REFINING WRITING: GRAMMARLY AS AN AUTOMATED CORRECTIVE FEEDBACK TOOL FOR PAKISTANI TERTIARY-LEVEL ESL LEARNERS

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ABSTRACT

The increasing integration of artificial intelligence (AI) in education has opened new avenues for assisting English as a Second Language (ESL) students, particularly in situations where learners need regular feedback but the teacher has a large class size, a short time, and a heavy workload in terms of assessment. Students increasingly rely on computer-based writing assistance tools, such as Grammarly, to detect grammar, punctuation, spelling and stylistic errors while writing. But the benefit and effectiveness of such tools in Pakistan's higher education ESL classrooms needs empirical support. This pilot mixed-method research explores the use of Grammarly in the writing accuracy of Pakistani tertiary-level ESL learners, as well as students' feedback about its advantages and drawbacks. A total of 30 students were involved in the study, and were assigned to experimental and control groups -15 students each. Both groups participated in a six-week intervention, during which the experimental group used Grammarly to complete six writing tasks, while the control group completed similar writing tasks without Grammarly feedback. We compared errors in pre- and post-test writing samples for grammar, punctuation and spelling. The experimental group was also interviewed in semi-structured interviews to investigate their use of Grammarly. Descriptive results indicated that the experimental group made fewer total errors reduced from 25 to 12 for a 52.0% decrease, whereas the control group made only a slight decrease from 23 to 22 errors 4.3%. The most significant decreases in the experimental group were in punctuation and grammar errors. The qualitative results indicated that learners appreciated that Grammarly was easy to use, provided instant feedback and drew attention to common errors. But learners also indicated that Grammarly suggestions were too simplistic for advanced sentences, academic writing, coherence and argumentation. The study suggests that Grammarly can be employed as an additional feedback tool for improving surface-level writing accuracy for Pakistani ESL learners, but not as a substitute to teacher feedback. A blended approach to feedback using automated, teacher, peer and reflective feedback is suggested.

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1. INTRODUCTION

Academic writing in English language is a significant requirement for Pakistani higher education students(Rehman, Khan, & Waheed, 2023). English is a key medium of instruction, language for assessment, and a stepping-stone for career opportunities in higher education(Khan & Jayaraj, 2025). ESL learners are often required to write academic assignments, reports, and reflective exercises, summaries of research, presentations, and examination responses in English. However, many students enter higher education with low confidence and variable mastery of grammar, punctuation, spelling, sentence construction, vocabulary, cohesion and academic language(Mustafa, Arbab, & El Sayed, 2022). For many ESL learners, writing in English can be linguistically, academically and psychologically difficult(Soomro & Abbasi, 2025).

The challenges of writing in English are especially important in multilingual societies like Pakistan where learners' use of Urdu, local languages and English varies across different spheres of activity(Saeed, Atique, & Kaloi, 2025). Often students learn English at school but have limited opportunities for meaningful use outside the classroom(Parker, 2023). As a result, their English might display interference from first or dominant languages, fossilised linguistic forms, lack of academic vocabulary, and punctuation irregularities(Marmeto, Masibay, & Nazareth, 2026). Such problems can impact on the clarity, correctness and acceptability of their academic writing.

Feedback is critical to improving writing. Students need to be aware of errors they make, why they make those errors, and how to avoid them(Narciss & Alemdag, 2025). This feedback is typically given by teachers, in written form, symbols, verbally or in class discussion. Unfortunately, there are often constraints on what teacher feedback can provide, including time, workload and institutional demands(Alharbi, 2025). In some tertiary classrooms, teachers may not be able to offer in-depth individual feedback on all drafts. Students can also receive delayed feedback, when they can no longer revise. These issues lead to a need for other forms of feedback to support the writing process(Chen & Gong, 2025).

AI writing tools have become more prominent in language learning and writing in recent years. Grammarly is a popular computer-based writing tool. It offers suggestions on grammar, punctuation, spelling, clarity, conciseness, delivery, tone and style(Zhai, 2025). For English-as-second-language (ESL) students, Grammarly could potentially serve as a support tool that highlights errors and makes suggestions while the writer is composing or

editing(Miranty, Widiati, Cahyono, & Sharif, 2025). Unlike delayed feedback, which may come after a student has submitted their work, Grammarly offers immediate feedback for students to act on. This may foster independence, self-correcting and revision skills(Zhai, 2025). But there are concerns about using Grammarly in education. Digital writing tools may assist learners to correct their grammar, but may struggle to address broader issues in writing such as argument, organization, coherence, audience, academic voice and rhetorical fit(Bahari, 2025). There is also a potential for learners to unthinkingly accept automatic suggestions, which could result in a dependency rather than a true linguistic learning(Elzerman, 2025). Moreover, tools such as Grammarly are heavily influenced by conventions of standardised English and may not always account for needs of multilingual writing, regional rhetorical traditions, and cultural-specific academic conventions(Kubota, 2022).

In Pakistan, the use of AI writing tools is on the rise in the ESL context(Saleem, Saleem, & Aslam, 2025), but there is a need to explore their use in classrooms. While students are informally using Grammarly, there is a need to investigate its effectiveness in improving writing and its perceived value to learners. This study fills this gap by exploring the use of Grammarly in assisting with error correction and learners' perceptions for Pakistani tertiary-level ESL writers. This study is a pilot mixed-method study. It does not claim to be definitive for all Pakistani learners. Instead, it aims to provide initial classroom-based evidence of how Grammarly might enhance writing accuracy, and how students perceive automated feedback. The study is focused on grammar, punctuation and spelling errors because these are very common in students' writing, and Grammarly is designed to detect and correct such errors.

