

Artificial Intelligence in University English Classes in Taiwan: Opportunities, Risks, and a Context-Sensitive Framework for Integration.

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Abstract

This review examines the use of artificial intelligence (AI), particularly generative AI, in university English classes in Taiwan, where English as a foreign language (EFL) learning intersects with English-medium instruction (EMI) and the Program on Bilingual Education for Students in College (BEST). The paper synthesizes Taiwan-based studies of ChatGPT-supported EFL writing, international research on generative AI in higher education, and policy guidance from the Ministry of Education and UNESCO. Results: The review identifies key benefits, including individualized feedback, writing-process support, low-stakes language practice, EMI preparation, and reduced routine teacher workload. It also highlights major risks, including overreliance, uneven feedback quality, academic integrity concerns, privacy issues, inequitable access, and the possible weakening of critical thinking. AI should be treated neither as a simple solution to English proficiency challenges nor as a threat to be excluded from classrooms. Instead, it should be integrated through transparent assessment, process-based writing tasks, teacher professional development, and critical AI literacy. The paper proposes a context-sensitive framework for AI integration in Taiwanese higher education and calls for future research that examines durable language learning rather than short-term performance gains.

Keywords: Artificial Intelligence; Generative AI; English Language Teaching; Taiwanese Higher Education; EFL Writing; EMI

1. Introduction

Artificial intelligence (AI) has become an increasingly visible presence in higher education. Systematic reviews have shown that AI applications in higher education have expanded across learner support, assessment, profiling, prediction, and intelligent tutoring, while also raising questions about how educators can make pedagogically meaningful use of these systems (Zawacki-Richter et al., 2019). In English language teaching, AI's influence is especially direct because many tools work through language itself: they correct grammar, generate examples, translate texts, summarize readings, simulate conversations, evaluate drafts, and produce extended academic prose. These functions create significant possibilities for English classes, but they also raise urgent pedagogical and ethical questions. If AI can help students revise a paragraph, prepare for a presentation, or understand a difficult reading, then it may expand opportunities for language practice. If it allows students to bypass the process of composing, thinking, and revising, then it may weaken the very learning that English classes are designed to support.

This question is particularly important in Taiwan. University English education in Taiwan has long been shaped by the status of English as a foreign language, uneven learner proficiency, exam-oriented prior learning experiences, and growing expectations for international academic and professional communication. These pressures have intensified under Taiwan's bilingual education agenda. The Ministry of Education's Program on Bilingual Education for Students in College, commonly referred to as BEST, aims to strengthen students' English ability, expand English-taught courses, and

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support the broader goal of higher education bilingualization (Ministry of Education [MOE], 2021). Within this policy environment, AI is likely to influence how universities support English learning, EMI readiness, and academic literacy.

The rapid availability of generative AI has changed the practical conditions of English teaching. Earlier computer-assisted language learning tools often provided fixed exercises or rule-based corrections. Current generative AI systems can respond flexibly to prompts, adapt explanations, produce model texts, and sustain dialogue. In education more broadly, large language models have been associated with opportunities for content generation, personalization, feedback, and interaction, but also with concerns about accuracy, bias, overreliance, and assessment validity (Kasneci et al., 2023). These capacities are attractive in Taiwanese university English classes, where teachers often work with large classes, mixed proficiency levels, limited writing conference time, and increasing pressure to prepare students for EMI courses. Yet the same capacities also complicate assessment and authorship. A student who uses AI to brainstorm, revise, and reflect may become a more strategic writer; a student who submits AI-generated prose without understanding it may produce a polished product while learning little.

This review examines the use of AI in English classes in Taiwanese higher education. It focuses primarily on generative AI and AI-assisted writing tools because these are currently among the most disruptive and pedagogically relevant technologies for university English learning. The paper addresses three guiding questions: What opportunities does AI offer for English teaching and learning in Taiwanese universities? What risks and constraints should teachers, departments, and institutions address? What pedagogical and research directions can help AI support meaningful language development rather than superficial performance?

