

## Revisiting English Proficiency in the Age of Emi: A Systematic Literature Review (2021 – 2025)

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**Abstract.** Despite extensive research on EMI, important gaps remain regarding proficiency standards, long-term language development, teacher language readiness, and the factors influencing student success. This review addresses these gaps by synthesizing current evidence on English proficiency in EMI contexts and identifying key areas for future research and policy development. This study employed a systematic literature review of 29 peer-reviewed international articles published between 2021 and 2025, using thematic analysis to examine discrepancies, common themes, and emerging patterns related to English proficiency and EMI. The findings show that EMI can enhance receptive skills such as reading and listening, academic vocabulary, and overall language skills; however, its effectiveness strongly depends on students' initial proficiency, instructors' linguistic competence, pedagogical strategies, affective factors, socioeconomic status, multilingual practices, and institutional support. Two distinct learner pathways emerge: some learners gain confidence and perform well when they have adequate support and sufficient proficiency backgrounds, whereas others with limited proficiency, increased cognitive demands, or restricted exposure to English continue to struggle. Therefore, it can be concluded that EMI can help improve English proficiency, but only when institutions ensure that instructors possess adequate knowledge and skills, proficiency expectations are clearly defined, and sustained language support is provided to address learners' needs.

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## INTRODUCTION

The rapid expansion of English as a Medium of Instruction (EMI) in higher education reflects increasing global pressures toward internationalization and the perceived need to strengthen students' English proficiency alongside disciplinary learning (Yuksel et al., 2023). EMI, defined as the use of English to teach academic subjects in contexts where English is not the majority's first language, has expanded rapidly across Asia, Europe, and the Middle East (Mohd Faiz & Mohamed, 2022). As EMI becomes more widespread, questions regarding the role of English proficiency in shaping students' academic experiences and outcomes have gained increasing attention.

A substantial body of research identifies English proficiency as a central factor in EMI success. Longitudinal evidence indicates that English test scores significantly predict academic achievement (Barkaoui, 2025), while other studies show that language proficiency and academic ability jointly influence content learning (Lin & Lei, 2021). Similar findings have been reported in Sino-foreign EMI programs, where second-language proficiency emerged as a major predictor of

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academic performance (Gan et al., 2025). Beyond academic outcomes, proficiency also interacts with psychological dimensions of learning. Yuksel et al. (2023) highlighted the combined influence of proficiency, self-regulation, and anxiety, whereas Chong et al. (2025) documented persistent language anxiety among learners in both EFL and EMI settings. Collectively, these studies suggest that English proficiency operates not merely as a linguistic skill but as a multidimensional construct that mediates students' cognitive, affective, and academic engagement in EMI environments.

Pedagogical and institutional concerns further complicate this relationship. Research indicates that proficiency and motivation jointly influence students' depth of content processing (Zhou et al., 2025), supporting arguments for minimum language proficiency requirements. However, such requirements remain contested as institutions balance linguistic preparedness with broader internationalization objectives (Aizawa et al., 2023). While students with higher proficiency generally engage more effectively with lectures, readings, and discussions, those with lower proficiency often encounter barriers to comprehension and participation (Barkaoui, 2025). These findings underscore the need to conceptualize proficiency not only as a prerequisite for EMI participation but also as a dynamic factor that shapes learners' opportunities for academic engagement.

Recent studies have increasingly examined the reciprocal relationship between EMI and English proficiency development. Nguyen (2023) found that participation in EMI programs is associated with proficiency gains, particularly when learner background and socioeconomic factors are considered. Likewise, Unsiyah et al. (2024) reported that prolonged EMI exposure contributes to improvements in receptive language skills. Research on EMI's dual function—facilitating content learning while supporting language development—has produced generally positive findings. Aizawa et al. (2023) demonstrated that students can develop academic English and discipline-specific vocabulary without compromising content learning, while Lin and Lei (2021) identified proficiency threshold effects that influence the extent of these gains. Extending this perspective, Gan et al. (2025) described a cyclical process in which initial proficiency predicts academic success, and continued EMI exposure subsequently enhances proficiency, creating a reinforcing relationship between language development and academic achievement. Such findings suggest a theoretical view of EMI as a dynamic ecosystem in which language proficiency functions simultaneously as an input, mediator, and outcome of learning.

