

Weekly Paragraph Writing in Enhancing ESL Writing Confidence: A Classroom-based Action Research Focused on Engineering Students

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Abstract

Effective written communication is vital in engineering education, particularly for ESL (English as a Second Language) learners who face additional challenges in articulating the technical content in their assignments. This study investigates the pedagogical impact of weekly paragraph writing on ESL engineering students' writing confidence and performance. Addressing the lack of sustained, low-stakes writing opportunities within technical curricula, the study was conducted as a five-week classroom-based action research intervention at a government technical institute in Sri Lanka. The research aimed to (1) assess whether short-form writing tasks could improve the students' academic writing confidence and (2) evaluate the feasibility of integrating writing into large, discipline-diverse ESL classrooms. The participants included 25–30 second-year students from eight engineering disciplines. The data were collected through weekly student paragraphs, instructor field notes, feedback logs, and pre- and post-intervention surveys. A thematic content analysis revealed steady improvements in their paragraphs in terms of structure, coherence, and grammar. The mean scores increased from 3.43 to 3.79 over five weeks, with further gains observed in the revised drafts. While the students showed modest gains in self-reported confidence, many valued the opportunity to practice writing in a technical context. The findings support the integration of short, structured writing tasks into technical education as a low-cost, scalable strategy for language development. The study highlights the importance of scaffolding, formative feedback, and peer review in fostering learner autonomy and writing fluency. It contributes a practical, replicable model for embedding language instruction into engineering curricula, especially in multilingual and resource-constrained environments.

Keywords: ESL learners; Engineering education; Paragraph writing; Writing confidence; Action research

Introduction

Effective communication, particularly in writing, has become a vital competency for engineering graduates preparing to enter the global workforce. While technical expertise remains the cornerstone of engineering education, the ability to communicate ideas through structured writing is increasingly acknowledged as essential for academic success and career development (Paretti, 2008; Wolfe, 2010). Writing not only serves the purpose of documentation but also supports conceptual understanding,

critical thinking, and reflective learning. Despite this recognition, writing instruction often remains marginal in undergraduate engineering curricula, especially in English as a Second Language (ESL) contexts. Institutional constraints—including limited teaching time, inadequate training for instructors, and low student motivation—continue to hinder the systematic integration of writing into technical disciplines (Coppola & Daniels, 1996; Paretti, 2018). As a result, writing tends to be isolated within stand-alone language courses or concentrated on final-year projects, with little reinforcement throughout the academic journey.

The Writing Across the Curriculum (WAC) framework has been proposed to embed writing across disciplinary boundaries, supporting both content mastery and linguistic competence (Russell, 2002). However, implementing WAC in large, multidisciplinary classrooms typical of engineering institutes remains challenging. Large cohorts, minimal instructional support, and a persistent belief that engineering and language learning are unrelated domains limit its effectiveness. In response, this study introduces a more focused and practical approach: integrating short, structured paragraph-writing exercises into weekly English lessons for engineering undergraduates at a government technical institute in Sri Lanka. By moving away from high-stakes assignments such as technical reports or capstone projects, the intervention emphasizes routine, low-pressure writing intended to build fluency and confidence.

Unlike much of the existing literature, which frames writing primarily as a tool for technical knowledge acquisition, this study highlights its role in shaping students' confidence as communicators. Situated within the frameworks of Writing-to-Learn (WTL) and Communicative Language Teaching (CLT), the intervention contributes to English for Specific Purposes (ESP) and applied linguistics while offering a cost-effective, scalable model for resource-limited ESL environments. Covering eight engineering disciplines—Civil, Electrical, Electronic, IT, Mechanical, Chemical, Polymer, and Textile & Clothing—the research emphasizes writing confidence as a measurable outcome, addressing an often-overlooked dimension of pedagogy.

Overall, the study aims to fulfil the following objectives:

- To examine whether consistent short paragraph writing can improve ESL engineering students' confidence in academic writing.
- To assess the feasibility and effectiveness of a low-resource intervention across multiple engineering fields.

Materials and Methods

This study employed a qualitative, classroom-based action research design to examine the impact of weekly paragraph writing on ESL engineering students' writing confidence and performance. Action research was selected for its suitability in real-time pedagogical interventions within classroom contexts. The researcher also served as the instructor, enabling consistent implementation, observation, and reflection throughout the study.

Participants comprised 25–30 second-year ESL students from each of eight engineering disciplines: Civil, Electrical, Electronic, Information Technology, Mechanical, Chemical, Polymer, and Textile & Clothing. Students, aged 22–25 years, were enrolled in a government-run technical institute in Sri Lanka. A stratified convenience sampling method ensured proportional representation across disciplines while minimizing disruption to the existing class structure.

The intervention spanned five consecutive weeks within the students' regular three-hour weekly English sessions. An initial workshop introduced paragraph-writing components: the topic sentence, supporting details, explanations/examples, and a concluding sentence. Each week, students received a five-minute oral briefing on a selected prompt, followed by a 30-minute writing task (120–150 words).

