mirrored the pre-intervention prompt. The blind rater (Meadows & Billington, 2005) used the same rubric for both assignments without knowing whether they graded the pre-or post-writing samples. After that, the Learner Autonomy in Writing survey was re-administered to capture potential shifts in learners' autonomy after using Grammarly. Finally, the researcher conducted semi-structured interviews to gain deeper insights into participants' experiences with Grammarly. The protocol explored perceived changes in writing confidence, reliance on Grammarly suggestions, and overall impact on learner autonomy. All interviews were recorded, transcribed verbatim, and anonymized for data analysis.

3.4 Ethical considerations

This research adheres to the ethical guidelines set forth by the university's ethical board. The researcher prioritizes the well-being and privacy of all participants involved in the study.

Before participating in this study, all students received a written informed consent form detailing the study's purpose, procedures, potential risks, benefits, and data collection methods. The form clearly explained how Grammarly would be integrated into the research and how student writing samples would be used. Students were also told they would have ample opportunity to ask questions and would be included in the survey once the informed consent was returned duly signed.

Additionally, students were informed that the researcher would be committed to protecting the confidentiality of all participant information. All data would be anonymized and identified through pseudonyms in the study's published report.

Finally, students were told that all data obtained from the survey and interviews would be securely stored in a password-protected electronic database. Qualitative data would be de-identified and stored electronically in a password-protected electronic database. Students were also assured that data would be retained for two years after the study's completion, which would be securely destroyed.

4. Data analysis

The researcher used the SPSS statistical package to analyze the quantitative data from the writing assignments and surveys using paired-sample t-tests to assess statistically significant changes in writing performance and learner autonomy between pre-and post-intervention. Qualitative data from the interviews were analyzed thematically to identify recurring patterns and experiences related to Grammarly use and its influence on student autonomy. The final stage involved triangulation, where quantitative and qualitative findings were compared to comprehensively understand Grammarly's impact on student writing and learner autonomy.

5. Results

5.1 Quantitative results

The data obtained from the pre-and post-surveys were analyzed using a paired T-test. The test results suggest a significant slight difference between the pre-intervention ($M = 3.361/SD = 0.741$) and the post-intervention ($M = 3.949/SD = 1.134$), $t(38) = 2.8$, $p = 0.009$. The post-intervention average differs from the pre-intervention average. In other words, the sample difference between the averages of post-intervention and pre-intervention is big enough to be statistically significant. The observed effect size d is small (0.440), indicating that the difference between the average differences and the expected average is minimal. Table 2 contains the figures from the analysis.

Table 2. Results from pre-and post-intervention surveys

	Pre-intervention survey		Post-intervention survey	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Learner autonomy	3.361	0.741	3.949	1.134

Meanwhile, Table 3 shows the results of the T-test for the writing assignments indicated a significantly large difference between the pre-intervention writing assignment ($M = 6.216/SD = 1.248$) and the post-intervention writing assignment ($M = 7.690/SD = 1.186$). The researcher used $df = 38$ for this test with a two-tailed distribution. The resulting p -value is 5.329×10^{-15} , indicating a minuscule probability of rejecting a correct H_0 (null hypothesis). This means the observed result is highly unlikely under the null hypothesis. The calculations demonstrated that learners could improve their writing proficiency after the intervention. The researcher used the Tukey Fence method to detect outliers, which resulted in $k = 1.5$, which means the data does not contain outliers. Also, the Shapiro-Wilk Test was run on the data to check the test's normal distribution at ($\alpha = 0.05$). The test is considered robust.

Table 3. Results from pre-and post-intervention writing assignments

	Pre-intervention writing		Post-intervention writing	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Writing assignments	6.216	1.248	7.690	1.186

5.2 Qualitative results

The results from the semi-structured interviews shed light on how participants felt about using Grammarly during the intervention period. During the analysis stage, three themes were identified: general attitudes about Grammarly, perceived benefits of using Grammarly, and drawbacks Grammarly presents.