1.1 Research Objectives

The study had the following aims:

1. To explore the initial trends of grammatical, punctuation and spelling errors made in the writing by ESL learners before and after using Grammarly in Pakistani tertiary institutions.
2. To explore Pakistani tertiary ESL students' views of Grammarly as a source of automated feedback on writing.
3. To understand the advantages and disadvantages of Grammarly feedback in ESL writing.
4. To reflect on the potential for Grammarly to be used alongside teacher feedback in writing instruction.

1.2 Research Questions

The research questions were:

Q1. Which initial changes are noticed in learners' grammar, punctuation and spelling mistakes following Grammarly use?

Q2. What is the attitude of tertiary ESL students towards the use of Grammarly feedback in their writing?

Q3. What are the shortcomings of *Grammarly* feedback from the learners' perspective?

Q4.How can Grammarly be used in the ESL writing classroom while maintaining the role of teacher feedback?

The study is of significance because it presents pilot level evidence from the Pakistani tertiary ESL writing classrooms where students are frequently in need of longer assistance in writing but teachers are not always able to offer such support on an individual basis. The study offers insights into the preliminary error patterns observed and the students' perception to help the discussion on AI-assisted writing tools, automated corrective feedback, and computer-supported ESL writing instruction continue. The results of its findings can also be helpful in the design of larger scale study regarding Grammarly and other similar tools in the context of higher education in Pakistan.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 ESL Learners' Writing Difficulties

Writing is one of the most challenging skills in second language acquisition due to its demands for linguistic correctness, vocabulary, sentence formation, organisation, coherence and audience consideration(Ramzan, Mushtaq, & Ashraf, 2023). While it is a more controlled skill than speaking, it requires more careful attention to correctness and formality. Common problems that ESL students face include agreement, tense, articles, prepositions, punctuation, spelling, sentence structure and paragraph structure(Nazar & Nordin, 2024). These errors can impact meaning, clarity and academic authority. At the tertiary level, writing is more complex as students need to move from sentence writing to argumentative writing, analysis, synthesis and genre-specific writing(Nazar & Nordin, 2024). Students need to write accurately, but also effectively and convincingly(Luo, Hu, & Zhong, 2025). This shift can be challenging for students who have not had much academic writing instruction in the early part of their education.

In Pakistan, poor English writing skills are influenced by a number of factors. These include disparities in access to English teaching, differences between

public and private education, lack of academic English writing outside the classroom, large class sizes, an assessment-focused approach, and limited opportunities for constructive feedback on drafts(Poole & Li, 2025). Students know the grammar rules but find it difficult to apply them in their writing(Anh, Yen, Tho, & Nhut, 2022). Some may be able to convey ideas but struggle with accuracy and formality(Bezbaruah, 2025). This makes a practical case for tools and approaches that support students to notice, understand and resolve their writing errors.

2.2 Corrective Feedback and Writing Development

Error correction is an important part of second language writing classrooms. It assists students to recognize the mismatch between their language and the target form. It may be direct, supplying the target form, or indirect, which identifies an error but does not supply the correct form. It can be metalinguistic, in the sense of providing explanations of why something is wrong(Supiani et al., 2025). Good feedback prompts learners to edit, reflect and gain more linguistic control. Teacher feedback is extremely useful as it can address meaning, context, intent, argument and the learner. But teacher feedback is time consuming(Buckingham Shum, Lim, Boud, Bearman, & Dawson, 2023). ESL teachers may priorities feedback on some errors or offer general feedback rather than specific correction in large classrooms(Almanea, 2025). Students may also struggle to understand teacher feedback if it is short or uses correction symbols they don't recognize(Javaid, Ijaz, Latif, & Azam, 2024). So alternative sources of feedback can help students engage in revision(Bouwer & Dirkx, 2023).

Technology can provide a solution. They can offer real-time feedback on learner writing, allowing for pre-final drafts to be revised(Uysal, 2025). This may raise learners' awareness of common mistakes, and promote self-regulation. But automated feedback needs to be assessed with caution as suggestions are not always accurate, context-sensitive or pedagogically helpful(Yildiz Durak & Onan, 2025). The effectiveness of these tools depends on the tool itself and its use by learners and teachers.

2.3 Automated Writing Evaluation and Grammarly

Automated Writing Evaluation (AWE) is the name given to computer systems that evaluate or give feedback about written work. Such systems can detect grammar problems, spelling problems, punctuation problems, word choices, readability, and writing style. AWE systems may also give scoring or evaluative feedback(Huawei & Aryadoust, 2023). One such tool is Grammarly, an AI-powered writing tool that provides real-time feedback. Grammarly is

particularly good at basic editing. It identifies spelling errors, punctuation errors, subject-verb agreement errors, article errors, word choice errors and some errors of clarity at sentence level(Fitria, 2022). For second language learners, these qualities might be helpful because they highlight problems and allow users to make instant fixes. They can see their version and Grammarly's version and make changes. But Grammarly has limitations. It may not always appreciate the meaning, academic milieu, disciplinary genre or rhetorical intent of the writer(AMINA, 2024).It may suggest unnecessary, inappropriate or limiting changes. It may not recognize variation in English, preferring standard forms(Giray, 2024). It may also lead students to priorities correctness over content, argument and creativity.

So Grammarly should not be considered a teacher of writing. It should be seen as more of an aid to editing and proofreading, particularly at the level of the sentence. It can be used more effectively in education when learners are explicitly taught how to use it and when teachers set tasks that encourage learners to reflect on the feedback(Thi & Nikolov, 2022).

