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## Empowering academic essay writing through project-based learning: A case study of non-English major students in Institut Teknologi dan Bisnis Asia Malang

Nur Lailatul Aqromi<sup>1</sup>, Tri Wahyuni<sup>2</sup>

Institut Teknologi dan Bisnis Asia Malang; Rembuksari I A Sukarno Hatta Malang, (0341) 478877

e-mail: [\\*lyla@asia.ac.id](mailto:lyla@asia.ac.id)

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### A B S T R A C T

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This case study investigated how Project-Based Learning (PBL) supported academic essay writing among non-English major undergraduates in an English for Specific Purposes (ESP) course at Institut Teknologi dan Bisnis Asia Malang (N = 32, Information Technology). Methodologically, the study contributed a transparent analytic protocol that combined pre post analytic rubric scoring, classroom observations, weekly reflection journals, and focus-group discussions, with procedures for coding, theme development, member checking, and an audit trail to enhance trustworthiness. The four-week PBL intervention culminated in a digital magazine on the “AI Phenomenon” and scaffolded five writing components: content, structure/organization, argumentation, cohesion, and language use. Descriptive comparisons showed gains across components on a 5-point scale, with structure/organization (+1.04) and cohesion (+1.15) indicating stronger organization and clearer reader guidance. Thematic synthesis of qualitative sources triangulated these results, evidencing increased writer confidence, clearer uptake of feedback, and engagement driven by an authentic publication target. Contextually, the study documented an actionable PBL model for ESP settings with novice EFL writers, detailing design principles such as authentic product, iterative peer review aligned with analytic rubrics, and reflective documentation. The study argued that PBL provided a structured pathway from formulaic drafting toward audience aware, coherent academic essays.

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### 1. INTRODUCTION

Academic writing is increasingly recognized as a cross-disciplinary competency for students across majors, including those outside English programs. Yet many non-English-major students struggle to appropriate academic genres because they receive limited, fragmented exposure to purposeful writing practice. Afrin (2016) shows that learners with basic English proficiency often face difficulty organizing ideas and sustaining coherence due to constrained opportunities for guided, meaningful production.

Project-Based Learning (PBL) has been advanced as a learner-centered approach that situates language use in authentic, goal-driven activity. In addition, effective academic writing instruction requires structured pedagogical support that helps students manage complex tasks such as organizing ideas, constructing references, and applying academic conventions consistently.

Aldobekhi and Abahussain (2024) describe PBL as sustained engagement in real-world tasks that demand collaboration and inquiry, while Rofik(2023) underscores its alignment with contemporary needs for active learning. In language education, Tryantama and Al Farhan (2024) argue that PBL encourages meaningful English use, interweaving language development with critical thinking, creativity, and communication.

Evidence for PBL in writing continues to accumulate. Cahyono et al. (2024) report benefits for EFL learners' engagement and performance when instruction is anchored in meaningful contexts. In a cohort of first-year university students, Aldobekhi and Abahussain (2024) found significant improvement in writing after a PBL intervention. Extending this line of work, Gholami and Alinasab (2017) show that integrating source-based tasks within PBL strengthens students' ability to produce academically sound essays—an outcome central to higher-education writing.

Despite this momentum, applications tailored to non-English-major cohorts in Indonesian higher education, especially within ESP courses, remain comparatively under-documented. Fitriana (2023) noted that multilingual learners often depend on clear, well sequenced instructions to interpret teachers' expectations and navigate academic writing tasks effectively. This perspective highlights how instructional clarity remains a critical factor in supporting novice writers in diverse ESP contexts. Prior studies frequently emphasize general language skills or focus on English majors, creating a gap for ESP contexts that serve novice writers in disciplinary programs such as Information Technology. The present study addresses that gap by implementing PBL in an ESP academic-writing course for first-year IT students at Institut Teknologi dan Bisnis Asia Malang.

Our pedagogical design targets five components of essay writing—content, structure/organization, argumentation, cohesion, and language use. Komang Sri Wardani et al. (2021) note that PBL can enhance organization and mechanics when tasks are sequenced and criteria are explicit. In ESP settings, Hidayati (2018) observes that PBL can heighten both emotional and cognitive engagement, while Umam and Fauziah (2022) associate PBL with gains in critical thinking essential to academic and professional communication. Earlier work by Musa et al. (2012) further highlights soft-skill development (teamwork, problem solving, communication) that complements the demands of academic writing. Situated in this literature, our study employs a qualitative case-study design with multiple evidence streams: pre- and post-writing assessments, classroom observations, weekly reflection journals, and focus-group discussions (FGDs). This triangulated approach allows us to trace not only whether writing improves but also how learners experience the process where feedback is taken up, where organization consolidates, and how confidence evolves over time.