Despite growing scholarly attention, the literature remains fragmented regarding proficiency thresholds, long-term language development, and the combined influence of linguistic, psychological, and socioeconomic factors on EMI outcomes. Consequently, a comprehensive synthesis is needed to integrate these disparate findings into a coherent understanding of the proficiency–EMI relationship. By reviewing contemporary EMI research published between 2021 and 2025, this study contributes theoretically by reconceptualizing English proficiency as a multidimensional and reciprocal construct within EMI, clarifying how it both shapes and is shaped by EMI participation while identifying patterns that can inform future research, policy, and practice.

## **METHOD**

The researchers employed a Systematic Literature Review (SLR) to examine existing studies on English proficiency, English as a Medium of Instruction (EMI), and the influence of EMI on students' language development in higher education. An SLR is a structured, replicable method that identifies, evaluates, and synthesizes relevant research using transparent criteria, ensuring a comprehensive and unbiased review of evidence. Given the diversity of EMI studies, from

linguistic outcomes to sociocultural and cognitive factors, the SLR approach allowed for an organized synthesis across different methodologies, contexts, and populations. This design enabled efficient access to scholarly work, deeper engagement with related literature, and the identification of recurring themes and patterns that clarify the relationship between English proficiency and EMI effectiveness.

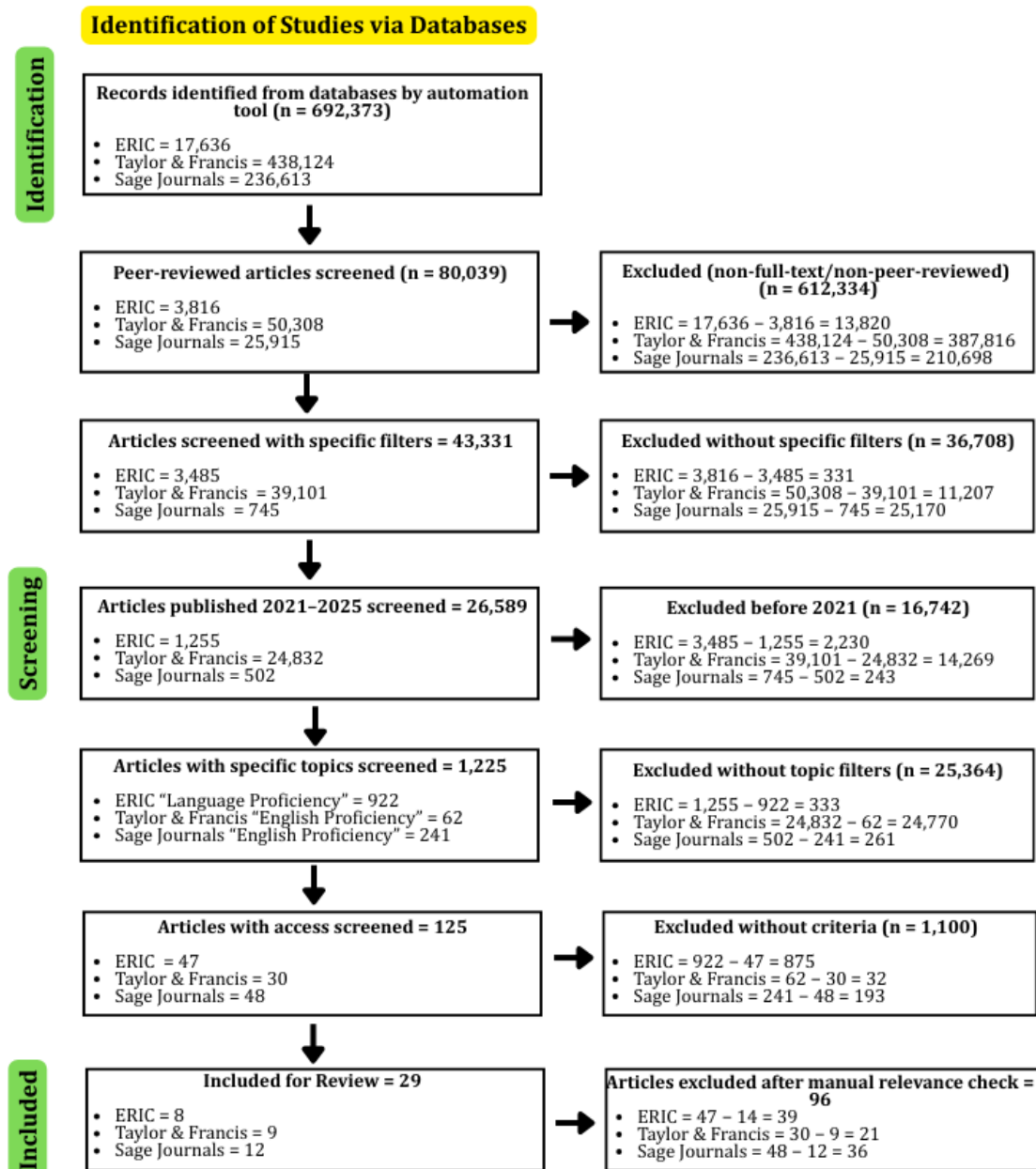
The literature search was conducted using the academic databases ERIC, Taylor & Francis, and Sage Journals, which provide reliable and widely recognized sources of scholarly research. To identify relevant studies, keywords such as “English proficiency,” “language proficiency,” “English as a Medium of Instruction (EMI),” “language development,” “academic achievement,” and “higher education” were combined using Boolean operators (AND, OR) to maximize the retrieval of pertinent articles. The search was limited to peer-reviewed, full-text, and open-access journal articles published between 2021 and 2025 to ensure the inclusion of recent evidence reflecting contemporary EMI practices and developments.

