

# Enhancing EFL University Students' Writing Skills Through Error Reflection: Perceptions and Implications

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**Abstract**—This mixed-methods study investigates the role of error reflection in enhancing the writing skills of undergraduate students. The research comprised a qualitative component with 12 participants and a quantitative survey with 37 respondents. Using a coding scheme that included open, axial, and selective coding, the study identified key themes such as 'Empowerment and Personal Growth through Error Reflection' and 'Privacy, Confidence, and Self-Improvement'. The qualitative analysis revealed that students who engaged in self-review and error reflection not only improved their writing skills but also experienced a heightened sense of empowerment and personal growth. In the quantitative component, participants responded to prompts about their writing habits and perceptions. In the survey, students overwhelmingly favored approaches involving repeated editing, leveraging digital aids for spotting errors, and highlighted the value of maintaining privacy and building confidence during the writing process. The study, while comprehensive, does have constraints including a relatively small participant pool and the inherent subjectivity of self-reported information. Nonetheless, these insights offer a compelling case for incorporating error reflection into writing courses, demonstrating its substantial benefits for enhancing students' learning experiences. The study recommends that educators incorporate structured yet flexible self-review exercises into their teaching practices. Future research is suggested to explore the applicability of these findings in diverse educational settings, to conduct longitudinal studies, and to compare different error reflection techniques. This research contributes significantly to the field of writing education, underscoring the importance of a reflective and student-centered approach to developing writing skills.

**Index Terms**—error reflection, writing skills, academic writing

## I. INTRODUCTION

### A. General Background

The journey to writing excellence is challenging, especially for students transitioning from high school to university-level academics, requiring enhanced skills in grammar, syntax, and argumentation (Gallagher, 2023; Staples et al., 2023). University writing demands not just technical skills but also nuanced argument construction, engagement with theoretical concepts, and synthesis of diverse perspectives (Brockman, 2020). This transition requires a self-critical approach, focusing on detail, narrative structure, and the ability to improve one's work (Issa et al., 2022). Achieving proficiency in self-editing is a gradual, patience-requiring process (Rozimela, 2021).

Engaging with a broad range of texts, balancing this with academic responsibilities, and reflecting on these influences is crucial for English majors (Strobl et al., 2019). Moreover, navigating feedback and revision is essential, learning to integrate feedback while retaining personal style is complex (Zhang & Zou, 2023). For undergraduate English majors, writing is not just a skill but an essential part of academic identity, involving technical mastery, critical thinking, continuous refinement, and absorbing literary influences. Overcoming challenges like adapting to higher standards, developing self-editing skills, engaging with extensive reading, and effectively using feedback is key for their development as writers and professionals (Brockman, 2020; Gallagher, 2023; Issa et al., 2022; Rozimela, 2021; Strobl et al., 2019; Zhang & Zou, 2023).

A particular issue in enhancing writing skills among undergraduate English majors is the underutilization of feedback (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020). Feedback from instructors, peers, or self-assessment is vital for skill development, but there is a gap in how students receive and utilize it. The challenge lies in integrating feedback into subsequent writing, which requires reflection and receptiveness. For many students, particularly at the early stages of their academic journey, acting on complex feedback can be overwhelming. Students might engage with feedback superficially, focusing only on obvious corrections rather than deeper aspects of writing. Current educational processes often overlook the importance of error reflection, a critical skill for understanding writing errors and developing deeper writing insights (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020). Error reflection involves understanding the reasons behind errors, ranging from knowledge gaps to misconceptions about writing conventions. Without a writing process that encourages error reflection, students might

miss deeper learning opportunities. Thus, a writing process emphasizing feedback importance and promoting active engagement in error reflection is needed (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020).

### B. Research Questions

The research questions of the study are as follows.

RQ1: How do EFL university students perceive the integration of error reflection using a reflection worksheet in the writing process?

RQ2: What are the implications of incorporating error reflection on students' perceptions of their own writing abilities and their future writing performance at the university level?

### C. Purpose and Significance

This mixed-methods study aims to explore the impact of integrating error reflection using a reflection worksheet in the EFL writing process on university-level students. It investigates students' perceptions of this intervention and its potential implications for improving their writing skills, addressing a gap in traditional writing instruction. This is crucial for educators to tailor approaches effectively. If students find such instruction helpful and engaging, it could lead to improved writing skills; conversely, if perceived as confusing or irrelevant, it might impede learning (Cao et al., 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020).

Error reflection's inclusion is vital, as it promotes deep learning and a growth mindset. It encourages students to analyze their mistakes thoroughly, shifting their perspective to view errors as learning opportunities. This approach aligns with contemporary educational theories emphasizing active learning and student-centered teaching. Engaging students in error analysis promotes active involvement in their learning, crucial for effective and long-lasting knowledge acquisition. Understanding students' perceptions of this writing process will enable educators to refine their teaching methods, enhancing their relevance and impact on students' development as writers and thinkers (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020).

## II. LITERATURE REVIEW

### A. Overview of the Writing Process Approaches

The writing process in academia views writing as a multifaceted process, typically divided into stages like prewriting, drafting, revising, editing, and publishing. These stages represent the progression from an idea's inception to its final polished form (Gallagher, 2023).