**Positioning and Contribution.** Beyond confirming that “PBL works,” this article speaks to two active debates. First is the mechanism debate: we examine how aligning instruction to an authentic product (a digital magazine) and embedding iterative peer-review cycles can plausibly drive gains in cohesion and structure/organization by sharpening audience awareness and strengthening paragraph-level guidance. Second is the transfer debate: we consider whether genre-aware practice in a focused ESP task (argumentative essays on an AI theme) fosters strategies that generalize to adjacent academic writing demands. By articulating these mechanisms and transfer pathways—and by documenting a transparent analytic protocol with triangulated data—this study aims to move the conversation beyond effectiveness claims toward explanatory insight and replicable design principles for ESP courses serving non-English-major students.

## 2. METHOD

### 2.1 Design and Context

This study employed a qualitative case-study design with supportive quantitative analyses to explain how PBL fosters audience-aware academic essay writing in an ESP course for non-English-major students. A case approach was selected to provide context-rich explanations of processes and outcomes in an authentic instructional setting (Creswell, 2018).

### 2.2 Participants

Participants were 32 second-semester undergraduates from the Information Technology Department at Institut Teknologi dan Bisnis Asia Malang who volunteered to join the study. All were enrolled in the same ESP course and completed the full four-week intervention.

### 2.3 Pedagogical Intervention (PBL)

The four-week sequence followed standard PBL stages adapted from (Trisdiono, 2014) and (Hidayati, 2018) they are : Topic exploration, Planning, Drafting, Revising (iterative peer review), and Publishing . Students produced argumentative essays on the shared theme “AI Phenomenon.” The authentic product was a digital magazine, which served as a real audience target, heightening audience awareness, accountability, coherence, and macro-organization mechanisms elaborated in the Discussion.

1. Week 1 (Exploration & Planning): analyze sample essays; map claim–evidence; outline with headings.
2. Week 2 (Drafting): produce a first full draft guided by an analytic rubric aligned to five components: content, structure/organization, argumentation, cohesion, language use (adapted from Komang Sri Wardani et al., 2021).
3. Week 3 (Revision via Peer Review): two structured peer-review cycles explicitly tied to the rubric; require concrete revision moves (e.g., strengthen topic sentence; add bridging transitions; clarify warrant for evidence).
4. Week 4 (Editing & Publishing): language polishing, layout, and submission to the class digital magazine.

This design aligns with the outcomes reported later: early stabilization of cohesion and structure/organization through audience-focused revision, followed by gradual consolidation in argumentation and language use.

### 2.4 Instruments and Data Sources

To ensure methodological triangulation, four evidence sources were collected. Pre- and post-writing assessments provided baseline and final essays, which were scored using a five-component analytic rubric (content, structure, argumentation, cohesion, language use) adapted from Komang Sri Wardani et al. (2021).Classroom observations, using structured sheets from Indrasari et al. (2016) captured weekly levels of participation, collaboration, time management, and responsiveness to feedback on a 1–5 scale. Students also submitted weekly reflection journals ( $N = 128$ ), documenting learning experiences, feedback uptake, and challenges. At the end of the module, semi-structured FGD elicited perceptions of PBL and suggestions for improvement. To ensure scoring reliability, two instructors calibrated on sample scripts before rating independently, resolving disagreements through discussion.

## 2.5 Data Analysis

For analysing quantitative data, for each rubric component, we computed student-level pre/post means and mean gains (see Table 1). To examine statistical evidence of change consistent with the case focus, paired-samples t-tests were performed on (a) component scores and (b) student-wise averages across components. Effect sizes were reported as Cohen's dz and Hedges' g (small-sample corrected). Full inferential results are provided in the Statistical Supplement; observation indicators are summarized in Table 3.

While in analysing qualitative, observation notes, journals, and FGD transcripts were analyzed using Braun & Clarke (2006) reflexive thematic analysis: familiarization; initial coding (semantic/latent); theme development; review against the full corpus; defining/naming themes; and analytic write-up linking themes to the research questions and literature. Iterative cross-source comparison surfaced convergences/divergences among classroom behavior, written products, and student accounts. Frequencies of salient journal themes are reported in Table 2 to indicate prevalence while retaining qualitative depth.

