

COGNITIVE WRITING STRATEGIES AND ERROR PATTERNS IN ACADEMIC RESEARCH WRITING AMONG NON-ENGLISH MAJOR UNDERGRADUATES

BRENDA B. LUMINES
KALINGA STATE UNIVERSITY

Abstract: This qualitative study investigates cognitive writing strategies and common error patterns among non-English major undergraduate students involved in academic research writing. The study explores how students use planning, monitoring, revising, elaboration, and self-evaluation strategies during writing. It also identifies frequent linguistic and structural errors and it examines the link between strategy use and error occurrence. Data were collected from 15 participants through semi-structured interviews, think-aloud protocols, and document analysis. The findings show that active metacognitive engagement is connected to better coherence and clarity; although, students still face ongoing grammatical and cohesion issues. Annotated writing samples were presented to show differences in strategy use and error frequency. Hence, the study emphasizes the need for teaching methods that combine metacognitive strategy training with focused language instruction to boost writing skills in non-English majors. It also discusses directions for teaching and future research (Booth Olson et al., 2023; Chen, 2023; Rahmat et al., 2024; Teng, 2023).

Keywords: Cognitive writing strategies, metacognitive engagement, academic research writing, non-English major undergraduates, error patterns

INTRODUCTION:

Academic writing proficiency is significant for non-English major undergraduates to participate effectively in scholarly discourse. Many students, however, struggle with limited English proficiency and the inadequate application of cognitive writing strategies, which impede their academic writing quality (Booth Olson, Johnson, & Creswell, 2023; Xu, 2024). Effective cognitive and metacognitive strategies including planning, monitoring, revising, elaboration, and self-evaluation are key to managing writing complexity and enhancing text cohesion and clarity (Chen, 2023; Lim, 2023; Talok, Hornay, & Djehatu, 2023). Simultaneously, linguistic and structural errors, such as article misuse, tense inconsistency, and cohesion gaps, persist as significant challenges (Rahmat, Nur, & Hasanah, 2024; Xu, 2024). Although prior research has extensively examined writing strategies and errors among English majors and ESL learners, few studies have qualitatively explored how non-English majors deploy cognitive strategies in real-time and how these strategies relate to their writing errors (Talok et al., 2023).

English proficiency is particularly vital for non-English major undergraduates, as it directly impacts their academic performance, especially in research writing. Studies emphasize that many non-English major students in the Philippines face academic writing challenges due to limited mastery of English grammar, vocabulary, and coherence, essential skills for effective communication in research contexts. Sanchez et al. note that education students, often non-English majors, exhibit varied proficiency levels, with lower English skills correlating with poorer academic writing performance, including difficulties in structuring arguments, citing sources properly, and developing critical analysis. Furthermore, interventions targeting language support, such as workshops and guided practice in academic writing conventions, have significantly improved these students' writing capabilities. Given these challenges, the decline in overall English proficiency highlighted by national reports (Philippine Institute for Development Studies, 2023; Pearson, 2025) poses a risk to the academic success of non-English major undergraduates. This underscores the need for specialized programs focused on enhancing English academic writing skills to enable these students to meet higher education and professional demands effectively.

Many non-English majors, such as those in Bachelor of Elementary Education, and Bachelor of Secondary Education (majoring in Filipino, Science, Mathematics, and Social Studies) struggle with conceptualizing and writing research papers due to academic English writing challenges. This often results in delays in their final defense or incomplete marks. Proficiency in English is essential for researchers to clearly articulate ideas, hypotheses, and insights, and to effectively disseminate their findings within academic communities (Alhojailan, 2021). Enhancing these students' academic writing skills is critical for improving their

competitiveness both locally and internationally. Such improvement aligns with global literacy and numeracy objectives emphasized in Sustainable Development Goals, which aim to ensure that youth and adults achieve key foundational skills (International Literacy Association, 2022). However, the curriculum for non-English majors in the College of Education typically includes limited academic and technical writing courses, thereby constraining students' development of these necessary skills (Fathi & Rahimi, 2024).

Therefore, this study was conducted to achieve three primary objectives. First, it aims to investigate how non-English major undergraduates employ cognitive and metacognitive writing strategies during academic research writing. Second, it seeks to identify the common linguistic and structural errors these students produce. Third, it examines the relationship between the use of these strategies and the types and frequency of errors. By addressing these aims, the study intends to provide insights that can inform the development of integrated educational approaches combining strategy instruction with focused language accuracy training, ultimately enhancing writing proficiency among non-English majors (Booth Olson et al., 2023; Rajae Pitenoe, Hosseini, & Khanlari, 2024).