The central argument is that AI integration should be guided by learning goals rather than technological novelty. AI can provide feedback, examples, interaction, and practice, but it cannot by itself ensure language development, academic integrity, or critical thinking. Its educational value depends on how teachers frame its use, how assessments require evidence of learning, and how institutions support both teachers and students in developing critical AI literacy. In Taiwan, this means connecting AI use to EFL writing development, EMI preparation, the BEST policy context, and the everyday realities of university English classrooms.

1.1. Taiwan's Higher Education Context

Taiwan is a meaningful setting for reviewing AI in university English education because English learning is tied to both individual opportunity and national policy. University English courses may include general English, English for academic purposes, English for specific purposes, business English, technical English, oral communication, and academic writing. Many students enter university with substantial experience in grammar, vocabulary, and reading examinations, but with less confidence in extended writing, spontaneous speaking, and discipline-specific communication. This gap matters because universities increasingly expect students to use English not only as a subject of study but also as a medium for learning, research, and professional participation.

The BEST policy gives this issue additional urgency. The MOE describes higher education bilingualization in terms of measurable student outcomes, including English proficiency and participation in English-taught credits (MOE, 2021). The policy does not position AI as a solution, but it creates a context in which AI-supported English learning is likely to become attractive. AI writing tools can help students revise EMI assignments; chatbots can provide low-pressure explanation and speaking practice; translation and summarization tools can support comprehension of academic readings. These uses may help students participate more actively in English-mediated learning environments.

At the same time, AI can create a hidden dependency if it is not carefully guided. Students may complete English tasks through machine mediation while making limited gains in their own communicative ability. This risk is especially relevant in EMI preparation, where the goal is not simply to submit English-language products but to develop the ability to understand, discuss, and produce disciplinary knowledge in English. For this reason, AI-supported English learning in Taiwan should be evaluated not only by immediate task completion but also by its contribution to long-term learner independence.

Taiwan should therefore not be treated as merely a generic EFL context. It is an EFL context with strong digital infrastructure, active higher education internationalization, substantial policy investment in bilingual education, and uneven institutional readiness for EMI. These conditions create fertile ground for AI-supported language learning, but they also raise equity and governance questions. Students may have unequal access to high-quality paid AI tools. Universities may differ in their AI-use policies. Teachers may vary in their confidence, training, and willingness to redesign assignments. AI integration is consequently not only a classroom issue; it is also a curriculum, assessment, professional development, and institutional policy issue.

1.2. Conceptualizing AI in English Language Teaching

AI in English language teaching can be conceptualized through several overlapping functions. First, AI may operate as a tutor by providing explanations, examples, and corrective feedback. Second, it may serve as a writing assistant by helping students brainstorm, outline, revise, edit, and compare rhetorical choices. Third, it may function as a conversation partner, allowing students to practice dialogue in a relatively low-anxiety environment. Fourth, it may support teachers by generating lesson materials, adapting texts, designing quizzes, and suggesting rubrics. These functions are not equally valuable in all contexts. Their usefulness depends on learner proficiency, task type, instructional purpose, and the degree to which students are required to evaluate AI output.

Generative AI differs from earlier digital tools because it produces plausible, context-sensitive language. This flexibility is pedagogically powerful but also difficult to control. A grammar checker may identify an error; a generative AI tool may rewrite an entire paragraph, alter the writer's stance, and produce references that may or may not exist. Kohnke, Moorhouse, and Zou (2023) argue that ChatGPT offers language-learning affordances but also requires teachers and learners to develop digital competencies for ethical and effective use. For this reason, AI literacy in English classes must include more than technical familiarity. It should include rhetorical judgment, ethical awareness, source evaluation, and metalinguistic reflection. Students need to ask what the AI changed, why the change may or may not be appropriate, whether the revised language still represents their meaning, and what they learned from the interaction.

For teachers, a useful starting point is to treat AI as a learning partner rather than a replacement for instruction. A partner can support a process, but the learner remains responsible for goals, decisions, and reflection. This view is compatible with process writing pedagogy, where drafting, feedback, revision, and metacognition are central. AI can be placed within this process as one source of feedback among several, alongside self-review, peer review, teacher response, and corpus-based consultation. In such a design, the student's task is not to accept AI output but to compare, evaluate, and justify decisions. The classroom focus shifts from whether AI was used to how it was used and what evidence of learning remains visible.

