



INTEGRATING CLIL CRITICAL INQUIRY AND
MOBILE PRACTICE IN UNIVERSITY ENGLISH
TEACHING

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ABSTRACT

Universities preparing engineers, economists, and other specialists need language teaching that supports disciplinary understanding and purposeful communication. This conceptual article examines how content and language integrated learning (CLIL), critical inquiry through projects, and mobile language applications can be connected in non-language degree programmes. A selective literature synthesis distinguishes language exposure from explicit language instruction and separates app performance from communicative competence. The article proposes a disciplinary inquiry cycle in which students investigate a professional problem, evaluate competing evidence, rehearse useful language, defend a decision, and revise their response. Three project formats translate the cycle into teaching practice. An evaluation design combines independent subject assessment, individual interaction tasks, evidence-based reasoning, and delayed transfer. The central argument is that effectiveness should be demonstrated through what learners can explain, question, and negotiate beyond rehearsed exercises. The proposed model has not been empirically tested; its contribution is a practical and assessable connection between complementary teaching approaches.



1 Introduction

Foreign-language courses in non-language universities face a persistent problem: students may know grammatical forms yet struggle to explain a technical choice, challenge an unsupported statement, or respond to an unexpected question. Professional communication demands both linguistic resources and decisions about evidence, audience, and purpose. An effective methodology must therefore connect language learning with the intellectual work students undertake in their disciplines.

Three approaches address different parts of this problem. CLIL connects subject learning with language objectives. Project-based learning gives communication a sustained purpose and an audience. Mobile applications offer additional opportunities for individual practice. However, combining fashionable approaches does not automatically produce a coherent curriculum. A course can contain English lectures, group presentations, and daily app exercises while providing little evidence that students can reason and interact independently. This article asks how these approaches can be integrated and how their effectiveness should be evaluated. It focuses on university English teaching within the broader fields of teaching English as a foreign language (TEFL) and teaching English to speakers of other languages (TESOL). Its contribution is a proposed instructional cycle, three project models, and an assessment strategy that distinguishes participation from demonstrated competence.

2 Review approach and conceptual boundaries

The article presents a selective conceptual synthesis rather than a systematic review or an intervention study. Targeted online searches on 17 October 2026 located a CLIL methodological text, a higher-education English-medium instruction review, a review of project-based EFL learning, two Duolingo outcome publications, and the Council of Europe framework. Sources were selected for direct relevance to curriculum design or the interpretation of learning outcomes. Publisher and institutional records were used to check bibliographic details. No exhaustive database search, formal risk-of-bias assessment, or primary data collection was conducted.

The sources have different evidential roles. Coyle, Hood, and Marsh (2010) provide a methodological foundation for CLIL. Macaro et al. (2018) address English-medium instruction (EMI), which overlaps with university CLIL but does not necessarily include explicit language objectives. Song et al. (2024) synthesize project-based learning in EFL settings. Jiang et al. (2021, 2024) examine particular app courses and selected learner populations. The Council of Europe (2020) supplies an assessment perspective rather than evidence that a particular intervention works. These differences prevent a single overall claim of effectiveness.

3 Implementing CLIL in non-language universities

CLIL requires planned attention to both disciplinary content and language (Coyle et al., 2010). In an engineering module, the subject objective might be to compare materials under specified constraints. The language objective could be to explain a trade-off using comparison,



qualification, and cause-and-effect relationships. Simply translating the lecture into English does not establish that both objectives are being taught or assessed.

A feasible starting point is a jointly planned unit rather than an immediate change across the entire degree. The subject lecturer identifies concepts that must remain accurate, while the language teacher identifies the discourse needed to explain them. Students receive accessible readings, visual representations, and examples of professional reasoning. A brief diagnostic task reveals whether difficulties arise from unfamiliar concepts, limited English, or both. Support can then address the actual barrier instead of reducing intellectual demand for everyone.

The evidence should be interpreted cautiously. Macaro et al. (2018), reviewing 83 higher-education EMI studies, found insufficient evidence at that time to establish language benefits or clear harm to content learning. This does not demonstrate that CLIL is ineffective; EMI and CLIL are not interchangeable, and the review reflects its publication period. It does show why exposure to English cannot substitute for an explicit account of teaching quality and measured outcomes.

For the proposed unit, effectiveness has three conditions: students retain essential subject understanding, improve relevant language performance, and can use both in a new situation. Assessment should separate conceptual accuracy from linguistic control. Where English is not the construct being tested, a short first-language explanation or diagram can help identify whether a low score reflects weak subject knowledge or difficulty expressing it. Such evidence should complement, rather than replace, the English communication task.

Implementation also depends on staffing and access. Joint planning needs allocated time, and materials must be readable at students' current language levels without distorting disciplinary ideas. Strategic use of a shared first language can support concept checking. Scaffolds should gradually decrease so that successful performance does not remain dependent on sentence frames or teacher reformulation.

4 Project models for critical thinking through English

Critical thinking becomes visible when students distinguish a claim from its evidence, compare explanations, identify uncertainty, and reconsider a conclusion. Fluent presentation alone is an inadequate indicator. Song et al. (2024) identify project-based learning as a promising approach for developing language and critical thinking in EFL contexts. Their review supports examining projects as a pedagogical option, while local effectiveness still requires attention to task design and assessment.

The following three models are proposed adaptations for non-language universities. Their novelty within this article lies in their combination of disciplinary decisions, individual accountability, and unfamiliar follow-up questions; they are not presented as independently validated interventions. Evidence audit project. Teams investigate a contested professional claim, such as whether a proposed building material offers the best environmental performance. They compare sources, identify the assumptions behind numerical comparisons, and produce a



recommendation for a specified audience. An evidence record connects each major claim to a source and a limitation. During the oral defence, each student explains one reason the recommendation might fail. This requirement encourages qualification instead of persuasive certainty unsupported by evidence.