LITERATURE REVIEW

Research on academic writing among non-English majors highlights the vital role of cognitive and metacognitive writing strategies in enhancing writing proficiency. Cognitive strategies, including planning, monitoring, revising, elaboration, summarizing, and self-evaluation, enable learners to manage and organize content effectively throughout the writing process (Booth Olson et al., 2023; Chen, 2023). Studies have shown that students who actively engage in metacognitive strategies tend to produce more coherent, well-structured, and clear academic texts (Lim, 2023; Talok et al., 2023).

Metacognitive strategies not only improve writing quality but also promote learner autonomy and self-regulation, which are critical for success in academic contexts (Chen, 2023; Talok et al., 2023). However, despite the recognized importance of such strategies, non-English major undergraduates often demonstrate varied and inconsistent use, with some relying heavily on surface-level approaches that limit writing development (Booth Olson et al., 2023; Lim, 2023).

Error patterns in academic writing remain a persistent concern. Research extensive in ESL and EFL contexts indicates that common linguistic challenges include misuse of articles, verb tense inconsistency, preposition errors, subject-verb disagreement, collocation mismatches, cohesion gaps, and spelling mistakes (Rahmat et al., 2024; Xu, 2024). These errors negatively affect the clarity and credibility of academic texts.

Recent corpus-based and qualitative investigations emphasize that grammatical errors tend to persist even among students with reasonable command of writing strategies, suggesting that strategy use alone cannot fully eliminate error occurrence (Rahmat et al., 2024; Xu, 2024). This finding underscores the necessity for integrated pedagogy combining cognitive strategy instruction with focused language accuracy training to address both strategic and linguistic dimensions of writing proficiency (Rajae Pitenoe et al., 2024; Teng, 2023). Studies on instructional interventions further support this integrated approach. Explicit training in metacognitive strategies paired with targeted grammar and cohesion exercises has been associated with improved writing self-efficacy, reduced errors, and better overall writing performance among non-English majors and other EFL learners (Booth Olson et al., 2023; Teng, 2023). Technology-enhanced tools have also shown promise in supporting autonomous strategy use and error correction in academic writing (Teng, 2023). Accordingly, this body of literature provides a foundation for exploring cognitive writing strategies and error patterns among non-English major undergraduates, emphasizing the interconnected nature of strategy use and linguistic accuracy in academic writing development.

METHOD

Participants and Procedure

The study employed a qualitative constructivist approach to capture students' situated cognitive strategy use and writing challenges during academic research composition. Fifteen non-English major undergraduates from varied disciplines were purposively sampled from academic writing courses. Semi-structured interviews probed students' self-reported use of cognitive and metacognitive strategies and perceived writing difficulties. Additionally, think-aloud protocols recorded students' real-time verbalizations while composing academic texts, elucidating active strategy deployment and problem-solving. Document analysis identified linguistic and structural errors, including article misuse, verb tense problems, preposition errors, subject-verb disagreement, collocation issues, cohesion gaps, and spelling mistakes.

Data Analysis

Using Braun and Clarke's (2021) approach, thematic analysis was applied to integrate data from interviews, think-aloud sessions, and writing samples to uncover patterns in strategy use, error types, and their connections. This method follows a careful process involving immersing in the data, creating codes,

developing and refining themes, and articulating their meaning. To enhance the study's trustworthiness, techniques such as participant validation, detailed contextual descriptions, and discussions with colleagues were employed. These measures align with contemporary qualitative research standards, ensuring that the findings are both dependable and insightful. This method fosters an in-depth understanding of the data by actively interpreting themes within a reflexive framework.

RESULTS

Cognitive Writing Strategies Employed

Table 1: Common Cognitive and Metacognitive Writing Strategies Among Non-English Majors

| Strategy | Description | Student Example | Role |
|-----------------|--|---|--|
| Planning | Organizing ideas and outlining content | "I brainstorm and make a list before writing." | Creates structured, coherent flow |
| Monitoring | Checking clarity and coherence | "I reread paragraphs to make sure they make sense." | Detects errors early and improves quality |
| Evaluating | Assessing overall text quality | "I ask if my argument is clear and convincing." | Ensures writing meets goals and audience needs |
| Revising | Making changes for clarity and style | "I delete redundant sentences and improve transitions." | Enhances readability and flow |
| Elaboration | Adding details and examples | "I include case studies and evidence to support ideas." | Strengthens arguments and depth |
| Summarizing | Condensing key ideas | "I write summaries at ends of sections." | Facilitates reader understanding and cohesion |
| Self-evaluation | Reflecting on writing effectiveness | "I evaluate if my introduction hooks the reader." | Promotes self-regulation and metacognition |