Prompts were designed to balance technical relevance with linguistic accessibility and were categorized into descriptive, opinion-based, explanatory, and revision-based types to ensure varied cognitive and linguistic engagement.

A multi-method approach was used to capture both quantitative and qualitative data:

- Weekly Paragraphs – the primary evidence of writing progress.
- Instructor Field Notes – documented engagement patterns and recurring challenges.
- Pre- and Post-Intervention Surveys – 4-point Likert scale questionnaires measuring writing confidence and perceptions.
- Feedback Logs – instructor comments on student submissions highlighting linguistic and structural issues.

Data analysis combined thematic content analysis with quantitative scoring. A holistic rubric with five criteria—clarity of topic sentence, relevance of supporting details, coherence, grammar, and effectiveness of concluding sentence—was used to rate each paragraph on a 1 (Needs Improvement) to 5 (Excellent) scale. Weekly mean scores were calculated to track progression. Revised drafts were analyzed to evaluate the impact of feedback. Survey responses were statistically summarized to assess confidence shifts, while field notes enriched the analysis with qualitative insights into classroom dynamics.

The study was informed by four key models:

- Writing-to-Learn (WTL): Writing as a cognitive tool for reinforcing knowledge and critical thinking.
- Vygotsky’s Zone of Proximal Development (ZPD): Writing tasks as scaffolded support enabling performance beyond current ability.
- Communicative Language Teaching (CLT): Writing framed as meaningful communication central to language acquisition.
- Incidental Writing in STEM (Hanson & Williams, 2008): Short, low-stakes writing integrated into technical disciplines to encourage reflection and fluency.

Results

Over the five-week intervention, students demonstrated steady gains in writing proficiency. The average holistic rubric score rose from 3.43 in Week 1 to 3.79 in Week 5, reflecting improvements in organization, content development, and grammatical control. Revised drafts consistently outperformed originals by 0.2–0.6 points, highlighting the positive effect of feedback and revision.

Early challenges included weak cohesion, inconsistent verb tenses, and fragmented ideas. However, with sustained practice and rubric-based guidance, students began producing more coherent, logically sequenced paragraphs. Engagement levels varied with prompt type: descriptive and opinion-based prompts elicited higher interest, while explanatory prompts proved more linguistically demanding.

To validate these improvements observed, inferential analyses were conducted. A paired-samples t-test comparing Week 1 ($M = 3.43$, $SD = 0.41$) and Week 5 ($M = 3.79$, $SD = 0.38$) rubric scores indicated a statistically significant improvement, $t(54) = 4.27$, $p < .001$. Likewise, a Wilcoxon signed-rank test on self-reported confidence scores revealed a modest yet significant increase ($Z = -2.11$, $p = .035$). Together, these findings provide robust evidence of the intervention’s pedagogical effectiveness.

Illustrative Writing Excerpts

Week 1: *“Engineering is very important for develop a country. It help people but sometime it is difficult to study. I try to write but I do not know the correct grammar.”*

Week 5: *“Engineering plays a vital role in national development because it provides innovative solutions to social and industrial needs. Although studying engineering is challenging, consistent practice in writing has improved my ability to explain ideas clearly and confidently.”*

These examples illustrate the shift from fragmented, error-prone sentences to more grammatically accurate, cohesive, and logically connected writing.

Table 1. Weekly Mean Rubric Scores for Student Paragraphs

Week	Mean Score	Standard Deviation
1	3.43	0.41
2	3.55	0.39
3	3.61	0.36
4	3.70	0.34
5	3.79	0.38

As shown in Table 1, weekly mean scores increased gradually, demonstrating consistent improvement across the intervention period. Survey results indicated a modest improvement in students’ self-reported writing confidence, increasing from an average of 3.00 pre-intervention to 3.10 post-intervention on a 4-point Likert scale. Students’ recognition of the importance of writing in engineering remained strong throughout (mean 3.40–3.50). Though the intervention did not significantly alter overall attitudes, many students valued the integration of writing into their technical curriculum.

Students appreciated the opportunity to revise their work, reflected in a mean satisfaction score of 3.52. However, many expressed difficulty interpreting rubric-based feedback and requested more concrete examples. Interestingly, more than 80% did not actively seek help from instructors, peers, or academic support services. This highlights the need for structured guidance and awareness of support systems. Instructor observations confirmed incremental gains in both engagement and writing quality. Notable strategies included in-class reading of student samples, peer reviews, and short lectures on paragraph unity (drawing on Strunk & White). Developing effective prompts and managing time within a multi-topic syllabus were identified as implementation challenges. Nevertheless, the intervention was seen as sustainable, effective, and pedagogically valuable.