5.2.1 Attitudes about Grammarly

Three questions from the protocol helped identify students' attitudes toward Grammarly.

Question two asked learners if they felt using Grammarly was worthwhile. Participant Six said, "It definitely was. I mean, at the beginning, I was lost because there were things I did not understand from the feedback. However, I learned a few things about grammar and sentence structure. So, now I can make my sentences better and know how to write more interesting paragraphs". Participant One added, "I must be frank; I do not like writing, but using Grammarly was good for me. The tool identified my mistakes in writing and told me how to improve. I still do not like to do writing assignments, but I think it is much easier now".

The fourth question inquired if participants liked using Grammarly to revise their essays. Participant Two reflected on it, "You know, I usually depend on my classmates to look at my essay and give me their comments. But when you told us about Grammarly, it was great. I pasted my work, and it gave results on things I misspelled, and I hadn't realized it. It also flagged some sentences that I rephrased and sounded better". In the same vein, Participant Three said, "I really liked using Grammarly. My favorite part is that it explained why each suggestion was helpful. You know, it didn't just say change it! I learned from it. When I wrote the fourth essay, I felt more confident about what I wrote". Participant Four ascertained, "I'm not a bad writer, but I don't like essays. There is a lot of pressure, like the time we have to write them and how perfect the grammar or clarity has to be, and I'm not one to revise every little thing I write. But I like using Grammarly because it is like having my personal writing coach on my computer".

Through question seven, the researcher investigated participants' satisfaction with using Grammarly. Participant Five said, "Grammarly saved my life. I mean, I am a decent writer, but I worry about making silly mistakes. Thanks to Grammarly, I could find all my typos and understand where my sentences were not, let's say, difficult to understand. It also helped my writing because it made suggestions to improve the vocabulary I normally use. Now I feel confident when I hand in my essays". Participant One confided, "I have always struggled with grammar, and as a result, essays are a nightmare to me. However, since you introduced us to Grammarly, I feel like I can write better. It explained the grammar rules so easily that I could understand them better, and it helped me identify and correct my mistakes".

5.2.2 Perceived benefits of using Grammarly

The researcher used questions 3, 5, and 6 of the semi-structured interview protocol to explore the perceived benefits of using Grammarly to revise essay writing tasks. The first question inquired about their perceived improvement in their writing skills. On this matter, Participant Four said, "Yes, Grammarly has improved the way I write in English. For example, it helped me notice punctuation errors I was bound to make, especially with commas. I used Grammarly's suggestions to understand the proper use of commas. It also helped me expand my vocabulary by offering synonyms for words I often use". Meanwhile, Participant Two explained, "Grammarly really helped me improve my writing. One area where I see I have gotten better is in my sentence structure. I write very long sentences, which you mentioned, but Grammarly helped me divide them into more concise statements".

The second question asked about the effectiveness of Grammarly's feedback. Participant Six ascertained,

“Grammarly’s feedback helped to improve my essays. One way it helped was to improve the flow of my writing. For example, suggesting transitional phrases between paragraphs made all flow into each other, which makes the argument unified and easily followed. In the third essay, Grammarly suggested adding connecting and contrasting phrases like “in contrast” and “similarly” to point out the relationships between the points I was making”. In the same vein, Participant One said, “I found Grammarly’s feedback very useful. It helped me to identify little grammatical errors I often overlooked. For example, it pointed out that I was using singular verbs when I should have used plural verbs, which I didn’t see when I revised my essay. This helped me hand in a more professional piece of work”. Participant Five said, “One valuable aspect was Grammarly’s style suggestions. It often highlighted areas where I was being repetitive or using weak language, prompting me to rephrase sentences for greater impact. This was particularly helpful because I needed to express my thoughts using clear and persuasive language. The feedback encouraged me to be more concise and assertive in presenting my ideas, ultimately strengthening my arguments”.