The prewriting stage is crucial for setting the writing's direction, where the writer explores the subject and plans their narrative (Kabaran, 2022). Drafting then transforms these plans into written words, emphasizing idea formation over perfection (Rozimela, 2021). The revising stage involves significant rewriting to refine and clarify the writing, enhancing its impact (Strobl et al., 2019). Editing focuses on details like grammar and syntax, polishing the text (Kendall & Khuon, 2023). Finally, publishing signifies the work's transition from the private realm to public scrutiny, whether in academic settings or broader forums (Selvaraj & Aziz, 2019).

These stages, while distinct, are often non-linear. Writers may cycle through these phases recursively, adjusting their work (López-Serrano et al., 2019). Contemporary writing processes stress writing as an iterative, not sequential, process and acknowledge its cognitive and social aspects, framing it as an intellectual and communicative act (Sawyer, 2021; Fogal, 2022). Writing processes thus offer a comprehensive view of writing as a complex, iterative endeavor, guiding both the teaching and learning of effective writing.

### B. Challenges in the Writing Process Approaches

A prominent obstacle is the transition from basic writing skills to a more sophisticated, critical form of writing. At the intermediate stage, students are expected to elevate their writing, transcending beyond the foundational grasp of language and grammar. This progression involves engaging with complex ideas, constructing nuanced arguments, and developing a persuasive narrative style (Graham, 2019). It is a shift that demands not just linguistic proficiency but a higher order of critical thinking and analytical prowess. Students grapple with the task of not just reporting information but critically analyzing and interpreting it to construct cogent arguments.

Another critical challenge is the quest for a unique writing voice and style. Intermediate students often find themselves at a crossroads, attempting to balance conformity to academic standards with the expression of their individuality. This balancing act can result in writing that either feels too constrained by rules or, conversely, deviates too far from accepted academic norms (Zabihi & Bayan, 2020). The process of carving out a distinct voice in one's writing is a pivotal milestone in a writer's journey, and navigating this path can be fraught with uncertainty and self-doubt.

Moreover, the complexities of argumentation and organization in writing pose substantial challenges. Developing a well-structured argument and articulating it effectively is a skill that extends beyond the realm of basic writing competency (Saha, 2022). It involves crafting a coherent argument, substantiating it with evidence, and organizing the

narrative in a logical and compelling manner. This aspect of writing is particularly challenging as it requires a harmonious blend of content mastery and structural finesse.

Incorporating research into writing is yet another hurdle at the intermediate level. Academic writing often necessitates the integration of external sources, which in turn requires adept research skills, an understanding of citation norms, and the ability to synthesize information from disparate sources (Huang & Jun Zhang, 2020). The challenge lies in seamlessly weaving this external information into one's narrative, using it to bolster rather than overshadow one's arguments. This skill is not only about understanding the content but also about presenting it in a way that is both authentic to the student's voice and adherent to academic conventions.

Finally, the process of receiving and acting on feedback is a significant challenge (Latifi et al., 2021). Feedback is a vital component of writing development, yet intermediate students often struggle with interpreting and applying it constructively. The nature of feedback can sometimes be overwhelming or seem overly critical, leading to frustration or a sense of inadequacy. The ability to assimilate feedback constructively, using it as a tool for improvement rather than a marker of failure, is a crucial skill in the developmental trajectory of any writer.

### *C. Feedback in Writing Education*

The effectiveness of feedback in the writing process is rooted in its ability to provide students with specific, targeted insights into their writing (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020). Good feedback does more than point out flaws; it illuminates pathways for improvement. It can clarify misunderstandings, highlight strengths, suggest new perspectives, and encourage deeper engagement with the writing task (Zhang & Zou, 2023). Feedback can act as a mirror, reflecting back to the student the quality and impact of their writing, and as a map, guiding them towards more effective and expressive writing (Latifi et al., 2021).

However, the journey from receiving feedback to effectively implementing it in writing is laden with challenges. One of the common issues students face is the interpretation of feedback. Feedback can sometimes be complex or nuanced, and students may struggle to understand exactly what is being asked of them (Esterhazy & Damşa, 2019). They might misinterpret suggestions for improvement as mere criticism, or they might find the feedback too vague or general to be actionable (Nicol, 2021). This misinterpretation can lead to frustration and a sense of discouragement, impeding the student's ability to benefit from the feedback.

Another challenge is the integration of feedback into the writing process. Even when students understand the feedback, applying it to their writing can be a daunting task. It requires them not only to revisit and revise their work but also to internalize the principles and suggestions provided in the feedback. This integration often necessitates a re-evaluation of their writing strategies and possibly even their writing style, which can be a significant undertaking (Cao et al., 2019). Students might struggle to see how the feedback aligns with their initial intentions for their writing, or they might find it difficult to make the necessary adjustments without losing their original voice and perspective.

Moreover, there is the emotional aspect of receiving feedback. Writing is a personal and often intimate activity, and feedback can sometimes be perceived as a critique of one's intellectual abilities or creative expression (Han & Hyland, 2019). This perception can lead to defensive attitudes, where students resist feedback rather than engaging with it constructively. Overcoming these emotional barriers is crucial for students to adopt a growth mindset, where feedback is seen as an opportunity for learning and development rather than a judgment of their abilities.

In addition, the frequency and timing of feedback play a crucial role in its effectiveness (Link et al., 2022). Feedback that is too frequent can be overwhelming, giving students little time to reflect and act on each round of suggestions. Conversely, infrequent feedback can leave students feeling unsupported and unsure of their progress. Timing is equally important; feedback that comes too late in the writing process might be less useful, as students may have already moved on to subsequent stages or tasks.