Stakeholder decision project. Students evaluate a realistic proposal from different perspectives, for example a campus transport change viewed by students, administrators, and accessibility representatives. Teams prepare a negotiated decision rather than separate opinion speeches. Each student must accurately restate another stakeholder's concern before challenging it. The resulting document records both the agreement and an unresolved trade-off. Language instruction targets clarification, respectful disagreement, and conditional recommendations, while reasoning assessment examines whether the proposal addresses competing constraints.

Communication repair project. Learners create a short explanation of a disciplinary concept for a non-specialist audience. Another group identifies ambiguous terms, unsupported inferences, or information that the audience cannot interpret. Authors then revise the explanation and submit a concise account of the changes. A final question introduces a new misconception that was absent from the draft. Students must respond without reading a prepared script. The project makes revision and adaptation part of the assessed intellectual work.

All three models require protected space for thinking before public performance. Students can annotate evidence individually, discuss it in pairs, and only then formulate an English response. Teachers should distinguish reasoning problems from language problems when giving feedback. A hesitant speaker may offer a defensible argument, while a confident speaker may rely on weak evidence. Separate criteria make these differences visible and reduce the risk of rewarding fluency as a substitute for thought.

5 Mobile applications and the transfer to communication

App outcomes should be interpreted in relation to the skill actually assessed. Jiang et al. (2021) studied adults completing beginning-level Spanish or French Duolingo courses and assessed reading and listening. The publication reports encouraging receptive outcomes, but it did not assess speaking or writing. Comparisons with university learners on those measures cannot establish equivalence across a complete language curriculum or prove spontaneous professional interaction.

A later company research report assessed four skills after learners completed A2-aligned Spanish or French content (Jiang et al., 2024). Its broader assessment is relevant to productive competence, but the report is company-authored and should be distinguished from an independent classroom trial. Course completers are also a selected population. Findings for those languages and course versions cannot be assumed to apply equally to English learners, every app, or disciplinary discussion. Standardized speaking performance provides useful evidence without covering every demand of live negotiation.



In the proposed methodology, mobile practice prepares resources that classroom interaction subsequently tests. Before an evidence audit, students may rehearse general comparison language or listening skills through an appropriate application. The teacher supplies a separate disciplinary vocabulary set when the app does not cover the topic. In class, students must use relevant resources to explain an unfamiliar example and answer a partner's question. Afterward, each learner identifies a communication difficulty and chooses targeted practice before trying a changed task. This sequence creates a testable connection between practice and use. App scores, streaks, and minutes are implementation indicators; they do not serve as the primary learning outcome. The Council of Europe (2020) emphasizes purposeful language use, interaction, and mediation, providing a rationale for assessing whether learners can help others understand information and collaborate toward a result. Equivalent offline practice should be available when devices, connectivity, or paid features create unequal access. Participation should not require public disclosure of personal account data.

6 An integrated cycle and evaluation design

The proposed disciplinary inquiry cycle contains five connected stages: frame a professional question; examine competing evidence; rehearse the language needed for a response; negotiate and defend a decision; and revise for a different audience or constraint. CLIL specifies the content and language objectives, project work supplies the inquiry and product, and mobile practice addresses selected language needs. A lecturer could introduce the stages across a six-week unit, although timing should follow task complexity rather than a fixed schedule.

A future evaluation could compare similar classes receiving the integrated unit and ordinary instruction with comparable teaching time and subject content. Baseline measures should include English proficiency and relevant disciplinary knowledge. Where feasible, classes should be randomly assigned; otherwise, matched groups and baseline adjustment would improve interpretation without eliminating confounding. Multiple classes and teachers would help distinguish the model from an unusually effective instructor. A comparison of the full model with the same unit without app practice would be needed to estimate the app's additional contribution.

Four outcomes should be examined separately. Subject learning requires an assessment of conceptual accuracy. Communication requires an individual task with an unfamiliar prompt, a follow-up question, and an opportunity to clarify misunderstanding. Critical thinking requires a justified decision that engages with conflicting evidence. Transfer requires a delayed task involving new material or an altered constraint. A group product can supplement these measures but cannot establish every member's competence.

A shared rubric should distinguish evidence quality, conceptual accuracy, intelligibility, responsiveness, and explanation of uncertainty. Raters should be trained with sample responses and, where possible, remain unaware of group allocation. The study should report missing assessments, attrition, device-access differences, teacher workload, and uncertainty around



estimated effects. Student interviews can explain how the activities were experienced, but positive opinions alone cannot demonstrate improved competence.

The principal hypotheses are that explicit content-language alignment will support clearer explanations, evidence-focused projects will improve the justification of decisions, and targeted mobile rehearsal will support subsequent language use. None is a reported finding of this article. If improvement appears only in rehearsed presentations, the model's claim to broader communicative development would remain unsupported.

7 Limitations and conclusion

This synthesis draws on a small, purposively selected set of English-language sources with different populations and purposes. The higher-education EMI review provides indirect evidence for CLIL; the project review covers varied EFL contexts; and the app publications concern selected Spanish and French learners. No pooled estimate, direct comparison of all three approaches, or validated outcome for the proposed cycle is available here. Institutional resources and assessment traditions may also limit transfer between universities. Language methodology in non-language universities should connect disciplinary understanding with evidence-based judgment and adaptable interaction. CLIL offers a structure for dual objectives, projects make reasoning communicatively necessary, and mobile practice can supply additional rehearsal. Their combined value depends on the links between these activities and on assessment beyond practiced exercises. The proposed cycle provides a feasible basis for testing those links while keeping claims proportional to the evidence.

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