1.3. Research on AI-Assisted EFL Writing

Writing has received the most attention in research on generative AI and EFL learning. This emphasis is understandable: generative AI systems are strongest in text production, and writing assignments are central to university English courses. Research on intelligent writing assistance has already shown that AI-supported writing tools, automated feedback, machine translation, and predictive text can reshape second language writing practices (Godwin-Jones, 2022). Recent work on generative AI further suggests that AI can help learners notice problems in organization, grammar, vocabulary, genre, and coherence. In Taiwan, Tseng and Lin (2023) presented a university-level EFL writing course design that integrated GPT-3.5 using the ADDIE instructional design model and TPACK framework. Their study is important because it frames AI integration as a matter of pedagogical design rather than casual tool adoption.

Another Taiwan-based study by Tai, Lin, and Chen (2026) examined ChatGPT-integrated genre-based instruction for argumentative writing among first-year EFL English majors at universities of technology. The study found improvement in some rhetorical moves and reported generally positive learner perceptions, particularly regarding idea generation, immediate feedback, and confidence. At the same time, students expressed concerns about feedback quality, critical thinking, and creativity. This mixed pattern is valuable because it complicates both enthusiastic and alarmist narratives. AI can support writing development, but its effects are uneven and mediated by task design, learner judgment, and teacher guidance.

Research outside Taiwan also supports cautious optimism. The RECIPE project explored how university EFL students interacted with ChatGPT while revising essays and highlighted the importance of structured prompts and platform design (Han et al., 2023). Follow-up work on student-ChatGPT interaction datasets further suggests that researchers need to examine not only final written products but also dialogue patterns, learner intentions, satisfaction, and revision histories (Han et al., 2024). More generally, systematic reviews of generative AI in teaching and learning indicate that the field is moving quickly but still needs stronger evidence about curriculum integration, assessment, and policy (Ogunleye et al., 2024). These studies point to an important conclusion: AI itself is not the intervention. The intervention is the designed learning activity in which AI is embedded.

Nevertheless, the current evidence base remains limited. Many studies focus on short-term interventions, small samples, writing products, or learner perceptions. Fewer studies examine delayed learning, transfer to non-AI writing tasks, oral proficiency, academic reading, discipline-specific English, or longitudinal changes in learner autonomy. For Taiwan, more research is needed across institution types, including comprehensive universities, universities of

technology, private universities, and language centers. There is also a need to examine how non-English majors use AI to prepare for EMI courses, where English functions as both language and disciplinary medium.

2. Potential Benefits for University English Classes in Taiwan

2.1. Individualized Feedback and Expanded Practice

One of the strongest arguments for AI in university English classes is its capacity to provide individualized feedback. Instructors often teach students with different writing abilities, vocabulary knowledge, and confidence levels. Providing detailed feedback on every draft can be difficult, especially in required general English courses. AI can offer immediate responses on grammar, vocabulary, organization, tone, and clarity. When students are trained to evaluate these responses critically, AI feedback can supplement teacher feedback and increase the amount of language input and revision practice available to learners.

For Taiwanese university students, immediate AI feedback may be especially useful because some learners hesitate to ask questions in class or feel embarrassed about errors. AI interaction can create a low-stakes space for experimentation. Students can request examples, ask for simpler explanations, compare alternatives, and repeat practice beyond class time. This does not reduce the importance of teacher guidance; rather, it can free classroom time for higher-level discussion, diagnosis, and feedback on recurring problems.

2.2. Writing Process Support

AI can support multiple stages of the writing process. During prewriting, students can use AI to generate topic questions, compare possible outlines, or identify audience expectations. During drafting, they can ask for sentence-level examples or vocabulary alternatives. During revision, they can request feedback on coherence, transitions, and genre conventions. During editing, they can check grammar and punctuation. This process-based use is more educationally defensible than asking AI to generate a final essay.

One practical classroom strategy is to require an AI interaction log. Such a log may include the student's original text, the prompt, the AI response, the student's decision, and a short explanation for accepting, modifying, or rejecting the suggestion. This makes learning visible and discourages unreflective copying. It also allows teachers to assess judgment, not only the final written product. In the AI era, the final essay alone may no longer provide enough evidence of learning.