2.4 Grammarly in ESL and EFL

Studies with Grammarly and other AWE tools indicate learners like receiving immediate feedback. ESL students find automated feedback quick, convenient and anonymous. They may be less embarrassed to receive feedback from a tool than from a person. This may help alleviate fears and promote a willingness to experiment(Azizi & Farid Khafaga, 2023). Beginner learners may find Grammarly useful as it points out errors they may not otherwise recognize. Mid-proficiency learners may use it to edit drafts. But advanced learners may find some of the suggestions too simplistic or inadequate(Murtisari, Januardi, Bonar, & Kurniawan, 2025). When writing for university, students need help with paragraph structure, argumentation, integration of source material, coherence, cohesion, and academic writing conventions. These are areas where teacher feedback is still needed.

For ESL students, the quality of Grammarly output also depends on the user. Some learners may blindly accept all suggestions(Murtisari et al., 2025), but others may critically evaluate each suggestion. The latter approach is preferred because it fosters metalinguistic learning. Students should be encouraged to think: What is the error? Why is the suggestion made? Does the suggestion retain my meaning? Is the suggested form appropriate for academic writing? This reflective application can make automated feedback beneficial(Liu et al., 2023)

2.5 Pakistani ESL Context

Pakistan is a challenging language learning context. English is highly valued academically, professionally and socially, but not all students have equal access to quality English language learning. At university level, students may need to study in English despite poor preparation for writing in their early schooling. Thus, many higher education students may struggle to write accurate and effective English texts(Umar, Ajmal, & Ajmal, 2023). In Pakistan's universities and colleges, writing may be taught in crowded classrooms, with curriculum constraints and a focus on testing(Kanwal, Khaliq, & Jamil, 2022). There may be limited time to provide several rounds of feedback on drafts(Alsahil, Abdel Latif, & Alsuhaibani, 2026). Students may also not be confident about editing and revising their work(Alrashidi et al., 2023). In these circumstances, Grammarly could potentially support students to identify errors prior to teacher feedback.

But there are contextual issues. Grammarly has a foundation in standard English and may not consider rhetorical strategies used by multilingual Pakistani learners(Alsahil et al., 2026). It may not always recognize errors and stylistic choices. Students with weaker linguistic knowledge may receive inappropriate feedback(Li, Zhou, & Chiu, 2025). So, using Grammarly in ESL classrooms in Pakistan should be complemented by teacher feedback and reflection.

2.6 Theoretical Framework

This research is informed by three prominent approaches to language learning: Vygotsky's Zone of Proximal Development (ZPD), the Input Hypothesis (Krashen, 1982), and the Output Hypothesis (Swain, 1985, 2005). These theories assist in understanding how Grammarly might facilitate language learning as well as why its use needs to be carefully guided. Vygotsky's Zone of Proximal Development (ZPD) is the gap between what learners can do with and without support(Raslan, 2024). When learners receive support (scaffolding), they can perform at a higher level(Raslan, 2024). Grammarly can potentially serve as an electronic scaffold by pointing out errors and offering suggestions to learners as they write(Murtisari et al., 2025). It's not a substitute for the teacher, but it can supplement the feedback space via immediate support during the drafting and editing process.

Krashen's Input Hypothesis states that language acquisition happens when learners are exposed to input that is comprehensible and a bit beyond their level of proficiency(Shahini, 2025a). Grammarly's feedback may offer learners corrected forms as contextualized input(Zhai, 2025). For instance, when the learner types an incorrect form and Grammarly offers a suggestion,

the learner has access to his or her own version and a more accurate version. This may aid the learner to acquire new language patterns.

Swain's Output Hypothesis suggests the value of output. Learners progress, she argues, when they try to convey meaning, notice what they don't know, form hypotheses about language structures, and self-correct(Shahini, 2025b). Grammarly can help this process, provided they are interacting with the feedback. But if learners fail to think about the feedback, they may not learn deeply. So, Grammarly should be used in a way that encourages learners to reflect on their errors and explain their revisions. These theories overall suggest that Grammarly can facilitate ESL writing when it serves as scaffold feedback, comprehensible input, and a prompt to revise output. But it needs to be used in ways that support learning and is supported by teachers.

3. METHODOLOGY

3.1 Research Design

The design of this study was a pilot mixed-method. This approach was suitable because the study sought to investigate both the effects of Grammarly on the types of errors students make and students' attitudes toward Grammarly. The quantitative component involved a pre-test and post-test comparison of the number of grammar, punctuation, and spelling errors of the experimental and control groups. The qualitative aspect involved interviews with the learners who received Grammarly support. This study is referred to as a pilot study due to the small sample and classroom setting. Pilot studies are common in educational technology research to explore new practices, test methods, and provide some evidence that can be used to inform future larger scale studies. In this study, the pilot enabled the researchers to test whether Grammarly seemed promising in a Pakistani tertiary ESL classroom and learners' perceptions of the benefits and drawbacks of using Grammarly.

3.2 Participants and Sampling

Group	Number of Participants	Selection Criteria	Intervention	Interview Subset
Experimental	15	Enrolled in English-medium courses; intermediate ESL proficiency	Used Grammarly for 6 weeks during writing tasks	8 participants representing a range of proficiency levels
Control	15	Enrolled in English-medium courses; intermediate ESL proficiency	Completed the same writing tasks without Grammarly	None

A total of 30 Pakistani tertiary-level ESL learners took part in the study. The students were assigned to two groups: an experimental group (n=15) and a control group (n=15). The intervention group used Grammarly over a six-week period and the control group completed the same types of writing tasks without Grammarly feedback. The sample was drawn through purposive sampling,

3.3 Intervention Procedure

The intervention was six weeks long. During this time, both groups wrote six assignments. The experimental group drafted and edited their writing with Grammarly. The control group wrote the same or similar tasks without Grammarly feedback. The experimental group was asked to read *Grammarly's* suggestions about grammar, punctuation and spelling. They were invited to make changes to the texts after reviewing the feedback. The control group also engaged in writing tasks at the same time, but did not include the use of Grammarly. This enabled a descriptive comparison between the effects of automated corrective feedback versus writing tasks without feedback. The same writing task prompts, word counts, classroom environment, and teacher feedback were provided to both groups. The rationale for this step is to control task difficulty or teacher support which could affect error reduction regardless of Grammarly.