## 2.6 Ethics and Integrity

Participation was voluntary with informed consent. Identifiers were removed at analysis and publication stages; data were used only for research and pedagogical improvement. The study adhered to institutional guidelines for classroom-based research.

# 3. RESULTS AND DISCUSSION

## 3.1 Results

### 3.1.1 Effects of PBL on Academic Essay Writing (Component-Level)

Analyses of the pre–post assessments indicated improvement across all rubric components (see Table 1 for descriptive statistics and the Statistical Supplement for paired-samples tests and effect sizes). Gains were most evident in cohesion and structure/organization, with students' final drafts exhibited clearer paragraph sequencing, more purposeful transitions, and a stronger sense of reader guidance. These changes were frequently traceable to the peer-review cycles embedded in the project, which directed attention to topic sentences, logical progression, and cross-paragraph linkages.

Improvements in content and argumentation were also observed, though of comparatively moderate magnitude. Students increasingly anchored claims with relevant examples and began to signal counterpoints or limitations, suggesting a developing awareness of argumentative conventions. Language use showed steady refinement—particularly in academic register and error reduction—yet remained an area where a subset of writers continued to require targeted support. Taken together, the component-wise pattern suggested that authentic publication goals, combined with iterative feedback, were particularly consequential for coherence and macro-organization, while advances in argument quality and language accuracy, although present, appeared to consolidate more gradually. (Component means and gains are summarized in Table 1; inferential results and effect sizes are reported in the Statistical Supplement.)

**Table 1.** Average Scores in Pre- and Post-Writing Assessments

Writing Component	Pre-Test Mean	Post-Test Mean	Mean Gain
Topic Understanding	3.45	3.81	+0.36
Essay Structure	2.99	4.03	+1.04
Argument Support	3.07	4.06	+0.99
Cohesion	2.85	4.00	+1.15
Language Use	2.95	3.97	+1.02

### 3.1.2 Production of Publishable Essays on the “AI Phenomenon”

All thirty-two students completed a final essay included in the digital magazine. Reviewers noted clearer rhetorical framing, more consistent paragraphing, and a more uniform academic tone in the published versions relative to initial drafts. The authentic audience associated with publication functioned as a quality driver: students reported re-reading for flow and reorganized sections to achieve stronger thematic continuity. In this sense, the final product served not only as an assessment artifact but also as a scaffold for audience awareness—an important precondition for sustained cohesion and structure.

Analysis of 128 weekly reflection entries (32 students  $\times$  4 weeks) converged on four recurrent themes: growing confidence in managing the writing process; the utility of peer learning and feedback; improved understanding of essay structure; and motivation arising from the visibility of the published outcome. Frequencies for the four themes were reported in Table 2.

**Table 2.** Thematic Analysis from Reflections (Top 4 Themes)

Theme	Frequency (N = 128)	Percentage (%)
Confidence improvement	78	60.9%
Peer learning and feedback usefulness	65	50.8%
Better understanding of essay writing	62	48.4%
Motivation through real audience	56	43.8%

### Student Engagement and Perceptions of PBL

Classroom observations documented progressive increases in participation, collaboration, time management, and responsiveness to feedback across the four sessions (see Table 3). The most pronounced shift occurred in feedback uptake: students moved from surface editing to more substantive revisions (e.g., reworking paragraph focus, strengthening transitions, and clarifying claim–evidence links). Reflection journals and focus-group discussions corroborated these patterns, describing a shift from single-draft habits toward a recursive, feedback-informed approach to writing. Students consistently cited the peer-review checkpoints as pivotal for recognizing organizational issues and for converting general advice into concrete revision moves.

Overall, the triangulated evidence portrayed a coherent trajectory: authentic publication goals and structured peer review first stabilized cohesion and structure/organization, after which gains in argumentation, content depth, and language use accumulated through iterative drafting. The observed changes aligned with the instructional design’s emphasis on genre awareness, audience orientation, and staged revision, which together appeared to have supported the transition from formulaic drafting to more coherent, reader-oriented academic prose.