### *D. Learner Autonomy and Reflection-Based Practices*

Learner autonomy and reflection-based practices represent pivotal concepts in modern educational paradigms, particularly in the context of writing education. Learner autonomy refers to the ability and willingness of learners to take charge of their own learning process (Alsharari & Alshurideh, 2020; Cirocki et al., 2019; Wong et al., 2020). Autonomy in learning fosters a sense of ownership and responsibility towards one's educational goals, encouraging students to set their objectives, find resources, and evaluate their progress. Reflection, on the other hand, is a process whereby learners critically assess their experiences and learning processes. It involves looking back at one's work and experiences, analyzing them, and drawing insights that can inform future learning. Reflection encourages a deeper level of engagement with the learning material, moving beyond rote memorization or surface-level understanding to a more profound and nuanced comprehension. In the context of writing, reflection allows students to consider their writing practices critically, identify areas of strength and weakness, and develop strategies for improvement.

The integration of learner autonomy and reflection-based practices is highly relevant to the proposed writing process of writing education. This writing process seeks to move away from traditional, instructor-centered approaches to a more student-centered paradigm, where students are empowered to take an active role in their learning (Tsai, 2021). Reflection-based practices are integral to this writing process as they provide the mechanism through which students can internalize and act upon feedback (Rajabalee & Santally, 2021). Reflection turns feedback from a passive receipt of

information into an active learning experience. By reflecting on the feedback, they receive, students can gain deeper insights into their writing. They can understand not just what needs to be improved but why and how these improvements can be made. Reflection also allows students to connect feedback to their broader learning goals, integrating it into their ongoing development as writers. Together, these practices cultivate a learning environment where students are continually engaged in a cycle of action, reflection, learning, and growth.

### *E. Relating the Writing Process to Theory*

The proposed writing process for writing education outlined in this study is a comprehensive and multi-staged approach that integrates the conventional stages of the writing process with an innovative emphasis on error reflection. This writing process is designed to address the challenges and needs identified in writing education, particularly for students at an intermediate level of proficiency. It is underpinned by a theoretical framework that draws from recent and pertinent literature (Brockman, 2020; Cao et al., 2019; Fogal, 2022; Gallagher, 2023; Graham, 2019; Issa et al., 2022; Kabaran, 2022; Kendall & Khuon, 2023; Latifi et al., 2021; Link et al., 2022; López-Serrano et al., 2019; Rozimela, 2021; Saha, 2022; Selvaraj & Aziz, 2019; Staples et al., 2023; Strobl et al., 2019; Zhang & Zou, 2023) on writing pedagogy, learner autonomy, and reflection-based practices.

In the pre-writing stage, the writing process emphasizes collaborative brainstorming and the use of a prefabricated graphic organizer. This approach is grounded in the theory that collaborative learning can enhance understanding and engagement with the writing task. By working in groups, students are exposed to a diversity of ideas and perspectives, which can stimulate their own thinking and reduce anxiety about the writing task. The graphic organizer serves as a tool to help students structure their thoughts and align them with the expected format of the essay. This stage is crucial for setting a strong foundation for the writing process, ensuring that students have a clear and structured plan for their essays. Feedback at this stage focuses on the structure and the quality of the ideas generated, providing early guidance to students.

During the drafting stage, students begin writing their first drafts, guided by the graphic organizer. The continued emphasis on collaborative work allows students to consult with their peers, fostering a supportive learning environment. The feedback provided by the instructor at this stage is crucial. It incorporates multi-color coding, comprehensive corrections, Metalinguistic Written Corrective Feedback, and Dynamic feedback, as per various established methodologies in writing education. This multi-faceted approach to feedback ensures that students receive clear, specific, and actionable guidance, helping them to improve their drafts significantly.

The revising stage is where students refine their essays based on the instructor's feedback. This stage is critical for students to internalize the feedback and apply it to enhance their writing. It requires students to engage deeply with the feedback, using it to make substantive changes to their work. This stage reinforces the concepts of learner autonomy and reflection, as students are required to take responsibility for improving their writing based on the guidance they have received.

In the editing stage, students submit their final drafts for evaluation. This stage represents the culmination of the writing process, where the focus is on polishing the essays to meet the required standards and layout. The feedback at this stage serves both as an evaluation of the students' work and as final guidance for any last-minute improvements.

The error reflection stage is a novel addition to the traditional writing process. In this stage, students use a prefabricated error-reflection template to analyze their mistakes, understand how to correct them, and reflect on how this feedback will be beneficial for their future writing endeavors. This stage is crucial for fostering deep learning and long-term improvement in writing skills. By reflecting on their errors, students develop a better understanding of their writing weaknesses and learn strategies to overcome them (Zhang, 2020). This stage also reinforces the principles of learner autonomy and reflection, encouraging students to take an active role in their learning and to engage in self-assessment and critical thinking (Tsai, 2021).