3.4 Data Collection Instruments

The study used the following three instruments:

First, a pre-test and post-test writing task is used to determine the impact of the intervention on learners' writing errors. These writing samples were checked for grammar, punctuation and spelling errors. These were chosen as they are common surface features of writing and relate specifically to Grammarly's functions. Second, the errors were classified using an error analysis checklist. Grammar errors included subject-verb agreement, tenses, articles, prepositions and sentences. Punctuation errors included errors with commas, full stops, apostrophes and punctuation to mark the end of a sentence. Spelling errors included incorrect spelling and typographical errors that impacted on correctness.

The qualitative part was conducted through semi-structured interviews with a subsample of the experimental group (n = 8), including some with high and low proficiency and experience with Grammarly. The interviews centered on how useful and easily understood the feedback from Grammarly was, what types of errors were identified by Grammarly and what impact this had on their confidence in writing, how helpful it was in their own writing, if

there were any suggestions that were confusing or inappropriate, and their opinions of using Grammarly in conjunction with teacher feedback as well as in future writing and independent work.

This enabled the study to capture the quantitative trends in error patterns as well as the qualitative insights into concepts of learners, which was in keeping with the pilot nature of the research.

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Control	15	Enrolled in English-medium courses; intermediate ESL proficiency	Completed the same writing tasks without Grammarly	None

3.5 Data Analysis

The quantitative data were analyzed through descriptive statistics by error counts and percentage reduction. The total number of errors for grammar, punctuation and spelling were counted for pre-test and post-test. Error count reduction was measured in percentage. The data available includes only total error counts for each participant, and not individual scores. Such claims as paired-samples t-test, p-values, confidence intervals, and effect sizes require learner-level data. As such, this article presents only descriptive evidence. With access to the participant-level pre- and post-test scores, future manuscripts will report means, standard deviations, t-statistic, degrees of freedom, p-value, confidence interval and effect size. The qualitative data were analyzed thematically. Responses from the interviews were analyzed to find recurring ideas around ease of use, usefulness of feedback, awareness of errors, confidence, limitations and the need for teacher support. These were then organized into themes.

3.6 Expert Validity

Essay Writing tasks, Error Analysis checklist and Interview Protocols were checked through expert validation. Content validity, face validity and consistency of data collection procedures were incorporated to ensure the validity of the instruments. The essay-writing activities were intended to

compare the academic performance of writing between the students prior to and after the Grammarly intervention. The assignments and evaluation standards were based on grammar, punctuation, spelling, vocabulary, sentence construction, organization, and coherence and clarity. The development of the error analysis checklist was also based on the principal categories of writing errors discovered by Grammarly, such as grammar, punctuation, spelling, clarity and academic style. On the same note, semi-structured interview protocol was formulated to address the aims of the research and covered the experiences of the students, their perception, confidence, challenges and future plan to use Grammarly. The interview questions were checked on clarity and relevance and follow-up questions were added to get detailed answers. Having the results of the essay-writing and the interview data added to the validity of the study provided the researcher with the opportunity to compare the quantitative improvement with the qualitative experiences of the participants.

3.7 Ethical Considerations

All participants provided informed consent and the study was carried out in compliance with the ethics such as voluntary participation, right to withdraw, anonymity, confidentiality and responsible data management.

4. RESULTS

4.1 Quantitative Findings

Descriptive analysis of error counts revealed that learners in the experimental group had some preliminary decreases in grammar, punctuation and spelling errors following the application of Grammarly for six weeks. There were individual differences in responsiveness to the tool with the percentage reductions varying across the participants. No significant differences in overall error counts were found in the control group, who were given the same writing assignments but without Grammarly. To note is that these findings were conducted with aggregate counts of errors, and there was no inferential statistics done since there was no participant data for each item level. Therefore, these findings are merely descriptive and not conclusive evidence of the effectiveness of Grammarly. Confidence intervals, t-tests, and effect size should be possible with participant level pre and post test scores for future research.

4.2 Qualitative Findings

Table 2 shows the results of thematical analysis of the semi-structured interviews of eight participants in the experimental group. The participants

usually enjoyed using Grammarly, and the majority said the program helped them identify errors they wouldn't have noticed otherwise. Students identified Grammarly mainly with the surface level of corrections (grammar, punctuation), with only a few reporting that some of the suggestions were too elementary for more involved scholarly writing. The participants reiterated that there was a need for teacher guidance in the process and that Grammarly works best as a standalone component of a blended feedback model.

4.3 Descriptive Error Reduction

Classroom writing samples of the pre-test and post-test were examined for errors in grammar, punctuation and spelling for the experimental and control groups. The findings reveal that the experimental group had a larger reduction in errors than the control group following the six-week period. In the experimental group, the number of grammar errors reduced from 15 in the pre-test to 7 in the post-test. This is a reduction of 8 errors (53.3%). Punctuation errors reduced from 6 to 2, or 4 errors, a 66.7% reduction. Spelling errors decreased from 4 to 3, or 1 error (25.0%). In total, the number of errors in the experimental group dropped from 25 to 12, a decrease of 52.0%.