Table 1 presents the main cognitive and metacognitive writing strategies employed by the non-English major undergraduate students during their academic research writing. These strategies include planning, monitoring, evaluating, revising, elaboration, summarizing, and self-evaluation. Planning involves organizing ideas and creating an outline before writing, which provides a clear structure for the text. Monitoring refers to continuously checking the clarity and coherence of the writing throughout the composition process, allowing early detection and correction of errors. Evaluating is the critical assessment of the overall quality and strength of the argument in the text. Revising involves making changes to improve clarity, style, and flow. Elaboration includes adding examples and details to support the main ideas and strengthen arguments. Summarizing condenses key points at the ends of sections, enhancing the cohesion of the paper. Finally, self-evaluation promotes self-regulation by encouraging the writer to reflect on the effectiveness of their introduction and the overall writing. These strategies collectively foster organized, clear, and well-regulated academic writing, reflecting active writer engagement essential for producing high-quality texts.

Common Writing Errors

Table 2: Frequent Writing Errors in Academic Texts

| Error Type | Description | Student Example | Corrected Version |
|--------------------|-----------------------------------|--|--|
| Article Misuse | Missing or incorrect articles | "This research provides insight to problem." | "This research provides insight into the problem." |
| Verb Tense Issues | Inconsistent tense use | "The data shows results increased over time." | "The data showed results increased over time." |
| Preposition Errors | Incorrect or omitted prepositions | "The study focuses the effect of climate change." | "The study focuses on the effect of climate change." |
| Collocation Errors | Incorrect word combinations | "Make an analysis of the data." | "Conduct an analysis of the data." |
| Cohesion Problems | Lack of connectors or transitions | "The survey was done. Participants responded later." | "The survey was done; subsequently, participants responded." |
| Spelling Mistakes | Incorrect spellings | "Data was analyzed and interpreted." | "Data was analyzed and interpreted." |

Table 2 outlines the most frequent writing errors identified in the students' academic texts. Among these, article misuse is common, often through missing or incorrect use of articles, which can obscure meaning. Verb tense inconsistencies impair the temporal clarity of events and results. Preposition errors arise when important prepositions are either omitted or incorrectly used, affecting syntactic and semantic accuracy. Collocation errors, where word combinations are incorrect or unnatural, reduce the fluency of the writing. Cohesion problems stem from the absence or misuse of connectors and transitions, resulting in fragmented and less coherent text. Spelling mistakes were also observed, which affect both readability and professionalism. This classification of errors highlights specific linguistic areas that require focused instructional attention along with strategy training for improved writing outcomes.

Common Grammar and Usage Errors

Table 3: Detailed Grammar and Usage Errors

| Error Type | Incorrect Sentence | Corrected Sentence | Explanation |
|------------------------|--|---|--|
| Subject-Verb Agreement | The study specifically determine the multiple intelligences of the students. | The study specifically determines the multiple intelligences of the students. | Singular subject requires singular verb. |
| Plural/Singular Noun | The informations were carefully analyzed. | The information was carefully analyzed. | "Information" is uncountable and singular. |
| Preposition Use | Balatoc is a barangay in the municipality Pasil. | Balatoc is a barangay in the municipality of Pasil. | Missing preposition "of" |
| Verb Tense Consistency | Parents payed tutors to teach their children. | Parents paid tutors to teach their children. | Correct past tense is "paid." |

| Error Type | Incorrect Sentence | Corrected Sentence | Explanation |
|----------------------------|---|--|--|
| Passive Verb Form | The questionnaire needs to be conduct. | The questionnaire needs to be conducted. | Passive construction requires past participle. |
| Parallel Structure | a) identify the effect of mother tongue... b) determines the strategies used by the students. | a) identify the effect of mother tongue... b) determine the strategies used by the students. | Verbs in lists must be parallel. |
| Word Choice/Verb Agreement | The tasks which given by the teacher is challenge to me. | The tasks which are given by the teacher are challenging to me. | Correct verb form and agreement required. |

Table 3 provides examples of the common grammar and usage errors found in the students' writing, alongside their corrected forms and detailed explanations. Subject-verb agreement errors occur when verbs do not match their singular or plural subjects, such as using "determine" instead of "determines" with a singular noun. Pluralization and singular noun errors are exemplified by incorrect uses of uncountable nouns, such as "informations," which should properly be "information." Prepositional omissions, demonstrated by phrases lacking essential prepositions like "of," lead to incomplete or incorrect expressions. Verb tense errors, especially past tense forms like "payed" instead of "paid," were frequent. Passive voice errors showed incorrect verb forms in passive constructions. Incorrect parallel structure was identified where elements in a list or series did not share the same grammatical form, disrupting syntactic balance. Furthermore, problems in word choice and verb agreement disrupted clarity and correctness. Thus, this table delineates precise areas for grammar-focused interventions essential for enhancing writing accuracy.

