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APPLICATION OF CLIL IN HIGHER EDUCATION AND ITS IMPACT ON ACADEMIC ENGLISH COMPETENCE: A SYNTHESIS OF MODELS, EVIDENCE, AND IMPLEMENTATION CONDITIONS

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Introduction. Content and Language Integrated Learning (CLIL) in higher education refers to teaching and learning disciplinary content through an additional language (often English), while also pursuing explicit language-development goals. In practical university settings, CLIL frequently overlaps with English-Medium Instruction (EMI), but the defining feature of CLIL is its dual focus: language development is not treated as an accidental by-product; it is deliberately designed into content teaching. This “dual-focused educational approach” is consistently emphasized in CLIL-oriented literature and higher-education CLIL discussions.

The rationale for CLIL is especially compelling when the target is academic English competence rather than everyday conversational ability. Academic competence entails discipline-specific vocabulary, academic discourse functions (defining, describing processes, comparing, hypothesizing, arguing from evidence), and the ability to participate in academic interaction (asking for clarification, presenting claims, defending positions). The CLIL premise is that sustained exposure to content tasks, delivered in English, creates authentic pressure to use these academic functions repeatedly, which should accelerate academic language development.

At the level of instructional theory, CLIL is commonly described through the 4Cs framework: Content, Communication, Cognition, and Culture. The 4Cs model is not merely a slogan; it is a planning logic that forces the teacher to map content learning outcomes, language needed for meaning-making, cognitive demands of the task, and intercultural/cultural dimensions of the topic. In higher education, where conceptual density and disciplinary literacies are central, the “Cognition” and “Communication” components become decisive for whether CLIL improves academic English or simply increases cognitive load.

The central problem addressed in this article is not whether CLIL “sounds good,” but under what conditions it actually strengthens academic English competence in universities, and what implementation design features are supported by research. To answer that, an evidence-informed synthesis is necessary because outcomes vary by discipline, student entry proficiency, teacher preparation, assessment practices, and whether language objectives are explicitly embedded or ignored.

Materials and Methods. This paper uses a structured narrative review approach (evidence-informed synthesis). Sources were selected to cover four required components: (1) authoritative definitions and design frameworks for CLIL, (2) higher-education CLIL/EMI-CLIL empirical work, (3) systematic reviews relevant to CLIL implementation and outcomes, and (4) guidance resources emphasizing language-cognitive integration.

For definitions and design frameworks, materials from TeachingEnglish (British Council/TeachingEnglish platform) were used for an accessible but widely cited CLIL overview, alongside the Cambridge excerpt describing the 4Cs building blocks.

For higher-education-focused evidence, peer-reviewed sources discussing CLIL integration in higher education and policy/implementation needs were prioritized (e.g., a 2023 higher education paper explicitly discussing "integrating content and language in higher education," and a 2024 study highlighting implementation support needs in higher education contexts).

For broader evidence mapping and quality control, recent systematic reviews were included, especially those examining technology-enhanced CLIL and broader CLIL learning outcomes.

The analysis applied a common lens: academic English competence was operationalized as (a) academic vocabulary/phraseology, (b) academic discourse functions and genres, (c) interactional competence in academic settings, and (d) discipline-specific academic literacies (reading/writing/speaking practices of the field). Findings were organized as mechanisms (how CLIL may work), implementation conditions (when it tends to work), and failure modes (how it breaks).

Results. The synthesis yields five main results about CLIL application in higher education and its impact on academic English competence.

First, CLIL's added value in higher education depends on whether it is implemented as true "dual-focused" CLIL or as EMI without language design. In many universities, content is simply delivered in English and language is assumed to improve automatically. However, CLIL references emphasize that CLIL is "not a language lesson" and not a content lecture merely transmitted in a foreign language; rather, the subject matter should determine the language needed to learn, and lessons should integrate content progression with purposeful language use. In higher education, this translates into explicit planning of language demands embedded in content tasks: how students will explain, argue, compare, and report, not just what they will "know."

Second, the 4Cs framework functions as a practical specification for academic English development, not a decorative model. The Cambridge excerpt outlines the 4Cs as building blocks of CLIL: content (disciplinary knowledge/skills), communication

(language to create meaning), cognition (thinking skills driving learning), and culture (intercultural dimensions). In higher education, "communication" aligns directly with academic English competence: discourse markers, hedging, definitions, process descriptions, and argumentation patterns typical of academic registers. "Cognition" aligns with higher-order academic tasks (synthesizing sources, evaluating evidence), which are precisely where language becomes most demanding and where CLIL either produces growth or overload.

Third, empirical higher-education studies and reviews repeatedly identify the same enabling conditions: language support (scaffolding), teacher training, and vocabulary-building strategies. A 2024 study with explicit implications for higher education implementation notes that CLIL can improve English proficiency but stresses the need for tailored support such as vocabulary-building strategies and teacher training to address challenges. This is a consistent pattern across CLIL literature: the stronger the academic language demand, the more necessary systematic scaffolding becomes (pre-task language support, guided output frames, and feedback on academic discourse).