Discussion

This study examined the effectiveness of weekly paragraph writing exercises integrated into an English course for ESL engineering undergraduates in a Sri Lankan technical institute. As outlined in the Introduction and Literature Review, a clear gap exists in technical curricula: the lack of sustained, low-stakes writing opportunities for ESL learners. The intervention addressed this gap through a theoretically grounded and resource-feasible design, drawing on Writing-to-Learn (WTL) and incidental writing theory in STEM contexts. Results confirmed notable gains in grammar, cohesion, and organization, supporting earlier findings that structured, short writing tasks can enhance both linguistic and cognitive development (e.g., Bean, 2011; Ferris & Hedgcock, 2014). While overall mean scores improved steadily across the five weeks, the pace of individual progress varied—some students responded quickly to feedback, while others advanced more gradually. This variation reflects authentic classroom learning dynamics and strengthens the credibility of the findings. The outcomes can be interpreted through the lens of WTL and Vygotsky’s Zone of Proximal Development (ZPD), as scaffolded tasks and repeated practice allowed learners to extend their competence beyond initial levels.

Likewise, the results affirm principles of Communicative Language Teaching (CLT), since the writing activities provided meaningful communicative practice rather than isolated grammar drills. Overall, the intervention demonstrates that embedding short, structured writing tasks can significantly improve both student performance and confidence, contributing to more integrated language support within engineering education.

The structured prompts served a dual purpose: fostering language development while reinforcing disciplinary engagement. By making tasks linguistically accessible yet contextually relevant to engineering, the activities connected with students' technical identities and increased motivation. Learning gains were particularly evident in topic sentence clarity and logical idea linking, outcomes that aligned closely with Vygotsky's Zone of Proximal Development (ZPD). Through scaffolded support, students extended their writing abilities beyond initial competence. This success demonstrates how targeted paragraph writing can bridge the long-standing divide between language instruction and technical content delivery.

The intervention proved both manageable and sustainable. Conducted within the standard three-hour English session, it required only a brief five-minute briefing followed by 30 minutes of writing each week. While initial preparation—such as developing prompts and designing the rubric—demanded effort, these resources became reusable across cohorts, reducing long-term workload. The holistic rubric also streamlined assessment by balancing attention to content and language. This low-cost, high-impact model shows that meaningful writing instruction can be embedded into technical curricula without major disruption.

Assessment posed challenges despite overall success. Many students misinterpret rubric-based feedback, focusing mainly on surface-level grammar while neglecting coherence and organization. This mirrors well-documented difficulties in ESL contexts (Felder & Brent, 2004). To address this, model paragraphs and explicit coding strategies were introduced mid-intervention, which improved alignment between expectations and student revisions. However, more than 80% of students did not actively seek additional support, revealing limited feedback literacy and help-seeking behaviors. Embedding peer review sessions, guided by simplified rubrics, may help alleviate instructor workload while promoting collaborative learning. Such adaptations align with broader calls for sustainable feedback practices in large and diverse ESL classrooms.

Although peer review was not formally included in this study, the findings suggest strong potential for its integration. Given students' reluctance to seek feedback independently, structured peer-review sessions could provide accessible, low-stakes opportunities for critique. Supported by rubrics and sample models, peer review would encourage collaboration, critical reflection, and shared responsibility. Careful design, however, is essential to ensure equitable participation across varying proficiency levels.

Survey results showed a modest increase in writing confidence (from 3.00 to 3.10 on a 4-point scale). Qualitative reflections suggested that revision opportunities and regular feedback enhanced motivation and helped students see writing as relevant to their engineering studies. While the numerical gains were limited, the intervention achieved its broader aim of strengthening perceptions of writing as valuable and attainable. Nonetheless, the gap between perceived confidence and actual performance highlights the need for more explicit writing instruction and clearer assessment alignment. Incorporating reflective activities, such as self-assessment checklists or guided journals, could further bridge this gap and support both confidence and competence in future implementations.

Conclusion

This study offers both theoretical and practical contributions to the integration of language instruction within engineering education. By piloting a low-resource, classroom-based intervention in a Sri Lankan technical institute, it addressed a key gap in ESL higher education: the absence of sustained, low-stakes writing practice. The intervention enhanced students' writing competence and confidence through regular, structured paragraph tasks embedded in existing lessons, supported by revision and feedback. Its strength lay in its pragmatic, replicable design, which improved linguistic outcomes without disrupting the technical syllabus. The findings validate *Writing-to-Learn* and *Communicative Language Teaching* principles in technical contexts, offering a scalable model for multilingual and resource-limited classrooms. While the intervention was effective, limitations were noted in feedback clarity and rubric interpretation. Future adaptations should include coded rubrics, collective feedback sessions, and structured peer review cycles to strengthen sustainability. Additionally, targeted instructor training in formative assessment and paragraph-based pedagogy would further enhance impact. In sum, embedding short, structured writing tasks into engineering curricula can significantly support ESL learners by improving communication skills, fostering autonomy, and building confidence. As interdisciplinary communication becomes increasingly vital in global workplaces, equipping engineering undergraduates with writing fluency is not just advantageous but essential for their academic and professional success.

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