5.2.3 Drawbacks Grammarly presents

Participants described several issues as the downside of using Grammarly during the semi-structured interviews. On this issue, Participant Three said, “I think one of the main disadvantages of Grammarly is that I sometimes do not fully understand the feedback it provides, which usually makes me feel confused and might, sometimes, lead me to frustration. Also, there were times when the internet connection was unstable or slow, which made it difficult to utilize Grammarly’s features fully, and that made me feel very anxious because I could not finish doing my task quickly”. Participant Two explained, “A disadvantage I see is that Grammarly can be quite expensive, especially if you want to access the premium features. I mean, I don’t have enough money to pay a hundred or more dollars to use Grammarly. I’d love to be able to do it, but there are a lot more important things at home to buy”. Also, Participant Six ascertained, “I agree that Grammarly’s limitations are significant. For instance, it requires high-speed internet connectivity to function optimally. I don’t have the Internet at home, so to do the assignments, I had to go to a cybercafe and pay to use the Wi-Fi connection there”. Meanwhile, Participant One expressed, “I think that Grammarly’s feedback can sometimes be too general, and sometimes it doesn’t refer to the specific issues in my writing”.

6. Discussion

This discussion is addressed by answering the proposed research questions: the first one aimed to identify students’ improvements in using Grammarly during the intervention period. The answer to this question lies in the results of the pre-and post-intervention writing assignments. The difference between the two writing tasks resulted in a significant difference, indicating that students’ performance was positively influenced by their use of Grammarly. These quantitative results were backed by students’ responses to the semi-structured interviews. Participant One said he could see the changes in his writing because he was not making the same writing mistakes in the use of prepositions, which for him was a very repetitive issue. He also explained that thanks to the Grammarly intervention, he has a better grasp of the basic principles for writing essays, improving his grade from the pre-assignment to the post-intervention essay task they wrote. Several researchers have also reported this finding (Huang et al., 2020; Fitria, 2021; Thi & Nikolov, 2021; Zinkevich & Ledeneva, 2021).

The second research question was how participants felt about using Grammarly to revise their essay assignments before handing them in. This query was answered during the semi-structured interviews. One of the questions asked participants if using Grammarly was worth their while. The answers, although varied, positively explained that the tool’s feedback positively influenced their writing as it let them know their mistakes, briefly explained why the word choice was incorrect, for example, and gave them suggestions for improvement. Participant Five said she looked forward to the revision period because she hates making mistakes. She must also know where her mistakes are and how to correct them. The literature also has several accounts of studies reporting the usefulness of Grammarly’s feedback (O’Neill & Russell, 2019; Koltovskaia, 2020; Thi & Nikolov, 2021; Tambunan et al., 2022). Another question required them to assert the enjoyment level they experienced while using Grammarly. Participant Five explained that she enjoyed using Grammarly because she is a perfectionist. Grammarly allowed her to understand the mistakes she was making by highlighting her mistakes in the text, giving her a short explanation of the error, and supplying potential corrections

for them. That way, she continued, she could learn from her mistakes and tried not to make them again. With time, Participant Five said, she could see how she was making fewer mistakes in her essays. This account has been produced in other researchers' investigations (Khoshnevisan, 2019; Bailey & Lee, 2020; Ginting & Fithriani, 2022; Wardatin et al., 2022).

The last research question aimed to determine how Grammarly impacted students' learner autonomy. The answer to this question is based on the survey questionnaire and the semi-structured interviews. The results obtained from the T-test for the pre-and post-intervention questionnaire suggested that using Grammarly to revise students' essay tasks had a statistically significant, yet modest, influence on their perceived autonomy in learning. Although the observed effect size was small, indicating a relatively modest magnitude of the difference, the finding is still noteworthy. The observed small effect size may be attributed to the relatively short duration of the intervention (four weeks), which may not have allowed sufficient time for students to fully integrate Grammarly into their learning processes. Additionally, most students had no prior familiarity with Grammarly, meaning they needed to learn and adapt to the tool during the intervention period, which could have limited its overall impact. Nonetheless, this result aligns with the literature on the potential benefits of technological tools in fostering learner autonomy (Khalawi & Halabi, 2020; Challob, 2021; Melvina et al., 2021; Dizon & Gold, 2023).