In the control group, grammar errors decreased from 14 to 13, a 1 error, or 7.1% decrease. Punctuation errors stayed the same at 5, and spelling errors stayed the same at 4. The overall number of errors in the control group decreased from 23 to 22, or 4.3%.

Table no. 1: Error Reduction in the Pre-test and Post-test

Error Type	Experimental Pre-test	Experimental Post-test	Reduction	% Reduction	Control Pre-test	Control Post-test	Reduction	% Reduction
Grammar	15	7	8	53.3%	14	13	1	7.1%
Punctuation	6	2	4	66.7%	5	5	0	0.0%
Spelling	4	3	1	25.0%	4	4	0	0.0%
Total	**25**	**12**	**13**	**52.0%**	**23**	**22**	**1**	**4.3%**

The observed trend suggests that Grammarly use was associated with a decrease in errors, especially grammar and punctuation errors. However, the data we have are in counts, so the findings are not statistically significant unless we perform analysis on the individual data. The results offer preliminary

evidence that Grammarly may assist with surface-level writing accuracy, but a more rigorous statistical test should be conducted in future studies.

4.4 Learners' Perception of Grammarly

Interviews were conducted with learners in the experimental group to gain insights into their views of Grammarly. Our analysis revealed three primary themes: user-friendly, made learners more aware of errors, and did not provide support for complex writing.

4.4.1 Ease of Use

The majority of learners found Grammarly easy to use, and easy to incorporate into the writing process. Eighty (80.0%) of our 15 participants found Grammarly easy to use. Students seemed to value the ability to have errors highlighted and some suggestions for alternatives. This indicates that the tool was not overly challenging for learners. This is an important consideration because learners are more likely to use a digital tool if they can readily understand how to use its features. In this study, Grammarly's real-time feedback seemed to enhance the ease of revising. Students were able to correct errors while writing and before submitting work for assessment. One of the participants explained that Grammarly was simple and convenient to use during academic writing: *"Grammarly was very easy to use because it showed my mistakes immediately and gave clear suggestions. I did not feel confused while using it, and it helped me correct my grammar and spelling quickly."*

4.4.2 More Consciousness of Grammar and Punctuation

Students indicated Grammarly assisted them in recognizing errors they had previously missed. This was especially the case for grammar and punctuation. Learners reported that Grammarly helped them be more aware of the accuracy of their sentences and to rewrite more carefully. This finding is supported by the descriptive error reduction in Table 1. The greatest gains among the experimental group were in the areas of punctuation and grammar, which students indicated as being the most helpful Grammarly features. It is possible that Grammarly supports the noticing process by highlighting errors and providing options to fix them. Such as one participant said *"Grammarly made my mistakes very clear because it underlined the errors and explained what was wrong. I could see exactly where my grammar, spelling, or punctuation was incorrect, so the errors became easier to understand and correct."*

4.4.3 Writing Support is Limited

"*Grammarly corrected my basic mistakes, but it was not very effective for advanced writing. It helped with grammar, but it did not teach me how to write stronger arguments or improve the overall structure of my essay.*" While learners generally saw value in Grammarly, three of our 15 participants (20.0%) felt that some suggestions were too simple or inappropriate for advanced writing. Students reported Grammarly was used to assist with grammar and punctuation, but less useful for academic style, coherence, complex sentences, and argumentation. This is significant as it shows Grammarly is not infallible. The program may help with editing, but it cannot do all the work. Academic writing is more than just grammatically correct. It also requires coherence, argument, citation, and genre and audience. These complex features need teacher support and peer conversations.

Table no.2: Qualitative Themes

Theme	Evidence from Participants	Interpretation
Ease of use	12/15 learners found Grammarly easy to use	Grammarly was accessible and simple to integrate into writing practice.
Error awareness	Learners reported noticing errors previously overlooked	Grammarly may support noticing and revision of sentence-level errors.
Surface-level improvement	Learners associated Grammarly mainly with grammar and punctuation improvement	The tool appears strongest for local accuracy issues.
Limited advanced feedback	3/15 learners found some suggestions too basic	Grammarly may be insufficient for complex academic writing development.
Need for teacher feedback	Learners suggested combining Grammarly with instructor guidance	A hybrid feedback model may be more pedagogically effective.

5. DISCUSSION

This pilot study reveals that Grammarly could assist Pakistani tertiary ESL learners to minimize surface-level errors such as grammar and punctuation, in their writing. The total error count in the experimental group was reduced by 52.0% in the six-week intervention using Grammarly, compared to 4.3% in the control group. While these results are descriptive and should not be considered statistically significant, they suggest a trend that should be explored further.

The greatest reduction was in punctuation, with a 66.7% decrease in the experimental group. A considerable decrease was also observed in grammar errors (53.3%). These results are in line with Grammarly as an

automated feedback tool. Grammarly provides sentence-level feedback and suggestions. This means that it is likely to have the greatest impact on features such as grammar and punctuation rather than academic writing features. The small impact on spelling errors must be taken with caution. There were few spelling errors in the pre-test, so there was little potential for improvement. Also, students may have had some spelling support from word processors. As such, the smaller spelling improvement could be due not to an ineffective spelling support system, but because spelling was not much of an issue for the students.

The qualitative data support the descriptive data. The feedback from learners was that Grammarly was helpful, easy to use, and helped them find mistakes. This implies that Grammarly can facilitate noticing, a key component in second language learning. As learners perceive a discrepancy between their current state of writing and the program's correction, they may gain awareness of language forms and be able to make improvements to their writing.