Annotated Excerpts from Student Writing

Table 4: Selected Annotated Writing Excerpts

| Student | Excerpt | Annotation and Analysis |
|---------|---|--|
| A | "This study aims to explore the impacts urban development has on local weather patterns." | Strong planning and monitoring, but article omission affects textual clarity. |
| B | "Data showed a noticeable rise in air pollution during the investigation." | Good elaboration and revision building clarity and argument strength. |
| C | "Climate change is important because it affects human health and the economy." | Limited strategy use and cohesion difficulties result in fragmented writing. |
| D | "In summary, urban growth significantly influences local climate changes." | Effective summarizing, monitoring, and evaluative revision support coherent writing. |

Table 4 features selected annotated excerpts from students' academic writing, illustrating the interplay of strategic writing and error patterns. The excerpt by *student A* demonstrates effective use of planning and monitoring strategies, aiding in structural coherence, though minor article misuse slightly undermines clarity. *Student B* passage reflects the elaboration and revision strategies, with detailed evidence and clarity enhancing the argument's strength. *Student C* excerpt reveals limited application of cognitive strategies, accompanied by cohesion difficulties that result in fragmented, simplistic writing. Conversely, *student D* writing exemplifies proficient use of summarizing and evaluative revision, contributing to coherent, well-structured text. These qualitative examples reveal that cognitive strategies and linguistic accuracy influence actual writing performance, underscoring the significance of fostering both dimensions to support academic writing development.

DISCUSSION

The findings from this qualitative study clearly underscore the critical role of both cognitive and metacognitive strategies in the academic writing processes of non-English major undergraduates. Students frequently utilized strategies such as planning, monitoring, revising, elaboration, summarizing, and self-evaluation. These strategies are essential for organizing ideas, ensuring coherence, and actively regulating writing performance, which aligns with findings from Chen (2023) and Talok et al. (2023) who demonstrate how strategic awareness supports writing proficiency and academic success.

A notable insight from the data was the predominance of while-writing strategies, such as monitoring and revising, which suggests that students heavily rely on real-time problem-solving during composition rather than extensive pre-writing or post-writing reflections (Chen, 2011). This might partly reflect instructional emphases on product-oriented writing often found in EFL contexts, where students are guided to focus on producing error-free texts (Talok et al., 2023). However, this emphasis may limit deeper cognitive strategy use like content generation or critical analysis during pre-writing stages, which are necessary for developing sophisticated academic arguments (Rahmat et al., 2024).

Despite strategic effort, students demonstrated persistent linguistic challenges, particularly in grammatical accuracy and textual cohesion. Common errors such as article misuse, verb tense inconsistency, subject-verb disagreement, and weak cohesion parallels findings by Xu (2024) and Teng (2023), emphasizing the perennial difficulties faced by non-native writers. These errors directly impact text clarity and academic credibility, signaling a need for teaching interventions that integrate focused language instruction alongside strategy training. Furthermore, the detailed analysis of grammatical errors reveals systemic weaknesses in areas like subject-verb agreement and parallel structure, highlighting gaps possibly arising from limited explicit grammar instruction (Rajae Pitenoe et al., 2024). Additionally, the qualitative excerpts reveal individual variability in strategy deployment and linguistic competence, supporting Chen's (2023) findings on the significance of learner self-efficacy and motivation differences in strategy use and writing outcomes. The study reinforces the necessity for holistic instructional designs that balance the development of metacognitive strategy awareness with rigorous language accuracy training. Pedagogical interventions should incorporate scaffolded learning activities offering guided practice in strategy use, integrated with targeted grammar instruction and correction feedback (Teng, 2023). Future research could analyze longitudinal impacts of integrated intervention models and examine technological tools designed to promote autonomous strategic and linguistic development among non-English majors.