## III. METHODOLOGY

### *A. Sample and Procedure*

Thirty-seven students participated in this study. In the pre-writing stage, students were divided into groups, and they were asked to brainstorm ideas for their essays collaboratively and fill in a prefabricated graphic organizer provided by the teacher to match the expected structure of the required essay. The collaborative work in this stage was designed to help students develop a better understanding of the writing task, reduce anxiety, and provide them with a diversity of ideas and perspectives. The group received feedback for the structure and ideas at this point. In the drafting stage, students began writing their first draft with the agreed-upon graphic organizer as a guide and worked collaboratively in this stage to consult their colleagues following the same graphic organizer, but no similar essays were accepted. They received feedback from the instructor. The feedback was mainly indirect; using multi-color coding, comprehensive corrections of all errors were provided with both metalinguistic and dynamic feedback. Students were next afforded stages for revision and editing, drawing on feedback. In the error reflection stage, the students were provided with a prefabricated error-reflection template, in which they wrote down their mistakes, how to correct them, and how this feedback on their mistakes could be helpful in future writing. At this stage, they were provided the chance to take a

prolonged look at their performance to understand and analyze their weaknesses and reflect on the best ways to overcome them under the supervision of the instructor.

### *B. Data Collection*

**RQ1.** For RQ1, data were collected by asking students to register their degree of agreement (strongly disagree, disagree, agree, and strongly agree) with the following item prompts:

1. In the pre-writing stage, I am challenged to generate ideas.
2. I somehow copy or imitate a model text to generate ideas.
3. I have difficulties in generating ideas because there is no certain audience determined to read the text.
4. I frequently do not know what to write.
5. I always feel unconfident with the sentences within my text.
6. I easily write any ideas in my writing.
7. I usually browse the internet to start writing.
8. I get distracted with the correct use of vocabulary and mechanisms while drafting.
9. I always encounter problems to draft the structure of my text (topic, supporting, concluding sentences)
10. I always encounter a coherence aspect issue when drafting my ideas.
11. I often think that my ideas do not attract readers.
12. The most difficult part of the drafting stage is introducing the topic of my writing.
13. Ideas flow through my head effortlessly, regardless of the topic.
14. I am somehow worried about my idea structuring.
15. I get distracted with the correct use of vocabulary and mechanisms while drafting.
16. When revising, I struggle to remove weaker ideas and emphasize the best ones.
17. I need my teacher's guidance to assess and revise my first draft.
18. I can revise my own writing with the help of online tools to detect grammar errors and improve word choice.
19. I do not need my friend's help to comment on my texts.
20. I revise my texts more than once to make sure all the ideas are coherent.
21. revising the grammar aspect is often a difficult part for me.
22. I often have a peer assessment with my friends to check my writing.
23. I often revise my writing by reflecting on my friends' writing mistakes.
24. I always check my spelling and look up the words.
25. I am aware of the use of punctuation in the correct places.
26. I frequently modify sentences in order to make them clearer and more easily understandable.
27. I always double-check the grammar to ensure that it is correct.
28. editing stage is not hard because it only focuses on applying standard English.
29. I applied the revising stage with editing stage.
30. I pause and always reread my writing before making a final draft.
31. I make sure to go through my writing multiple times to spot and correct any errors in grammar, spelling, or punctuation.
32. Error reflection is an important part of the writing process.
33. I am confident in my ability to identify my own errors in my writing.
34. I find error reflection to be helpful in improving my writing.
35. I make time to reflect on my errors after I have finished writing.
36. I use error reflection to identify patterns in my writing errors.
37. Error reflection did not help me to become a better writer.
38. I would suggest that other students consider using error reflection as a learning tool.
39. I develop strategies for avoiding or correcting my writing errors based on error reflection.

**RQ2.** To answer the second question, an interview was conducted with 12 volunteer participants. The participants were asked to elaborate on how the error reflection was beneficial for their writing development. The interview was conducted using open-ended questions delivered online.

### *C. Data Analysis*

**RQ1.** For RQ1, data analysis involved statistical computations of the answers provided by students.

**RQ2.** For RQ2, data analysis involved open, axial, and selective coding of the responses designed to generate themes.

### *D. Ethics*

Privacy and anonymity were maintained in the research because of their online nature, and none of the questions touched on sensitive matters. Informed consent was sought and obtained from all participants.

## IV. ANALYSIS

**RQ1**

The first step in analyzing RQ1 was to calculate means and standard deviations for responses to the questionnaire items. Table 1 below presents these statistics. Afterward, the analysis was based on the extraction of common themes from the prompts with which students were most inclined to agree and disagree. This approach succeeded in generating larger explanatory themes from the answers to questions, allowing richer insights to emerge.

TABLE 1  
MEANS AND STANDARD DEVIATIONS

Prompt #	Mean	Standard Deviation
1	4.24	0.93
2	3.49	1.17
3	3.11	1.20
4	2.97	1.42
5	3.11	1.39
6	3.62	1.06
7	4.00	0.91
8	3.54	1.07
9	2.89	1.26
10	3.68	1.03
11	2.76	1.21
12	2.86	1.48
13	2.97	1.36
14	3.43	1.12
15	3.92	1.12
16	3.35	1.18
17	3.32	1.29
18	3.92	1.12
19	4.05	0.94
20	2.68	1.36
21	4.00	1.00
22	3.05	1.33
23	3.27	1.17
24	3.68	0.94
25	4.19	0.91
26	4.19	0.91
27	4.19	0.70
28	3.27	1.30
29	3.97	0.80
30	3.78	0.95
31	4.08	1.04
32	3.27	1.48
33	4.38	0.64
34	4.14	0.89
35	4.46	0.51
36	3.62	1.21
37	3.76	1.01
38	2.30	1.33
39	3.86	1.08