Grammarly may have empowered participants to take a more active role in improving their writing skills. The tool's immediate access to language-related support could have encouraged learners to become more self-directed in their learning process, thus improving their autonomy. However, the small effect size observed in this study suggests that the impact of Grammarly on learner autonomy may not be as pronounced as some previous research has indicated. This could be due to various factors, such as implementing Grammarly within the educational context, the participants' characteristics, or the intervention's duration.

7. Conclusions

This study investigated the impact of Grammarly on learner autonomy among Ecuadorian polytechnic undergraduate students. Three key questions were proposed: 1) How much does Grammarly help Ecuadorian undergraduate polytechnic students improve their writing skills? 2) What are Ecuadorian undergraduate polytechnic students' perceptions of Grammarly? 3) How significant is the impact of Grammarly on Ecuadorian undergraduate polytechnic students' learner autonomy?

The results highlight the significant role of Grammarly in enhancing both writing skills and learner autonomy. Firstly, the quantitative and qualitative data analysis showed a significant improvement in students' writing performance from pre-intervention to post-intervention tasks. Participants reported that Grammarly's feedback was especially helpful in correcting mistakes related to prepositions and essay structure. Secondly, interview findings revealed that students viewed the tool positively, with many appreciating its feedback and its role in improving their learning experience. They found using Grammarly enjoyable, as it helped them better understand and improve their writing.

The most notable finding was Grammarly's impact on learner autonomy. The analysis of pre-and post-intervention survey data indicated that Grammarly had a statistically significant, though modest, positive effect on students' perceived autonomy in their learning process. While the effect size was small, the results are consistent with existing literature on the potential benefits of technological tools for fostering learner autonomy. Grammarly may have encouraged students to take a more active, self-directed role in monitoring and improving their writing skills, leading to increased autonomy.

The findings of this study have important implications. From a social perspective, they suggest that Grammarly can positively impact students' writing skills and learner autonomy. The immediate, detailed feedback empowered students to identify and correct mistakes, promoting self-directed learning. Therefore, incorporating Grammarly into the curriculum could help address challenges in developing English writing proficiency. The positive perceptions of the tool, particularly its feedback and contribution to the learning experience, suggest its effective integration into English language programs at the tertiary level. Furthermore, the modest but statistically significant impact on learner autonomy underscores Grammarly's potential to encourage a more proactive learning role for students, which may have broader implications for educational practices in Ecuador. This study contributes to the growing body of research on the role

of technology-enhanced language learning tools in supporting writing skills and learner autonomy, offering empirical evidence from Ecuadorian polytechnic students that can inform theoretical models and frameworks in technology-mediated language learning and autonomy.

Nonetheless, this research also has limitations. First, while the study included many participants from different faculties, it might need to be more significant to generalize findings to all Ecuadorian students. Moreover, the study was limited to a single public polytechnic university in the country's coastal region, which may not represent the diversity of educational institutions. Second, while the six-week intervention provided valuable insights, more is needed to assess long-term impacts on writing skills and learner autonomy. Third, while a significant positive effect on learner autonomy was identified, the effect size was small, suggesting that other factors may also play essential roles in developing learner autonomy. Thus, the impact of Grammarly alone might be limited.

Future research on using Grammarly in education could take some promising avenues. A longitudinal study could provide insights into the long-term effects of Grammarly on students' autonomy. Also, comparative research could be carried out to determine the tool's relative effectiveness compared to other writing assistance platforms or traditional teaching methods. Finally, employing more in-depth qualitative approaches, such as classroom observations or focus groups, could provide a richer understanding of how students interact with the tool and the specific mechanisms through which it impacts their writing autonomy.

Conflict of interest

The author declares that no competing financial interests or personal relationships could have appeared to influence the work reported in this paper.

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