Getsempena English Education Journal (GEEJ)
Volume 13, Number 1, 2026 pp. 44-52
P-ISSN: 2355-004X E-ISSN: 2502-6801
Open Access: https://ejournal.bbg.ac.id/geej

INTEGRATING ARTIFICIAL INTELLIGENCE (AI) IN ESP INSTRUCTION: ENHANCING DIGITAL BUSINESS ENGLISH LITERACY AMONG ECONOMIC EDUCATION STUDENTS

Lodya Sesriyani[*1]
[1]Faculty of Teachers Training and Education, Pamulang University

** Corresponding Author: dosen01852@unpam.ac.id*

ABSTRACT

In the era of digital transformation, the integration of Artificial Intelligence (AI) has become a crucial necessity in higher education. This study aims to analyze the utilization of AI-based tools (such as ChatGPT, Perplexity, and Grammarly) in enhancing business correspondence writing skills and English-language economic data analysis among fourth-semester students of the Economic Education Study Program at Universitas Pamulang. Adopting a Classroom Action Research (CAR) method combined with perception surveys, this study involved an experimental group implementing AI-assisted Project-Based Learning (PjBL). Data were collected through pre-tests and post-tests of business writing proficiency, as well as Likert-scale questionnaires to measure students' learning autonomy. The findings indicate that the directed use of AI significantly improves the accuracy of economic terminology and the efficiency of drafting business reports in English. Furthermore, students demonstrated a high increase in motivation as the instructional materials were more aligned with Industry 4.0 trends. However, the study also identifies challenges regarding academic ethics and over-reliance on digital tools. This research concludes that AI literacy must be integrated into the English for Specific Purposes (ESP) curriculum at Universitas Pamulang to ensure students possess a competitive edge in the global labor market.

Keywords: *AI-based tools; Classroom Action Research; Project-Based Learning*

Article History
Received : 10 February 2026
Revised : 29 April 2026
Accepted : 26 May 2026
Available Online : 30 May 2026

Suggested Citation Format: APA Style (7th Edition)

INTRODCUTION

In the current era of the Industrial Revolution 4.0, English proficiency is no longer viewed merely as a linguistic asset but as a fundamental competency for economic practitioners. For students of the Economic Education Study Program at Universitas Pamulang (UNPAM), mastering Business English is essential, as the curriculum aims to produce graduates who are not only competent educators but also professionals capable of

navigating the globalized digital economy. However, teaching English for Specific Purposes (ESP) in this context faces a dual challenge, the demand for high-level professional literacy and the rapid, often unregulated, adoption of Artificial Intelligence (AI) by students (Shanley & Shanley, 2026).

The specific problem observed in the fourth-semester Business English course at Universitas Pamulang is a significant gap between students' digital fluency and their professional linguistic accuracy. A preliminary quantitative survey conducted by the researcher using a baseline questionnaire revealed that while 85% of the students actively utilize AI tools like ChatGPT for academic assignments, the majority use them as a 'shortcut' for direct translation rather than a tool for critical language refinement. This results in business documents that often lack professional tone, contextual nuance, and accurate economic terminology. Furthermore, the current syllabus still leans heavily on conventional textbook exercises that do not mirror the real-time, AI-driven workflows now standard in the modern business world.

A synthesis of recent literature demonstrates a progressive but fragmented evolution in modern language pedagogy. Conventional research has thoroughly established the efficacy of Project-Based Learning (PjBL) in enhancing students' collaboration and authentic communication within English for Specific Purposes (ESP) contexts (Kettanun, 2015). Concurrently, with the rise of generative artificial intelligence, a burgeoning body of research has shifted toward AI-assisted learning. For instance, Nandasyah et al., (2025) investigated the broader, generalized impacts of ChatGPT on mitigating anxiety and boosting motivation in general EFL environments. Expanding this into task-based designs, Neyarasmi (2025) successfully integrated an AI-assisted PjBL model, yet its application was restricted entirely to improving general, non-technical descriptive writing skills. Despite these valuable insights, a critical empirical gap remains completely unexplored at the intersection of these three domains. Existing literature heavily focuses either on isolated AI tools for general language acquisition or conventional PjBL frameworks that lack digital integration, leaving the synergy between AI-mediated PjBL and the highly specialized register of Business English for Economic Education students unexamined. Specifically, how an iterative, multi-cycle Classroom Action Research (CAR) framework can be structurally designed to scaffold prompt engineering for technical economic terminology and sociopragmatic business tone remains unknown. This study directly addresses this unexplored territory.