For Vygotsky's Zone of Proximal Development (ZPD), Grammarly can be considered a type of digital scaffolding. It offers support to learners during the writing process. This may enable learners to achieve a higher level of accuracy than they could on their own. But scaffolding must not be an aid. It should only help learners to become more independent. Hence, educators should guide students to reflect on Grammarly's feedback and independently edit their work. The results also have implications for Krashen's Input Hypothesis. Grammarly offers corrected language forms, which may provide comprehensible input. When students receive a correction on the sentence level, they are provided with a more correct English form. If the correction is comprehensible and relevant, it might help them to internalize better structures. But this is not sufficient. Students need to interact with the language.

Another way to interpret this is through Swain's Output Hypothesis. Writing is a type of output that requires learners to communicate meaning. Feedback on their output may prompt learners to identify knowledge gaps and modify their language. Grammarly can help with this, if learners consider the suggestions. But if they simply accept the changes, they may not do the necessary thinking to learn the language. That's why teachers need to support the use of Grammarly.

It is also noteworthy that the learners felt Grammarly was not useful for advanced writing. Academic writing is more than proofreading for errors. While a grammatically correct piece may still be poor quality if it is not coherent, well structured, critical, evidence-based, or academic. While Grammarly may pick up some clarity problems, it cannot comprehend the

purpose of the assignment, the conventions of the discipline, and the argument the student is attempting to make. These aspects require human feedback.

This evidence suggests that Grammarly be used as an adjunct tool, rather than a substitute. In Pakistani universities, Grammarly could alleviate the workload of correcting grammar and punctuation errors. Students can proofread their work before submission, leaving teachers to concentrate on other aspects of writing. This may allow teachers to provide more relevant feedback. But teachers must teach students how to critically use the feedback. They should not blindly accept all suggestions. They need to be able to accept or reject suggestions, or change them according to meaning. One educational exercise students could do is to submit a revision log containing selected Grammarly suggestions, and then indicate which they accepted, rejected, and why. This would turn Grammarly into a learning tool.

This is particularly relevant to the ESL context in Pakistan. Students may see English correctness as a measure of academic performance and so may appreciate tools that enhance correctness. Yet, there is a risk students will focus only on producing error-free sentences and not on ideas, content and critical thinking. Thus, educators should view Grammarly as an aid to writing, not the ultimate judge of good writing. The research also highlights issues of equity. If educators recommend Grammarly, then it is important that both students and institutions consider device and internet access, and premium features. Free versions may offer limited support, with premium features offering more. This could lead to disparities in support. So, teachers need to exercise care in using commercial tools in assessment.

There is also the question of data safety. Students using online writing tools may need to upload their work to other platforms. Schools should ensure data are properly stored, used and secured. Students should be made aware of privacy issues prior to being required or encouraged to use such tools. In summary, the results indicate Grammarly can be practically useful to support surface-level writing accuracy, but its pedagogical application needs to be well thought out. It should be part of an overall writing pedagogy that involves instruction, reflection, peer review and teacher feedback.

6. PEDAGOGICAL IMPLICATIONS

The research has implications for ESL writing in Pakistan and other countries. First, Grammarly can be used as an additional proofreading and editing tool. This might be particularly helpful for those with grammar and punctuation difficulties. Teachers can promote the use of Grammarly during

the writing process, but they should also teach students that the feedback is not infallible.

Second, teachers should train students in the critical use of Grammarly. They should know that "using all suggestions" could alter the meaning or sound awkward. They should consider suggestions based on context, purpose and academic needs.

Third, Grammarly can be used prior to teacher feedback. Students can use Grammarly to edit for basic accuracy. The teachers can then attend to the more important issues of thesis, coherence, evidence, paragraph structure, and academic voice.

Fourth, revision tasks should be reflective. Students can keep a journal of corrections, or a revision log. They can then note frequent mistakes, suggestions from Grammarly, their choice, and their learning. This can help with learner autonomy and independence.

Fifth, Grammarly can be used with peer review. Following Grammarly-based sentence editing, students can share drafts and provide feedback on organisation, clarity and argument. This results in a healthy feedback ecology including AI, peers and teachers.

Sixth, universities should create policies about the use of AI writing tools. They should know when it is appropriate to use Grammarly, how to acknowledge it and how to avoid overusing the tool in their academic writing.

7. LIMITATIONS

The present study has some limitations:

First, it had a small sample (n = 30). So, it is only a preliminary study and cannot be generalized to all Pakistani tertiary ESL students. A bigger sample would allow more robust statistical analyses. Second, the quantitative data are error counts rather than individual scores. This constrains the statistical power of the study. The next iteration of the study should include individual pre-test and post-test scores so that means, standard deviations, t-values, exact p-values, confidence intervals and effect sizes can be computed. Third, the study only assessed grammar, punctuation and spelling mistakes. While these are key writing accuracy features, they do not capture all writing quality. Other aspects to consider include coherence, cohesion, vocabulary diversity, academic language use, argument construction and development, use of materials, and task completion.

8. FUTURE RESEARCH

This pilot study should be replicated with larger and more rigorous studies. This would provide increased statistical power and confidence.

Participants' pre-test and post-test scores should be collected and statistical tests used to determine if the change is significant. Future research should also examine the comparison between Grammarly and other feedback sources. For instance, they could compare Grammarly-only feedback, teacher-only feedback, peer feedback, and combined feedback. This would answer the question: does Grammarly work best on its own or in combination with other feedback?

Longitudinal studies are also required. Improvements in error rates over the short term do not necessarily translate to long-term learning. Researchers should investigate whether students' gains are sustained after ceasing to use Grammarly or whether they are addicted to it. Future studies should also look at higher-order writing results. We need to know if Grammarly has an impact on coherence and cohesion, argument and academic vocabulary, and writing confidence. Assessments using rubrics may give us a clearer picture of improvement.