2.3. EMI Readiness and Academic Communication

AI may also support students preparing for EMI courses. Students can ask AI to simplify dense academic passages, generate vocabulary lists, practice explaining disciplinary concepts, or prepare questions for class discussion. For students who are not English majors, this support may reduce the linguistic burden of EMI and allow them to engage more actively with disciplinary content. In this sense, AI can function as a bridge between general English courses and English-mediated academic participation.

This bridge, however, must be designed carefully. If students rely on AI translation or summarization for all EMI tasks, they may complete assignments without developing the academic English needed for independent participation. AI-supported EMI preparation should therefore include gradual reduction of support, comparison between AI output and source texts, vocabulary recycling, and tasks that require students to explain concepts in their own words. The goal should be scaffolded independence, not permanent reliance.

2.4. Teacher Support and Material Development

Teachers can also use AI to reduce routine preparation time. AI can generate reading questions, adapt texts to different proficiency levels, suggest discussion prompts, create vocabulary exercises, and draft sample rubrics. For English teachers in Taiwanese universities, this may be valuable because they often teach multiple course types and adapt materials for different majors. AI can provide a first draft of materials while teachers use professional judgment to revise for accuracy, appropriateness, and local relevance.

Teacher use of AI should not be framed as a replacement for expertise. On the contrary, AI makes teacher expertise more important because generated materials must be evaluated. A prompt may be grammatically polished but pedagogically shallow. A reading passage may sound fluent but include factual errors. A rubric may appear comprehensive but fail to match course objectives. The teacher's role therefore shifts toward designing, filtering, contextualizing, and evaluating learning experiences.

2.5. Major Challenges and Risks

Despite these benefits, AI integration in university English classes presents substantial challenges. The first is academic integrity. Generative AI can produce essays, summaries, reflections, and discussion posts that appear fluent enough to pass as student work. Traditional take-home writing assignments become vulnerable when the final text is the only assessed artifact. Detection tools are not a reliable solution because they may produce false accusations and may be especially problematic for multilingual writers. A more sustainable response is assessment redesign.

Second, AI may weaken learning if students use it to avoid productive struggle. Language development requires retrieval, noticing, hypothesis testing, feedback, and revision. If AI completes these steps for students, the submitted product may improve while the learner's competence does not. This distinction between performance and learning is crucial. A polished AI-assisted essay does not necessarily indicate improved writing ability. Teachers should therefore include in-class writing, draft comparison, oral explanation, revision commentary, and reflection on AI use.

Third, AI feedback quality is uneven. AI systems can produce plausible but inaccurate explanations, oversimplify complex rhetorical choices, or favor generic academic style. For EFL learners, this is risky because they may not yet have enough language knowledge to evaluate the feedback. Students may accept unnecessary changes, lose their authorial voice, or produce writing that sounds fluent but vague. Classroom instruction should therefore teach students to question AI output: ask for reasons, compare alternatives, check dictionaries or corpora, verify sources, and consult the teacher when feedback conflicts with the writer's intention.

Fourth, privacy and ethical use require institutional attention. Students may paste personal information, unpublished research, peer writing, or institutional materials into commercial AI tools without understanding how the data may be used. UNESCO's guidance on generative AI in education emphasizes a human-centered approach, including privacy, institutional preparedness, and the ethical validation of AI use (UNESCO, 2023). Taiwanese universities should therefore provide clear guidance on what kinds of data students and teachers may enter into AI systems.

Fifth, equity should not be overlooked. Paid AI services may provide stronger models, longer context windows, or more advanced features than free tools. If assignments implicitly reward access to premium tools, AI may widen educational inequality. Teachers can respond by designing tasks that do not require paid accounts, providing institutionally approved tools when possible, and grading students on process, reasoning, and language development rather than surface polish alone.

2.6. Pedagogical Principles for AI Integration

The following principles can guide AI integration in Taiwanese university English classes.

Table 1 Principles can guide AI integration in Taiwanese university English classes.