**Prompts most agreed with.** The 10 prompts that participants most agreed with were as follows:

1. I usually browse the Internet to start writing ( $M = 4.00$ ,  $SD = 0.91$ ).
2. I revise my texts more than once to make sure all the ideas are coherent ( $M = 4.00$ ,  $SD = 1.00$ ).
3. I can revise my own writing with the help of online tools to detect grammar errors and improve word choice ( $M = 4.05$ ,  $SD = 0.94$ ).
4. I pause and always reread my writing before making a final draft ( $M = 4.08$ ,  $SD = 1.04$ ).
5. I am confident in my ability to identify my own errors in my writing ( $M = 4.14$ ,  $SD = 0.89$ ).
6. I always check my spelling and look up the words ( $M = 4.19$ ,  $SD = 0.91$ ).
7. I am aware of the use of punctuation in the correct places ( $M = 4.19$ ,  $SD = 0.70$ ).
8. I frequently modify sentences in order to make them clearer and more easily understandable ( $M = 4.24$ ,  $SD = 0.93$ ).
9. In the pre-writing stage, I am challenged to generate ideas ( $M = 4.38$ ,  $SD = 0.93$ ).
10. I find error reflection to be helpful in improving my writing ( $M = 4.46$ ,  $SD = 0.51$ ).

Understanding the interconnected themes within these prompts reveals a perspective on the writing process that balances technical skill with cognitive insight. The first and perhaps most prominent theme is the iterative nature of writing. This theme is not merely about drafting and redrafting; it is a deeper recognition of writing as an evolving process. When writers revise texts multiple times, pause to reread drafts, or modify sentences for clarity, they're engaging in a dynamic dialogue with their own work. This dialogue is reflective of a mindset that sees writing not as a linear journey from point A to B, but as a spiral, where each pass brings new depth and understanding.

Figure 1 below is a visualization of the prompts with which students were the most inclined to agree:

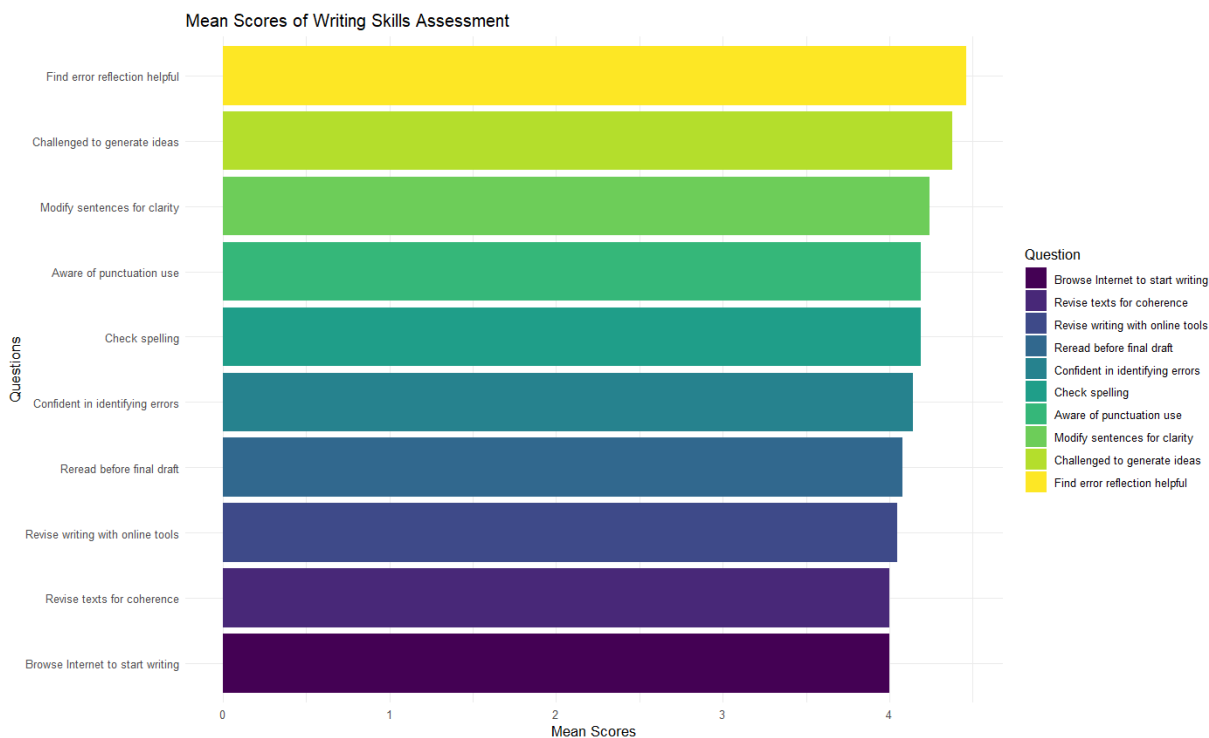


Figure 1. Visualization of Prompts Most Agreed With

This iterative process is a sign of maturity in writing, indicating a shift from viewing writing as a task to be completed to seeing it as a craft to be honed. Another striking theme is the proactive use of tools and strategies to enhance writing. This goes beyond mere reliance on innate talent or a good ear for language and includes using online tools, focusing on grammar, and identifying errors, this approach is practical and grounded, indicative of writers who view their craft as a continuously evolving skill. The cognitive aspects of writing are also prominently featured. Challenges in the pre-writing stage, such as idea generation, and the emphasis on error reflection as a crucial part of the writing process highlight the cognitions involved in writing.