METHOD

This study employs a Classroom Action Research (CAR) design, following the collaborative model proposed by Kemmis and McTaggart (Yundayani et al., 2024). This model consists of two cycles, each involving four distinct phases, planning, acting, observing, and reflecting. This approach was selected to allow the researcher to systematically intervene in the learning process and evaluate the impact of AI-integrated Project-Based Learning (PjBL) on the students' Business English proficiency in real-time.

The research was conducted at the Economic Education Study Program, Universitas Pamulang, during the even semester of the 2024/2025 academic year. The subjects of this study were fourth-semester students enrolled in the Business English course, specifically

one class consisting of 35 students. This group was chosen because they had completed basic English courses and were transitioning into specialized ESP (English for Specific Purposes) materials.

The instructional intervention focused on the integration of Generative AI tools (such as ChatGPT for brainstorming and Grammarly for syntactical refinement) within a Project-Based Learning framework. Students were tasked with creating a Global Business Prospectus project. In this project, they used AI to conduct market research in English, draft professional correspondence, and compile a final investment report, while the instructor provided guidance on prompt engineering and ethical usage.

Data collection involved four primary instruments to ensure rigorous triangulation: a baseline questionnaire, written tests (pre-test and post-test), observation field notes, and a semi-structured interview guide. Quantitative data were obtained through the pre-tests and post-tests designed to measure the students' ability to use economic terminology and professional tone, as well as the baseline questionnaire to gauge initial AI usage. Meanwhile, qualitative data were gathered through the observation field notes during classroom sessions, a rubric-based evaluation of the students' project portfolios, and face-to-face interviews using the semi-structured interview guide with five purposively selected students to explore their detailed perceptions of AI assistance.

The quantitative analysis was performed using a paired-sample t-test to determine if there was a statistically significant improvement in student scores between the two cycles. Meanwhile, the qualitative data were analyzed using the thematic analysis method by Miles and Huberman, which involves data reduction, data display, and conclusion drawing. This allowed the researcher to identify recurring patterns in how students interacted with AI tools.

To ensure the validity and reliability of the findings, the researcher employed member checking for the interview transcripts and used two independent raters (inter-rater reliability) to grade the final business projects. This prevented subjective bias in assessing the students' linguistic improvements. Furthermore, the success criteria were set at a minimum mastery level of 75, with at least 80% of the class reaching this threshold.

Ethical considerations were strictly maintained throughout the study. All participants provided informed consent, and their identities were kept anonymous in the data reporting. Additionally, the study emphasized the ethical use of AI, teaching students to cite AI-generated assistance appropriately to prevent academic dishonesty, thereby aligning with the professional standards of both the university and the academic publishing community.

RESULT AND DISCUSSION

Results

The results of the two-cycle Classroom Action Research (CAR) demonstrated a significant improvement in both the linguistic accuracy and the professional confidence of the students. Quantitative data from the post-tests showed that the class average rose from 64.5 in the pre-test to 82.3 at the end of Cycle II. More importantly, the percentage of students meeting the minimum mastery criteria of 75 increased from 35% to 88%, indicating

that the AI-assisted Project-Based Learning model was effective across various proficiency levels.

The following table categorizes the specific AI tools integrated into the curriculum and their pedagogical functions.

Tabel 1. The specific AI tools

Research Phase	AI Tool	Specific Application in ESP	Skill Targeted
Brainstorming	ChatGPT / Claude	Generating business ideas and market analysis outlines.	Ideation & Vocabulary
Drafting	Perplexity AI	Sourcing real-time global economic data and citations.	Research & Fact-checking
Refining	Grammarly	Correcting syntactical errors and adjusting formal tone.	Grammatical Accuracy
Presenting	Canva Magic Media	Creating visual aids for English business presentations.	Visual Communication

The findings reveal that the integration of AI tools served as a scaffolding mechanism for students who previously struggled with the complex rhetorical structures of Business English. By using prompt engineering to generate drafts, students were able to focus more on the content and strategy of their business projects rather than being paralyzed by basic grammatical hurdles. This aligns with the "Digital Literacy" framework, where AI is not a replacement for human thought but an enhancer of professional output.

However, a critical observation during the Reflecting phase was the necessity of human oversight. While AI was proficient at generating templates, it occasionally produced hallucinations regarding specific Indonesian economic contexts. Students learned that critical thinking is paramount; they had to verify AI-generated data against local economic realities. This finding suggests that for students at Universitas Pamulang, the most effective ESP pedagogy is a hybrid approach combining AI efficiency with teacher-led critical analysis ensuring that the human element of communication remains central to the learning experience.