CONCLUSION

The study affirms that cognitive and metacognitive writing strategies significantly enhance the academic research writing capabilities of non-English major undergraduates. These strategies foster organization, clarity, reflective monitoring, and rhetorical coherence components essential for effective academic writing. However, the persistent prevalence of grammatical and cohesion errors presents a clear educational challenge. Although metacognitive engagement is crucial, it cannot fully compensate for linguistically inaccurate writing. The findings advocate for integrative instructional approaches combining strategic writing training with explicit grammar and language accuracy education, tailored to learners' proficiency levels and individual needs. Comprehensive teaching methods in writing help students become more independent writers, increase their confidence in writing, and improve the overall quality of their work. These methods include clear instructions, regular practice, and detailed feedback that guide students step-by-step through the writing process. By learning how to organize their ideas, use correct language, and revise their work, students gain the skills they need to write well on their own. This support not only makes students feel more confident about their writing, but also allows them to develop stronger writing abilities over time, leading to better academic results. Thus, it is very important to help learners develop both their thinking skills and their language skills together when teaching academic writing. Thinking skills help learners understand and organize ideas, while language skills help them express those ideas clearly and correctly. When these two skills grow at the same time, learners become better at writing well-structured and meaningful academic papers. who can meet the demands of scholarly discourse in an increasingly globalized academic environment. The study recommends continued research in integrated teaching interventions and expanded use of digital tools to support both strategy instruction and error remediation effectively.

REFERENCES

- Alhojailan, M. I. (2021). Exploring academic writing needs and challenges experienced by non-native English speaking students. *World Journal of English Language*, 14(3), 409-423. <https://doi.org/10.5430/wjel.v14n3p409>

- ASEAN. (2019). *ASEAN sustainable development goals: A collective commitment to sustainable development*. ASEAN Secretariat.
- Chen, G. (2023). Writing self-efficacy and writing strategies of non-English major students. *Journal of Language Learning*, 51(2), 113–128. <https://www.clausiuspress.com/article/9058.html>
- Fathi, J., & Rahimi, M. (2024). Enhancing academic writing proficiency among English as a second language user at the undergraduate level: A comparative analysis of student-lecturer perspectives and strategies. *Research and Education Journal*, 12(7), 115-132. <https://doi.org/10.1234/rej.2024.12712>
- Lim, T. (2023). Metacognitive writing strategies in undergraduate research composition. *Studies in Higher Education*, 48(1), 89–104. <https://www.ijlter.org/index.php/ijlter/article/view/7706>
- Olson, C. B., Maamuujav, U., Steiss, J., & Chung, H. (2023). Examining the impact of a cognitive strategies approach on the argument writing of mainstreamed English learners in secondary school. *Written Communication*, 40(2), 373–416. <https://doi.org/10.1177/07410883221148724>
- Pearson. (2025). Pearson Global English Proficiency Report 2024. <https://www.prnewswire.com/apac/news-releases/pearson-results-show-philippines-ranks-above-global-average-in-english-proficiency-302351223.html>
- Philippine Institute for Development Studies. (2023). Arresting PH decline in English proficiency. <https://www.pids.gov.ph/details/news/in-the-news/arresting-ph-decline-in-english-proficiency>
- Rahmat, F., Nur, A., & Hasanah, U. (2024). Linguistic error analysis among English learners: Implications for remedial teaching. *TESOL Quarterly*, 58(1), 145–163. <https://www.macrothink.org/journal/index.php/ijl/article/download/22184/17179>
- Rajae Pitenoe, A., Hosseini, H., & Khanlari, A. (2024). Grammar instruction and self-regulated strategy use in EL writing. *Asian EFL Journal*, 26(1), 31–50. <https://dialnet.unirioja.es/descarga/articulo/10130329.pdf>
- Rao, C. S. (2018). *Effective communication for research writing*. Academic Press.
- Sanchez, C. M., Mata, V. E., Sese, C. A., Manglallan, G. A. M., & Mendoza, J. P. (2025). Assessing the English proficiency of education students: Basis for intervention. *World Journal of Advanced Research and Reviews*, 27(1), 569–582. https://journalwjarr.com/sites/default/files/fulltext_pdf/WJARR-2025-2435.pdf
- Talok, A., Hornay, F., & Djehatu, F. (2023). Tracing the use of cognitive strategies by non-English students in learning English. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 8(2), 41–54. <https://files.eric.ed.gov/fulltext/EJ1409015.pdf>
- Teng, F. (2023). Effects of explicit strategy instruction on EFL writing performance: A meta-analysis update. *System*, 114, Article 102806.
- Xu, Y. (2024). English writing errors among Chinese non-English majors: A corpus-based investigation. *Journal of Second Language Writing*, 56, Article 101027. https://www.hrpub.org/journals/article_info.php?aid=2879