**Prompts most disagreed with.** The 10 prompts that participants most disagreed with were as follows:

1. Error reflection did not help me to become a better writer ( $M = 2.30, SD = 1.33$ ).
2. I do not need my friend's help to comment on my texts ( $M = 2.68, SD = 1.36$ ).
3. I often think that my ideas do not attract readers ( $M = 2.76, SD = 1.21$ ).
4. The most difficult part of the drafting stage is introducing the topic of my writing ( $M = 2.86, SD = 1.48$ ).
5. I always encounter problems drafting the structure of my text (topic, supporting, concluding sentences) ( $M = 2.89, SD = 1.26$ ).
6. I frequently do not know what to write ( $M = 2.97, SD = 1.42$ ).
7. I always feel unconfident with the sentences within my text ( $M = 2.97, SD = 1.36$ ).
8. Revising the grammar aspect is often a difficult part for me ( $M = 3.05, SD = 1.33$ ).
9. I have difficulties in generating ideas because there is no certain audience determined to read the text ( $M = 3.11, SD = 1.20$ ).
10. I often have a peer assessment with my friends to check my writing ( $M = 3.27, SD = 1.17$ ).

Analyzing the prompts that participants most disagreed with offers a revealing counterpoint to the previously discussed themes. These prompts, focusing on perceived difficulties and uncertainties in writing, illuminate areas where writers feel more confident or less challenged, suggesting a more nuanced understanding of their own writing process.

A key theme here is the perception of self-efficacy in writing. The disagreement with statements such as feeling unconfident about sentences, encountering problems with drafting structure, and revising grammar being difficult suggests a self-assuredness among the participants. They appear to possess a certain level of confidence in their writing abilities, particularly in managing the structural and grammatical aspects of their texts. This confidence might stem from their experience, understanding of writing conventions, or a belief in their ability to overcome these challenges through practice and learning.

Figure 2 below is a visualization of the prompts with which students were the most inclined to disagree:

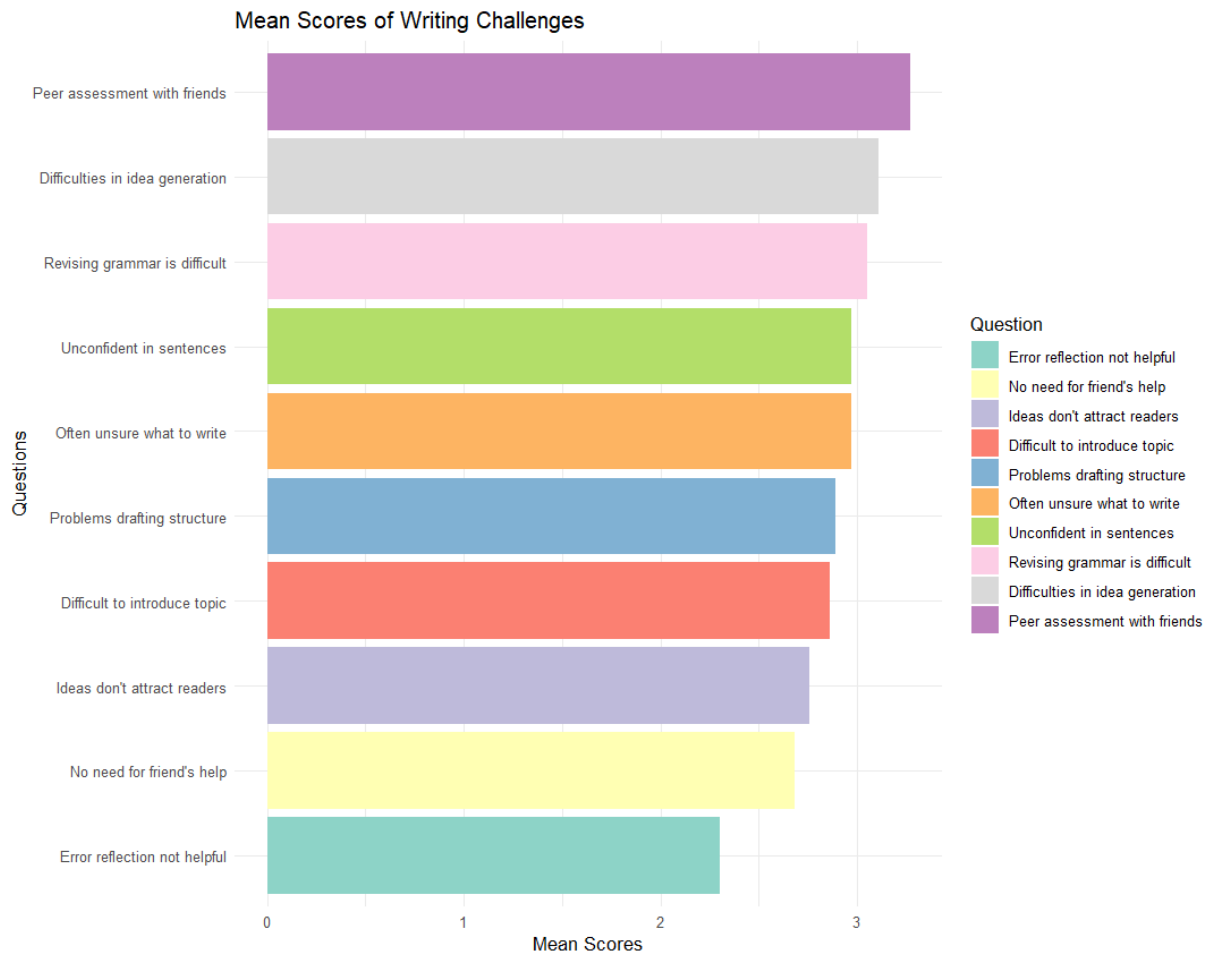


Figure 2. Visualization of Prompts Most Disagreed With

Another important theme is the role of external feedback and the perceived necessity of audience engagement. The disagreement with the need for a friend's help in commenting on texts or the challenge of generating ideas without a certain audience indicates a sense of independence in the writing process.

The prompts also touch on the relationship between the writer and the reader. The disagreement with the idea that one's ideas do not attract readers suggests a level of confidence in the relevance and appeal of their ideas. This could indicate that the participants feel they have valuable insights to share, or it might reflect an understanding that the appeal of writing can vary greatly among different readers and that not attracting some readers does not equate to a lack of value in their ideas.

Additionally, the disagreement with statements about the difficulty of certain writing stages, such as drafting the introduction or feeling consistently unconfident about sentence construction, indicates a nuanced understanding of the writing process among the participants. They seem to recognize that while writing can have challenging aspects, these do not overwhelmingly hinder their ability to write effectively. This perspective could reflect either a high level of skill and comfort with writing or a recognition that while these aspects can be challenging, they are not insurmountable and can be addressed through practice and careful attention.

In summary, the themes emerging from these prompts where participants most disagreed paint a picture of writers who are confident in their abilities, value their independence in the writing process, believe in the relevance and appeal of their ideas, and understand the challenges of writing without being overwhelmed by them. This perspective complements the themes from the most agreed-upon prompts, together depicting a group of individuals who are both reflective about their writing process and confident in their ability to navigate its challenges.

## RQ2

TABLE 2  
RQ2 RESULTS

Theme	Subtheme	Results	Discussion
Empowerment and personal growth through error reflection	Recognizing mistakes as learning opportunities and embracing learning	10 out of 12 students reported feeling more in control of their learning process when they actively identified their own mistakes.	This result aligns with the 'Focus on Mistakes' and 'Empowerment and Responsibility' codes. Students perceive error identification as a critical step towards empowerment, taking responsibility, and fostering personal growth.
	The role of self-review in fostering empowerment	9 out of 12 students felt that self-review allowed them to understand their errors more deeply, leading to a greater sense of empowerment.	Tying in with the 'Self-Review Benefits' code, this demonstrates how self-review is not just about finding errors but also about understanding them, which is a crucial aspect of empowerment and personal development.
	Transitioning from error identification to personal development	All 12 participants expressed that over time, their focus shifted from merely correcting mistakes to understanding how these corrections contribute to their overall personal growth.	This reflects the axial coding category of 'Personal Development'. It shows a clear progression from simply identifying errors to using these errors as a foundation for broader personal growth and learning.
Privacy, confidence, and self-improvement	Enhancing confidence through private self-review	11 out of 12 students reported increased confidence in their writing after engaging in private self-review sessions.	This result supports the 'Privacy and Confidence' code. The privacy of self-review appears to be a significant factor in boosting students' confidence in their writing abilities.
	The impact of self-review on personal writing improvement	All participants noted an improvement in their writing skills and a reduction in similar mistakes in subsequent tasks.	This finding ties into the 'Self-Review Benefits' and 'Privacy and Self-Improvement' axial coding. It underscores how self-review not only builds confidence but also leads to tangible improvements in writing skills.
	Balancing privacy and confidence for effective learning	10 out of 12 students felt that the privacy of self-review was crucial for them to confidently address and learn from their mistakes.	This aligns with the selective coding categories of 'Privacy and Confidence in Self-Review'. It illustrates the interplay between privacy and confidence in creating an effective self-review environment that fosters self-improvement.

V. DISCUSSION

A. Interpretation of Results: Analyzing the Writing Process

The results from this qualitative study offer valuable insights into the proposed writing process. The high agreement with prompts related to iterative revision, error reflection, and the use of tools suggests a writing process where students engage deeply with their writing. This writing process seems to foster a sense of empowerment and personal growth, as evidenced by students feeling more in control of their learning when identifying their own mistakes. Furthermore, the privacy of self-review sessions and their role in boosting confidence indicate a writing process that not only emphasizes technical skill but also focuses on psychological aspects like self-efficacy and autonomy in learning.

B. Comparison With Existing Writing Processes: Error Reflection in Writing

Compared to traditional writing process (Huang & Jun Zhang, 2020; Kabaran, 2022), which often focus on the linear steps of planning, drafting, revising, and editing, the writing process with an error reflection step introduces a nuanced layer. This layer promotes a continuous, iterative process that emphasizes learning from mistakes, a process emphasized in another branch of the literature (Cao et al., 2019; Esterhazy & Damsa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020). The advantage here is the cultivation of reflective practice, where students not only correct errors but also understand them, leading to deeper learning. However, this writing process may

have limitations in time-constrained scenarios or with learners who require more structured guidance. It might also place a higher cognitive load on students, as they need to balance technical skills with reflective insights.