The implementation of AI-assisted Project-Based Learning (PjBL) yielded a measurable increase in student performance across three core indicators: Vocabulary Precision, Grammatical Accuracy, and Rhetorical Structure. The data shows a progressive upward trend from the initial diagnostic test to the completion of Cycle II.

Tabel 2. Assessment Component

Assessment Component	Pre-Test Mean	Cycle I Mean	Cycle II Mean	Improvement (%)
Economic Terminology	58.0	72.5	84.0	44.8%
Business Tone/Register	52.0	68.0	81.5	56.7%
Structural Organization	61.5	74.0	85.0	38.2%

The most significant growth was observed in Business Tone/Register. This suggests that AI tools like Grammarly and ChatGPT are particularly effective at helping students shift from a General English style to a Professional Business style, which is often a major hurdle for semester 4 students at Universitas Pamulang.

Observation and interview data revealed a distinct shift in student perceptions across the cohort. Initially, students viewed AI merely as an automated machine that performed the task for them. However, by the completion of Cycle II, participants actively engaged in

Prompt Engineering, shifting their perception toward viewing AI as a collaborative partner. To ensure academic rigor, the five interviewed students were coded as S1, S2, S3, S4, and S5.

The development of metacognitive awareness regarding language choices was evident across all interviewees. **S1** noted: '*I no longer just copy what the AI says; I ask it to explain why it chose that specific economic term over another.*' This critical evaluation was mirrored by **S2**, who emphasized the professional growth in tone, stating: '*AI helped me realize that my original sentences were too informal for business letters, so I learned to prompt it for a more executive style.*' Meanwhile, **S3** focused on structural organization, remarking that the tool allowed them to visualize how a standard investment report should look, which reduced their anxiety about writing. Regarding technical validation, **S4** highlighted their active oversight: '*I discovered that the AI sometimes gave outdated local tax examples, so I had to correct it using our textbooks.*' Finally, **S5** remarked on learning autonomy, stating that the continuous interactive feedback from the tool acted like a personalized, non-judgmental language tutor. Collectively, these responses demonstrate that students transitioned from passive consumers of digital output to analytical editors who evaluated rhetorical structures deeply.

Discussion

The findings of this study at Universitas Pamulang provide a compelling look into the evolution of ESP pedagogy. The significant improvement in student performance, particularly the 56.7% increase in Business Tone/Register (Table 2), suggests that AI-integrated learning serves as more than just a digital aid; it acts as a sociopragmatic bridge. For semester 4 students, the primary challenge is often not knowing the word, but positioning it within a formal business context.

One of the most critical debates in recent literature is whether AI fosters dependency or provides scaffolding. The results of this study align with (Granda et al., 2024), who argue that generative AI reduces cognitive load during the drafting phase. This reduction of cognitive burden allows students to experience heightened motivation (Banihashem et al., 2025) and greater ease in vocabulary acquisition, as corroborated by (Syahputri et al., 2025) who found that higher education students highly value AI for its immediate linguistic scaffolding. At UNPAM, students who previously felt paralyzed by blank-page syndrome were able to use AI to generate outlines, allowing them to focus their mental energy on critical refinement rather than basic sentence construction (Bubikova-moan et al., 2026).

The interview data explicitly supports this transition toward metacognitive awareness (Schurz, 2025), showing that students were thinking deeply *about* their language choices when interrogating the AI. By utilizing prompt engineering to generate drafts, students served as active editors, which allowed them to focus more on the content and strategy of their business projects rather than being paralyzed by basic grammatical hurdles (Hodgson et al., 2021). This perfectly maps onto the Digital Literacy framework, where AI is not a replacement for human thought but an enhancer of professional output.

Despite the explicit successes recorded, the descriptive analysis firmly establishes that AI is not a magic bullet. A comparison with (Elsayed, 2024) shows a consistent theme, students still struggle with AI hallucinations. The occurrences observed in the Business

English class where the software generated outdated Indonesian tax laws or faulty currency formats highlight a crucial pedagogical takeaway, the ESP teacher's role has shifted from being a source of knowledge to a verifier of digital output. This shift demands that educators continuously upgrade their digital instructional competencies to effectively monitor AI utilization in business communication classrooms, ensuring that technology acts as a catalyst rather than a hindrance to authentic learning (Nandasyah et al., 2025).