Principle	Classroom application
Align AI use with learning objectives.	Teachers should decide when AI is permitted, required, restricted, or prohibited according to the purpose of the task.
Make the learning process visible.	Students should document prompts, AI responses, revisions, and reflections so that teachers can assess judgment and development.
Teach prompt literacy as language literacy.	Prompting involves audience awareness, genre knowledge, metalinguistic vocabulary, and revision strategies.
Assess human judgment.	Assignments should reward explanation, evaluation, source verification, oral defense, and revision decisions.
Use AI to expand feedback, not replace teachers.	AI feedback should be treated as preliminary or supplementary rather than authoritative.
Build ethical and critical AI literacy.	Students should learn about hallucination, bias, privacy, citation problems, and the boundary between assistance and authorship.

These principles are relevant for Taiwanese higher education because AI adoption is likely to vary across institutions, departments, and courses. Some teachers may integrate AI enthusiastically, while others may restrict it. A principle-based approach allows departments to develop coherent guidelines without requiring every teacher to use the same

tool in the same way. It also helps students understand that AI policy is connected to learning objectives rather than teacher preference alone. One practical model is an AI-use scale for English assignments. At Level 0, AI is not allowed because the task measures independent performance. At Level 1, AI may be used for dictionary-like support or grammar checking. At Level 2, AI may be used for feedback, but students must submit the original draft and a reflection. At Level 3, AI collaboration is part of the task, and students are graded on prompt design and evaluation. At Level 4, AI-generated text may be analyzed critically as a data source. Such a scale can reduce confusion, support academic integrity, and make expectations transparent.

2.7. Implications for Curriculum and Assessment

AI requires English curriculum designers to reconsider what students should learn. Traditional university English courses often emphasize grammar accuracy, reading comprehension, vocabulary, oral presentation, and essay structure. These goals remain important, but AI adds new competencies: evaluating machine feedback, writing effective prompts, maintaining authorial voice, verifying sources, and using digital tools ethically. AI literacy should not be taught only as a separate technical module. It should be embedded into writing, reading, speaking, and EMI-preparation tasks.

Assessment is the most urgent curriculum issue. If teachers continue to grade only final take-home essays, students may be tempted to outsource writing. More robust assessment can include staged drafting, in-class writing samples, oral explanation of revisions, peer review records, AI logs, and reflective statements. For example, a student might submit an initial in-class paragraph, an AI feedback transcript, a revised paragraph, and a commentary explaining which changes were accepted or rejected. This design assesses language development and critical judgment at the same time.

Speaking and listening courses can also integrate AI. Students may practice dialogues with chatbots, use speech recognition for pronunciation feedback, or generate role-play scenarios related to international communication. However, these activities should not replace human interaction. AI can increase practice frequency, but English communication remains social. Pair work, group discussion, presentations, and teacher-student interaction remain necessary for pragmatic competence, turn-taking, audience awareness, and confidence in real communication.

Reading courses can use AI to support comprehension while preserving critical reading. Students can ask AI to summarize difficult passages, but they should then compare the summary with the original text, identify missing details, and evaluate whether the summary changes the author's meaning. In EMI preparation, students can use AI to generate glossaries or questions before lectures, but they should verify terminology with course materials and discipline-specific sources. These activities teach both language and critical AI evaluation.

2.8. Teacher Professional Development

Teacher development is central to responsible AI integration. Many university English teachers are willing to experiment with AI, but they may lack time, institutional guidance, or confidence in evaluating AI systems. Professional development should move beyond demonstrations of tools. Teachers need opportunities to redesign assignments, discuss academic integrity cases, compare AI feedback with teacher feedback, and develop shared course policies. Workshops should include hands-on evaluation of AI output, not only instructions for writing prompts.

A localized professional development model for Taiwanese higher education could include three levels. The first level would introduce basic AI functions, limitations, privacy concerns, and institutional policy. The second level would focus on course design, including writing tasks, assessment scales, AI logs, and EMI support. The third level would support teacher inquiry, where instructors collect classroom data, analyze student reflections, and share findings with colleagues. Such a model positions teachers as researchers of their own practice, which is important because AI tools and student uses will continue to evolve.