### *C. Pedagogical Implications: Teaching Writing to Undergraduates*

The study's findings can significantly inform pedagogical practices. Educators should, as already widely recommended (Cao et al., 2019; Esterhazy & Damsa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020), encourage an iterative writing process, emphasizing the importance of revising and reflecting on errors. Incorporating self-review sessions can boost students' confidence and autonomy. Educators might also integrate tools for error detection to aid students in their self-review process. However, it's essential to guide students in not just identifying errors but understanding their nature and how to avoid them in future writing. Furthermore, acknowledging the cognitive and emotional aspects of writing, such as the stress of error correction and the satisfaction of personal improvement, is crucial in teaching approaches.

### *D. Recommendations: For Educators and Future Research*

**(a). For educators.** Educators should design and integrate exercises that specifically focus on self-review and error reflection within the curriculum. This could involve activities where students review and critique their own written work, guided by structured questions that prompt them to reflect on potential errors and areas for improvement. Implementing peer review sessions can be particularly effective. In these sessions, students could exchange drafts and provide feedback to each other. This not only helps in identifying errors but also develops critical thinking and constructive criticism skills. To ensure these sessions are productive, educators should provide clear guidelines and training on how to give effective, constructive feedback. While it is beneficial to encourage a flexible, iterative writing process, it is also important to provide structured guidance, especially for students who may find too open-ended an approach overwhelming. This can be achieved by setting clear, achievable goals for each writing assignment and providing step-by-step guides or checklists that students can follow during the self-review process. Incorporating a mix of individual and collaborative writing tasks can also help. While individual tasks encourage personal responsibility, collaborative tasks can provide a sense of support and shared learning. This blend can cater to different learning styles and needs, making the writing process more inclusive and effective.

**(b). For future research.** Future research should explore how the writing process of self-review and error reflection applies in various educational contexts and across different disciplines. This includes understanding how students in the sciences, humanities, social sciences, and other fields respond to and benefit from error reflection. Such research could reveal discipline-specific challenges and opportunities in writing education. Investigating different educational levels (such as high school, undergraduate, and graduate) would also provide insights into how this writing process can be adapted to suit different developmental stages and educational needs. Conducting longitudinal studies to observe the long-term impact of consistent application of self-review and error reflection on students' writing skills would be invaluable. This could involve tracking the progress of students over several semesters or years to assess how their writing skills evolve with continued practice in error reflection. Another area for future research is to compare the effectiveness of various error reflection techniques. This might include traditional methods like instructor feedback, peer review, and self-assessment, as well as digital tools like grammar-checking software or online peer collaboration platforms. Understanding which methods or combinations thereof are most beneficial can help in developing more effective writing instruction strategies.

## VI. CONCLUSION

### *A. Summary of Key Findings and Their Significance*

The study unearthed several crucial insights about the role of error reflection in the writing process among undergraduate students. Primarily, it highlighted that error reflection is not merely a corrective tool but a significant contributor to the development of writing skills and personal growth. Students who actively engaged in identifying and learning from their errors exhibited not only improvements in their writing abilities but also reported a heightened sense of empowerment and responsibility for their learning. This finding points to the necessity of integrating error reflection more deliberately into the writing curriculum, emphasizing its value beyond mere error correction.

### *B. Limitations*

The study was limited by its small quantitative ( $n = 37$ ) and qualitative ( $n = 12$ ) samples. The study was additionally limited by self-reporting and its single-school setting. These limitations suggest that while the study offers valuable preliminary insights, its conclusions should be viewed as provisional rather than definitive.

### *C. Directions for Future Research*

Building on the findings of this study, future research should aim to address its limitations and expand its scope. Larger and more diverse samples could provide a more representative understanding of the impact of error reflection on writing skills. Longitudinal studies would be beneficial in understanding the long-term effects of error reflection

practices on students' writing development. Additionally, exploring the integration of technological tools in the error reflection process could offer insights into how digital advancements can enhance traditional writing pedagogies.

#### *D. Reflection on Feedback Utilization in Writing Education*

The role of error reflection is a vital but often underemphasized aspect in the development of writing skills. Traditional writing process of writing instruction have largely focused on the stages of planning, drafting, revising, and editing, with error correction often being a peripheral activity, primarily teacher driven. However, this study's results suggest a paradigm shift, emphasizing the importance of self-driven error reflection as a central component of the writing process. This aligns with contemporary pedagogical theories that advocate for learner autonomy and the importance of metacognitive skills in education.

Moreover, the findings resonate with the growing body of research (Cao et al., 2019; Esterhazy & Damşa, 2019; Han & Hyland, 2019; Latifi et al., 2021; Link et al., 2022; Zhang & Zou, 2023; Zhang, 2020) that underscores the significance of formative feedback in learning. Unlike summative feedback, which often comes too late to influence the writing process, formative feedback – especially when self-generated through error reflection – has the potential to significantly impact students' writing while they are still engaged in the process. This approach not only helps in immediate skill enhancement but also contributes to the development of a more reflective, self-aware writer, capable of self-assessment and continuous learning. Thus, the study contributes to the evolving understanding of writing education, suggesting a more nuanced and student-centered approach that can effectively complement and enhance existing writing processes.

This study reaffirms the critical role of effective feedback utilization in writing education. Encouraging students to engage with their mistakes in a constructive manner is imperative for developing their skills as competent writers and critical thinkers, essential for their academic and professional futures.

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