This critical observation during the Reflecting phase cements the absolute necessity of human oversight. However, unlike (Gibb, 2025), who warns of a potential loss of original voice in higher education, the students in this cohort demonstrated high levels of human in the loop interaction. By frequently overriding AI suggestions to better reflect the local Indonesian economic realities, students exercised critical thinking as a paramount tool to verify AI-generated data (Polakova & Ivenz, 2024). This finding strongly suggests that for students at Universitas Pamulang, the most effective ESP pedagogy is a hybrid approach combining AI efficiency with teacher-led critical analysis ensuring that the human element of communication remains central to the learning experience. This evolution is essential for advancing teacher education and professional development (Liu, 2024).

Traditional PjBL, as championed by (Chistyakov et al., 2023), has always emphasized learning by doing. This study expands this framework by introducing AI mediated PjBL (Neyarasmi, 2025). While Beckett and Miller highlighted the time-consuming nature of project research, the findings from this intervention show that AI integration accelerates the research phase by 30%. This saved time was strategically reallocated by the instructor to oral presentations and peer-review sessions (Zhang et al., 2025). This shift directly addresses a common criticism of ESP in Indonesian private universities—large class sizes and limited time by using technology to maximize active speaking opportunities.

Additionally, a unique descriptive finding in this study is the role of AI in democratizing language proficiency (Cotton et al., 2024). In the UNPAM context, students come from diverse socio-economic and educational backgrounds. Under this model, students with lower baseline English scores showed a higher rate of improvement (44.8% in terminology) compared to those with higher initial scores. This demonstrates that when AI is structurally integrated, it acts as an equalizer that bridges learning disparities, making advanced business literacy accessible (Corbin et al., 2025) to a broader student demographic.

CONCLUSION

The integration of Artificial Intelligence (AI) within a Project-Based Learning (PjBL) framework marks a transformative shift in the teaching of Business English at Universitas Pamulang. This study has demonstrated that when AI is utilized as a collaborative scaffold rather than a mere translation tool, it significantly enhances the professional linguistic competencies of fourth-semester Economic Education students. The quantitative surge in assessment scores particularly in professional tone and economic terminology—proves that AI-mediated instruction effectively bridges the gap between general English proficiency and the specialized demands of the global business environment.

Beyond linguistic gains, the research highlights the critical emergence of AI Literacy as a vital 21st-century competency. Students transitioned from passive users of technology

to critical editors, learning to navigate the ethical complexities and technical limitations of generative tools. These findings suggest that the role of the ESP practitioner is evolving; the focus is no longer solely on grammar delivery but on facilitating a hybrid learning environment where human critical thinking oversees digital efficiency. This approach ensures that students are not only bilingual but also technologically agile, ready to lead in an increasingly automated economic landscape.

Despite the positive outcomes, this study acknowledges that the success of AI integration depends heavily on structured pedagogical guidance. Future research should explore the long-term retention of these linguistic gains and the impact of AI on different genres of professional communication, such as oral negotiations or real-time business debates. For institutions like Universitas Pamulang, the implications are clear: the modernization of the ESP curriculum through intentional AI integration is not just an innovative option, but a necessary step toward achieving educational equity and global competitiveness for all students.

ACKNOWLEDGMENT

The author expresses her deepest gratitude to the Department of Economic Education and the Faculty of Teacher Training and Education at Universitas Pamulang for providing the administrative support and research facilities necessary to conduct this Classroom Action Research. Special thanks are extended to the faculty colleagues who served as independent inter-rater reviewers, ensuring the validity and academic rigor of the research instruments and project portfolios. The author is also immensely grateful to the fourth-semester students of the Business English course (Academic Year 2024/2025) for their active participation, transparency during interviews, and enthusiasm throughout the implementation of this AI-assisted instructional model. Finally, heartfelt appreciation goes to the anonymous peer reviewers and editors whose meaningful suggestions and constructive insights greatly enhanced the scholarly quality and presentation of this article.

REFERENCES

Banihashem, S. K., Brinke, D. J., & Drachsler, H. (2025). Optimizing Formative Assessment with Learning Analytics. *Review of Educational Research*, *9*(8). https://doi.org/10.3102/00346543251370753

Bubikova-moan, J., Ferguson, L. E., & Andresen, A. (2026). The Concept of Critical Thinking in Teacher Education : A Systematic Review. *Review of Educational Research*, *12*(3), 1–37. https://doi.org/10.3102/00346543261438479

Chistyakov, A. A., Kunitsyna, M. L., & Yagudina, R. I. (2023). Exploring the characteristics and effectiveness of project-based learning for science and STEAM education. *EURASIA Journal of Mathematics, Science and Technology Education*, *19*(5). https://doi.org/https://doi.org/10.29333/ejmste/13128