In Pakistan, future research should include students from various disciplines and proficiency levels. Learners from different disciplines for example, humanities, sciences, business, and professional may integrate them differently. Studies should also consider teachers' attitudes towards Grammarly and their willingness to adopt AI in the classroom. Finally, research should address ethical considerations of AI writing tools including academic integrity, data privacy, equity and ethical use. Such concerns are becoming more prevalent with growing AI use.

9. CONCLUSION

This pilot mixed-method study investigated the use of Grammarly to support the writing of accurate sentences of Pakistani tertiary-level ESL learners. Using descriptive data, we found that learners who used Grammarly had a significant decrease in grammar and punctuation errors after a six-week intervention, compared to minor improvement in the control group. Interview data indicated learners found Grammarly user-friendly and beneficial for error awareness. But they also identified its limitations in terms of complex sentences, academic writing, coherence, and developing the next steps in writing. Grammarly can be used as a tool to support the development of writing accuracy at surface-level, such as grammar and punctuation. But it shouldn't be relied solely on as feedback. Human judgment and pedagogical support is needed for improving meaning, organisation, argument and rhetorical strategies in writing. This requires human judgment and education. So a mixed approach is recommended. Students can use Grammarly to draft and proofread, but need teacher and peer feedback on content and coherence,

academic style and argument. If used strategically and reflexively, Grammarly can be part of positive feedback ecology in Pakistani ESL classrooms. It will promote learners' autonomy and help improve writing teaching.

REFERENCES

Alharbi, W. (2025). Between Documentation and Pedagogy: ESL/EFL Teacher Burnout and Perceptions of AI's Potential for Workload Relief. *Educational Process: International Journal (EDUPIJ), 17*(4), 1-42.

Almanea, M. (2025). Less is NOT more for learners: EFL learners' preferences and perceptions of teachers' written corrective feedback. *Acta Psychologica, 255*, 104926.

Alrashidi, N., Pasay an, E., Alrashedi, M. S., Alqarni, A. S., Gonzales, F., Bassuni, E. M., . . . Ahmed, K. E. (2023). Effects of simulation in improving the self-confidence of student nurses in clinical practice: a systematic review. *BMC Medical education, 23*(1), 815.

Alsahil, A., Abdel Latif, M. M., & Alsuhaibani, Z. (2026). Exploring EFL learner engagement with different teacher feedback modes. *Computer Assisted Language Learning, 39*(1-2), 336-363.

AMINA, F. (2024). Exploring EFL Students 'Perceptions on the use of Grammarly as an AI Writing Tool to Enhance Academic Writing Proficiency The Case Study of Master Two English Students at Mohammed Kheider University.

Anh, N. H. M., Yen, N. H., Tho, N. T. Y., & Nhut, L. M. (2022). Grammatical errors in academic writing of English second-year students. *European Journal of English Language Teaching, 7*(6).

Azizi, Z., & Farid Khafaga, A. (2023). Scaffolding via group-dynamic assessment to positively affect motivation, learning anxiety, and willingness to communicate: A case study of high school students. *Journal of Psycholinguistic Research, 52*(3), 831-851.

Bahari, A. (2025). Balancing syntactic complexity and clarity: the role of AI in enhancing academic writing proficiency. *Saudi Journal of Language Studies, 5*(4), 271-290.

Bezbaruah, R. (2025). *Effective Writing and Style: An Introduction*: Chyren Publication.

Bouwer, R., & Dirkx, K. (2023). The eye-mind of processing written feedback: Unraveling how students read and use feedback for revision. *Learning and Instruction, 85*, 101745.

Buckingham Shum, S., Lim, L.-A., Boud, D., Bearman, M., & Dawson, P. (2023). A comparative analysis of the skilled use of automated feedback tools through the lens of teacher feedback literacy. *International Journal of Educational Technology in Higher Education, 20*(1), 40.

Chen, C., & Gong, Y. (2025). The role of AI-assisted learning in academic writing: A mixed-methods study on Chinese as a second language students. *Education Sciences, 15*(2), 141.

Elzerman, G. H. (2025). *When AI Does the Thinking: The Risks of Over-Reliance on Artificial Intelligence in Higher Education Language Learning.* Paper presented at the 2025 5th International Conference on Artificial Intelligence and Education (ICAIE).

Fitria, T. N. (2022). Identifying grammatical and mechanical errors of students' writing: Using "grammarly" as an online assessment. *Lingua Didaktika: Jurnal Bahasa Dan Pembelajaran Bahasa, 16*(2), 169-184.

Giray, L. (2024). "Don't let Grammarly overwrite your style and voice:" writers' advice on using Grammarly in writing. *Internet Reference Services Quarterly, 28*(3), 293-303.

Huawei, S., & Aryadoust, V. (2023). A systematic review of automated writing evaluation systems. *Education and Information Technologies, 28*(1), 771-795.

Javaid, Z. K., Ijaz, S., Latif, E., & Azam, S. (2024). A qualitative study on student-teacher interaction: Student engagement and teacher feedback. *International Journal of Contemporary Issues in Social Sciences, 3*(2), 1670-1683.

Kanwal, A., Khaliq, A., & Jamil, A. (2022). Factors affecting quality of English language instructions in Pakistan: A study at university level in southern Punjab. *Pakistan Journal of Social Research, 4*(04), 515-522.

Khan, S., & Jayaraj, T. (2025). English linguistic capital and career trajectory: Impact of medium of instruction on the professional life of Indians. *Journal of Language, Identity & Education*, 1-14.