Fourth, technology-enhanced CLIL (TECLIL) is emerging in higher education as a practical lever, mainly by increasing exposure, multimodal input, and opportunities for iterative output with feedback. A 2025 systematic review on TECLIL synthesizes empirical characteristics, technologies used, and learning outcomes, highlighting how technology can support CLIL design. While technology is not a guarantee of better learning, the review suggests it can strengthen the CLIL cycle when used to operationalize communication and cognition (e.g., structured discussion boards, interactive simulations requiring explanation, or guided note-taking and summarization tasks).

Fifth, outcome variability is not a side issue; it is a structural property of higher-education CLIL. Systematic reviews of CLIL methodology emphasize that effects depend on program design, context, and measurement choices. This variability is especially relevant to academic English competence because many studies measure general proficiency, while academic competence is domain-specific (e.g., engineering writing differs from social science argumentation). Therefore, programs may show "English improvement" without necessarily producing strong academic discourse competence unless assessments target academic registers and tasks.

Discussion. The results imply that "CLIL in higher education" should be treated as an implementation engineering problem, not as a generic method choice. The major trade-offs and failure modes can be made explicit.

The first failure mode is "EMI drift": the program is labeled CLIL, but it behaves like EMI—content delivery in English with no planned language objectives, no discourse scaffolding, and assessment focused only on content. In this case, language development is left to chance, and academic English competence may improve unevenly (some students benefit, others disengage). TeachingEnglish's CLIL description stresses that subject learning and language learning are intertwined; the content determines the language needed, meaning language must be designed and supported, not assumed.

The second failure mode is cognitive overload. University content is conceptually dense; adding English as a medium increases processing demands. The 4Cs framework is helpful here because it forces alignment between cognition and communication: if cognitive demands are high, communication support must increase (language frames, vocabulary lists tied to the topic, model texts, structured interaction). Without this alignment, students may either (a) reduce output to minimal phrases (limiting academic language growth) or (b) focus on language form and lose content understanding.

A third failure mode is inequity through selection. In many institutions, CLIL tracks attract higher-achieving or more motivated students; then "CLIL works" may partly reflect intake differences. This is why higher-education implementation studies repeatedly call for systematic support rather than assuming students can cope equally.

From a design perspective, a minimal workable CLIL-in-HE model should include the following components.

One, explicit academic language objectives for each unit, derived from disciplinary tasks. For example, in a STEM module: defining a concept precisely, describing a process, comparing methods, and justifying a choice with evidence. These can be mapped to the "Communication" component of 4Cs.

Two, structured interaction and output, because academic competence grows through repeated meaningful production: presentations, mini-lectures, lab explanations, peer review, and seminar discussion. Higher education CLIL discussions emphasize content learning through an additional language "to promote content and language mastery to pre-defined levels," which implies measurable output.

Three, targeted vocabulary and phraseology work, but embedded into content tasks (not isolated word lists). The 2024 higher education-focused study explicitly highlights vocabulary-building as a needed support. In academic English, vocabulary includes collocations and formulaic sequences ("the results indicate…," "in contrast to…," "this suggests that…"), not just technical terms.

Four, assessment aligned to academic language use, not only content. Otherwise, students rationally optimize for content points and ignore language development. This is where CLIL differs from EMI in a measurable way: the program should assess academic communication performance (clarity, coherence, argumentation, genre conventions) alongside content mastery.

Five, teacher preparation and team teaching models when possible. CLIL in higher education often places content lecturers into a language-teaching role without training, leading to inconsistent feedback and unclear expectations. Studies and reviews repeatedly raise teacher training as a core implementation need.

Finally, technology can help, but only if it increases the amount and quality of academic input/output cycles (e.g., iterative drafting, annotated feedback, recorded presentations with rubric-based comments). TECLIL reviews support the idea that technology can scaffold CLIL design when integrated purposefully.

Conclusion. CLIL application in higher education can strengthen academic English competence, but not automatically. The evidence base and design frameworks point to a conditional relationship: CLIL tends to work when implemented as a genuinely dual-focused approach with explicit academic language objectives, discourse scaffolding, structured interaction and output, and aligned assessment. The 4Cs framework provides a practical planning architecture for ensuring that content learning, academic communication, cognitive demands, and intercultural/cultural dimensions are aligned. Higher-education-focused research highlights that effective implementation requires tailored supports—especially vocabulary-building strategies and teacher training—otherwise CLIL risks becoming EMI drift or creating cognitive overload. Systematic reviews, including technology-enhanced CLIL syntheses, suggest that outcomes are sensitive to design and context, reinforcing that CLIL success is largely an implementation quality question.

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