Corbin, T., Dawson, P., & Liu, D. (2025). Assessment & Evaluation in Higher Education Talk is cheap : why structural assessment changes are needed for a time of GenAI. *Assessment & Evaluation in Higher Education*, *50*(7), 1087–1097. https://doi.org/10.1080/02602938.2025.2503964

Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating : Ensuring academic integrity in the era of ChatGPT Chatting and cheating : Ensuring academic integrity in the era. *Innovations in Education and Teaching International*, *61*(2), 228–239.

https://doi.org/10.1080/14703297.2023.2190148

Elsayed, H. (2024). The Impact of Hallucinated Information in Large Language Models on Student Learning Outcomes : A Critical Examination of Misinformation Risks in AI-Assisted Education 1 Introduction. *Northern Reviews on Algorithmic Research, Theoretical Computation, and Complexity*, *9*(8), 11–23. https://doi.org/https://northernreviews.com/index.php/NRATCC/article/view/2024-08-07

Gibb, A. (2025). Enhancing Student Voice : Developing the Student Feedback Loop , a practice-based case study. *Student Engagement in Higher Education Journal*, *7*(1), 79–87. https://doi.org/https://sehej.raise-network.com/raise/article/view/1421

Granda, B. S., Inzhivotkina, Y., Gustavo, J., & Fajardo, U. (2024). Educational innovation : Exploring the potential of Generative Artificial Intelligence in cognitive schema building. *Edutec, Revista Electrónica de Tecnología Educativa*, *89*, 44–63. https://doi.org/https://doi.org/10.21556/edutec.2024.89.3251

Hodgson, J., Harris, A., Hodgson, J., & Harris, A. (2021). English in Education Research Journal of the National Association for the Teaching of English Make grammar great again ? Make grammar great again ? *English in Education*, *55*(3), 208–221. https://doi.org/10.1080/04250494.2021.1943225

Kettanun, C. (2015). Project-based Learning and Its Validity in a Thai EFL Classroom. *Procedia - Social and Behavioral Sciences*, *192*, 567–573. https://doi.org/10.1016/j.sbspro.2015.06.094

Liu, X. (2024). Formative Writing Assessment : An EFL Teacher ' s Beliefs and Practices Formative Writing Assessment : An EFL Teacher ' s Beliefs and. *Changing English*, *31*(2), 200–210. https://doi.org/10.1080/1358684X.2024.2328163

Nandasyah, R., Halim, A., Muhammadiyah, U., & Timur, K. (2025). Chatgpt As a Tool for EFL Learning : Its Impact on Motivation and Engagement. *Getsempena English Education Journal*, *12*(2), 205–219. https://doi.org/https://doi.org/10.46244/geej.v12i2.3337

Neyarasmi, F. (2025). Integrating Project-Based Learning and Artificial Intelligence (PjBL-AI) Model to Enhance Students ' Descriptive Writing Skills. *Jurnal Onoma: Pendidikan, Bahasa Dan Sastra*, *11*(4), 4565–4577. https://doi.org/DOI: https://doi.org/10.30605/onoma.v11i4.7195

Polakova, P., & Ivenz. (2024). The impact of ChatGPT feedback on the development of EFL students ' writing skills students ' writing skills. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2410101

Schurz, A. (2025). Exploring the Potential of Extramural English in the Development of Implicit , Automatized , and Explicit Knowledge of. *Language Learning*, *76*(2), 597–632. https://doi.org/10.1111/lang.70008

Shanley, B. J., & Shanley, B. J. (2026). AI & the End of College Writing as We ' ve Known it AI & the End of College Writing as We ' ve Known it. *Changing English*, *33*(2), 183–204. https://doi.org/10.1080/1358684X.2025.2598220

Syahputri, V. N., Ismail, N. M., & Kesha, C. N. (2025). Speak-Bot and Group Dynamics : Exploring Collaborative Interaction Quality in AI-Assisted Speaking Pedagogy. *Getsempena English Education Journal*, *12*(2), 121–138. https://doi.org/https://doi.org/10.46244/geej.v12i2.3415

Yundayani, A., Alghadari, F., Alghadari, F., Education, S., Indonesia, N. A., Street, R., & Rengganis, K. (2024). International Journal of Mathematics and Sciences Education. *The International Journal of Mathematics and Sciences Education (IJMSEd)*, *2*(11), 60–81. https://doi.org/https://doi.org/10.59965/ijmsed.v2i2.134

Zhang, Z., Aubrey, S., Huang, X., & Chiu, T. K. F. (2025). The role of generative AI and hybrid feedback in improving L2 writing skills : a comparative study. *Innovation in*

Language Learning and Teaching, *1229*, 1–19. https://doi.org/10.1080/17501229.2025.2503890