Kubota, R. (2022). Decolonizing second language writing: Possibilities and challenges. *Journal of Second Language Writing, 58*, 100946.

Li, Y., Zhou, X., & Chiu, T. K. (2025). Systematics review on artificial intelligence chatbots and ChatGPT for language learning and research from self-determination theory (SDT): what are the roles of teachers? *Interactive learning environments, 33*(3), 1850-1864.

Liu, C.-C., Liu, S.-J., Hwang, G.-J., Tu, Y.-F., Wang, Y., & Wang, N. (2023). Engaging EFL students' critical thinking tendency and in-depth reflection in technology-based writing contexts: A peer assessment-incorporated automatic evaluation approach. *Education and Information Technologies, 28*(10), 13027-13052.

Luo, M., Hu, X., & Zhong, C. (2025). The collaboration of AI and teacher in feedback provision and its impact on EFL learner's argumentative writing. *Education and Information Technologies, 30*(12), 17695-17715.

Marmeto, E., Masibay, M. J., & Nazareth, I. (2026). Grammatical Errors of Non-English Teachers: A Qualitative Study on Fossilization. *Journal of Education and Academic Settings, 3*(1), 1-17.

Miranty, D., Widiati, U., Cahyono, B. Y., & Sharif, T. I. S. T. (2025). The effectiveness of Grammarly application and teacher feedback for undergraduate EFL students' writing skills. *Innoeduca: international journal of technology and educational innovation, 11*(1), 108-133.

Murtisari, E. T., Januardi, J. I., Bonar, G., & Kurniawan, D. (2025). Beyond error correction: Lower-proficiency EFL learners' engagement with Grammarly. *Language Awareness*, 1-25.

Mustafa, A., Arbab, A. N., & El Sayed, A. A. (2022). Difficulties in academic writing in English as a second/foreign language from the perspective of undergraduate students in higher education institutions in Oman. *Arab World English Journal, 13*(3), 41-53.

Narciss, S., & Alemdag, E. (2025). Learning from errors and failure in educational contexts: New insights and future directions for research and practice. *British Journal of Educational Psychology, 95*(1), 197-218.

Nazar, S., & Nordin, N. R. M. (2024). Grammaticality in writing skills of L2 English learners: Challenges in Pakistani academic setting. *EVOLUTIONARY STUDIES IN IMAGINATIVE CULTURE*, 517-533.

Parker, L. L. (2023). Technology in support of young English learners in and out of school. *Technology-mediated learning environments for young English learners*, 213-250.

Poole, A., & Li, X. (2025). Beyond a one-size-fits-all approach: Considering English language teachers' differential capacities for engaging in and implementing professional learning in China. *Professional Development in Education, 51*(4), 735-747.

Ramzan, M., Mushtaq, A., & Ashraf, Z. (2023). Evacuation of difficulties and challenges for academic writing in ESL learning. *University of Chitral Journal of Linguistics and Literature, 7*(I), 42-49.

Raslan, G. (2024). *The impact of the zone of proximal development concept (scaffolding) on the students problem solving skills and learning outcomes.* Paper presented at the BUiD Doctoral Research Conference 2023: Multidisciplinary Studies.

Rehman, A. U., Khan, M. I., & Waheed, Z. (2023). Academic reading and writing challenges faced by doctoral students in Peshawar, Pakistan: A qualitative study. *UMT Education Review, 6*(2), 52-71.

Saeed, B., Atique, S. S., & Kaloi, M. A. (2025). Challenges in Teaching English as a Second Language in Multilingual Classrooms: A Pakistani Perspective. *Journal of Arts and Linguistics Studies, 3*(3), 3725-3751.

Saleem, T., Saleem, A., & Aslam, D. M. (2025). Integrating AI in Pakistani ESL classrooms: Teachers' practices, perspectives, and impact on student performance. *PLoS One, 20*(9), e0333352.

Shahini, A. (2025a). Input Hypothesis in Language Learning *Language Learning Theories: A Student's Guide* (pp. 65-80): Springer.

Shahini, A. (2025b). Output Hypothesis in Language Learning *Language Learning Theories: A Student's Guide* (pp. 81-101): Springer.

Soomro, D. A., & Abbasi, A. M. (2025). Examining ESL Undergraduate Academic Writing Challenges: A Qualitative Study at a Pakistani Institute. *Innovations in Pedagogy and Technology, 1*(1), 60-76.

Supiani, S., Mukminatien, N., Suharyadi, S., Muniroh, S., Widiati, U., & Sanggala Dewi, O. T. (2025). Metalinguistic Explanations and Indirect Written Corrective Feedback: Exploring EFL Students' Emotions, Influencing Factors, and Perceptions. *Teaching English Language, 19*(2), 139-181.

Thi, N. K., & Nikolov, M. (2022). How teacher and Grammarly feedback complement one another in Myanmar EFL students' writing. *The Asia-Pacific Education Researcher, 31*(6), 767-779.

Umar, A., Ajmal, M., & Ajmal, F. (2023). Academic writing problems faced by ESL learners in higher education institutions. *University of Wah Journal of Social Sciences, 6*(1), 59-70.

Uysal, D. (2025). Integrating an Educational Chatbot in an Undergraduate-Level Linguistics Course: Cognitive Load and Student Engagement. *Thinking Skills and Creativity*, 102099.

Yildiz Durak, H., & Onan, A. (2025). A systematic review of AI-based feedback in educational settings. *Journal of Computational Social Science, 8*(4), 96.

Zhai, Y. (2025). Automated written corrective feedback: fostering writing accuracy, self-regulation, and motivational dynamics in EFL learners. *BMC psychology*.