Teacher development should also protect teacher agency. AI policies imposed without classroom consultation may produce compliance but not thoughtful practice. English teachers understand student proficiency, classroom culture, and disciplinary expectations. Their professional judgment should guide how AI is used in specific courses. Institutional support should provide clear principles, approved tools, privacy guidance, and assessment resources while allowing teachers to adapt implementation to local needs.

2.9. Research Gaps and Future Directions

The literature on AI in EFL higher education is expanding quickly, but several gaps remain. First, more Taiwan-specific empirical research is needed. Existing studies provide valuable evidence, especially in writing instruction, but the field

needs broader samples across regions, institution types, majors, and proficiency levels. Comprehensive universities, universities of technology, private universities, and language centers may face different needs and constraints.

Second, future research should distinguish short-term performance improvement from long-term learning. If students write better essays with AI support, researchers should ask whether they later write better without support, whether they can explain their revisions, and whether they transfer strategies to new tasks. Delayed post-tests, portfolio analysis, screen-recorded writing sessions, and think-aloud protocols could help answer these questions.

Third, more research is needed on speaking, listening, and EMI preparation. Writing has dominated the discussion because AI text generation is highly visible. Yet Taiwanese higher education also needs students who can participate in seminars, ask questions in English, understand lectures, and present research. AI speaking partners and pronunciation tools may help, but their effects on confidence, fluency, comprehensibility, and real interaction require careful study.

Fourth, researchers should examine teacher perspectives. Teachers are not merely implementers of technology; they interpret policy, manage assessment, respond to student behavior, and maintain academic standards. Studies should investigate teacher beliefs, workload, professional development needs, and institutional constraints. This is especially important in Taiwan, where bilingual policy goals may increase expectations for both English teachers and EMI instructors.

Fifth, research should address ethics and equity. Who benefits most from AI-supported English learning? Do high-proficiency students gain more because they can evaluate AI feedback more effectively? Do lower-proficiency students become more dependent? How do paid tools affect fairness? How do students understand privacy and authorship? These questions are not peripheral; they shape whether AI integration supports or undermines educational justice.

2.10. A Context-Sensitive Review Framework

For a full publishable review, the literature can be organized through four dimensions: tool function, learning domain, pedagogical design, and governance. Tool function refers to what AI is used to do, such as feedback, generation, translation, conversation, or assessment support. Learning domain refers to writing, speaking, reading, listening, vocabulary, academic literacy, or EMI preparation. Pedagogical design refers to how teachers structure the activity, including prompts, scaffolding, reflection, and assessment. Governance refers to policy, privacy, academic integrity, equity, and teacher development.

This framework helps avoid a common weakness in AI education writing: listing tools without analyzing learning. The same AI tool can support or harm learning depending on design. For example, using AI to generate an essay may reduce learning, while using AI to compare two introductions and explain rhetorical differences may strengthen genre awareness. Using AI to translate a reading may create dependence, while using AI translation as a comparison text may develop critical reading. The framework therefore keeps attention on the relationship among technology, pedagogy, and context.

3. Conclusion

AI is already changing English classes in higher education, and Taiwanese universities cannot treat it as a temporary classroom disturbance. The more useful question is not whether AI should be present, but how it can be made educationally meaningful, ethically responsible, and locally appropriate. In Taiwan, AI integration intersects with EFL learning needs, EMI expansion, and national bilingual education goals such as BEST. This creates both opportunity and responsibility.

This review suggests that AI can support English learning by providing individualized feedback, increasing practice opportunities, supporting the writing process, assisting EMI preparation, and reducing some routine teacher workload. However, these benefits are conditional. Without careful design, AI may encourage overreliance, weaken critical thinking, obscure authorship, increase inequality, and produce polished work without durable learning. The distinction between better output and better learning must remain central.

For Taiwanese higher education, the most promising direction is a balanced approach: permit AI where it supports learning, restrict it where independent performance is required, and require students to document and reflect on their use. Teachers need professional development, departments need transparent policies, and researchers need stronger evidence about long-term learning outcomes. AI should not become the hidden ghostwriter of university English

education. It should become a visible object of inquiry, a carefully managed feedback resource, and a catalyst for more thoughtful teaching.

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