**Table 3.** Classroom Engagement Growth (Sampled Dimensions)

Session	Avg. Participation	Collaboration	Time Management	Feedback Responsiveness
Session 1	2.8	3.0	2.6	2.5
Session 4	4.3	4.5	4.2	4.4

### 3.2 Discussion

Rather than reiterating the quantitative gains, we interpret how the instructional design likely produced the observed improvements—especially in cohesion and structure/organization. Two interlocking mechanisms are salient. First, an authentic product target—the digital magazine—made the audience real and the consequences visible. Students reported re-reading for flow, strengthening paragraph focus, and smoothing transitions because their texts would be publicly showcased. This audience orientation plausibly sharpened macro-organization and cross-paragraph linkage. Second, iterative peer review concentrated attention on topic sentences, progression of ideas, and connective tissue between claims and evidence. Together, these mechanisms align with accounts of PBL that emphasize meaningful output and collaborative inquiry as drivers of form–function alignment in writing. For instance, Fatimah & Santiana (2017) describe confidence gains when feedback cycles are structured, while Cahyani., (2021) documents improvements in coherence and organization under systematic PBL implementation. (Trisdiono, 2014) likewise positions task authenticity and learner agency as central to quality revisions, a pattern mirrored here as students moved from surface edits to substantive re-organization.

A second question concerns how far these learning gains travel. We view the project as genre-aware practice: students were coached to make audience, purpose, and evidence expectations explicit and to revise with those expectations in mind. Such practice can support near transfer to adjacent ESP tasks (e.g., project briefs, lab or design memos) that demand clear paragraph architecture, signposted reasoning, and reader guidance. Over time, we expect further transfer to emerge when instructors consistently cue students to reuse the same repertoire planning with headings, drafting around topic sentences, checking claim evidence links, and conducting cohesion passes focused on transitions and reference chains. In this trajectory, argument quality and language accuracy typically consolidate more gradually than organization and cohesion, which is consistent with how complex genres are internalized.

**Practical Implications for ESP Course Design.** Based on these mechanism and transfer accounts, we recommend: (1) anchor tasks to an authentic publication or showcase (e.g., class magazine/website) with required reader checks during revision; (2) embed rubric-based peer-review cycles tied to the five components: content, structure/organization, argumentation, cohesion, language use and concrete revision prompts; and (3) institutionalize reflective documentation (brief weekly reflections capturing feedback uptake, revision rationales, and next steps) as metacognitive scaffolds and an audit trail.

**Limitations and directions.** This case privileges explanatory depth over broad causal claims. Future research might examine (a) the durability of organization/cohesion gains across subsequent courses, (b) transfer via targeted performance tasks in other ESP genres, and (c) triangulate rubric outcomes with discourse-analytic measures of cohesion (e.g., transition density, reference chains) to refine the mechanism account.

#### 4. CONCLUSION

This case study shows that Project-Based Learning (PBL) can move non-English-major students from formulaic drafting toward audience-aware academic prose in an ESP context. By orienting the course around an authentic publication target 'The Class Digital Magazine' and structuring iterative, rubric-aligned peer review, students began to write with a reader in mind: paragraphs were sequenced more deliberately, transitions served clear rhetorical purposes, and guidance for the reader was more visible. These changes were most pronounced in cohesion and structure/organization, with steady but more gradual consolidation in content development, argumentation, and language use. Triangulated evidence across pre–post rubric scores, classroom observations, reflection journals, and FGDs converged on the same storyline: authentic audience and structured revision cycles underpinned the observed gains.

The implications for ESP writing pedagogy are straightforward. Tasks benefit from a real audience that raises the stakes of clarity and coherence; peer review tied directly to analytic rubric components channels attention to actionable revision moves; and brief reflective documentation helps students externalize decision-making, track feedback uptake, and plan next steps. Together, these design choices encourage a shift from single-draft habits to a recursive practice of shaping texts for readers precisely the stance required for academic discourse beyond the language classroom.

Looking ahead, two lines of inquiry would deepen and generalize these findings. Longitudinal follow-ups could trace whether improvements in organization and cohesion persist and transfer to adjacent ESP genres (e.g., project briefs, lab/design memos) as students' progress through their programs. In parallel, larger multi-cohort samples with confirmatory inferential analyses and effect-size reporting would complement the present case design, while discourse-analytic measures of cohesion (e.g., transition density, reference chains) could sharpen the mechanism account. Taken together, these steps would help institutions operationalize PBL as a scalable pathway for cultivating audience-oriented academic writing among novice EFL writers.

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