The selection of studies was guided by the inclusion and exclusion criteria presented in Table 1, which considered publication type, year, descriptors, and relevance to the research objectives. Only studies available within the selected databases and focused on EMI and students’ English proficiency in higher education were included. Articles not accessible through these databases, non-peer-reviewed publications, and studies unrelated to the review objectives were excluded. Furthermore, only internationally sourced studies aligned with the scope of the review were retained to ensure a focused and coherent synthesis of the literature.

**Table 1:** Inclusion-Exclusion Criteria

Parameters	Inclusion Criteria	Exclusion Criteria
Journal Type	Peer-reviewed with full text available and can be open access in ERIC, Taylor & Francis, and Sage Journals	Articles not published in peer-reviewed journals or those without full-text availability or accessibility in EERIC, Taylor & Francis, and Sage Journals will be excluded.
Year of Publication	2021 to present (5 years)	Articles published before 2021
Descriptors	English Proficiency, English as a Medium of Instruction (EMI)	Articles that do not have relevant descriptors related to English Proficiency or English as a Medium of Instruction (EMI).
Demographic	International	Studies that are not focused on English proficiency and English as a Medium of Instruction (EMI) are excluded.

In particular, a search for studies on EMI was conducted across ERIC, Taylor & Francis, and Sage Journals, yielding a total of 692,373 records (ERIC: 17,636; Taylor & Francis: 438,124; Sage Journals: 236,613). After removing non-peer-reviewed and non-full-text articles, 80,039 articles were screened (ERIC: 3,816; Taylor & Francis: 50,308; Sage Journals: 25,915), with 612,334 records excluded.



**Figure 1.** PRISMA Flowchart for Article Selection and Screening

Screening with specific publication filters identified 43,331 records (ERIC: 3,485; Taylor & Francis: 39,101; Sage Journals: 745), while 36,708 articles were excluded for not meeting the filter criteria. Limiting the search to articles published between 2021 and 2025 yielded 26,589 records (ERIC: 1,255; Taylor & Francis: 24,832; Sage Journals: 502), excluding 16,742 older publications. Further screening for topic relevance produced 1,225 articles (ERIC: 922; Taylor & Francis: 62; Sage Journals: 241), and 25,364 articles not addressing the topic were removed. Screening for the target population and access resulted in 125 articles (ERIC: 47; Taylor & Francis: 30; Sage Journals: 48), with 1,100 articles excluded for failing to meet these criteria. Following a manual relevance check, 29 articles were included in the final review (ERIC: 8; Taylor & Francis: 9; Sage Journals: 12), and 96 articles were excluded at this stage (ERIC: 39; Taylor & Francis: 21; Sage Journals: 36).

The final dataset consisted of 29 peer-reviewed articles that met all eligibility requirements and provided sufficient empirical evidence to address the review objectives. Although limited to

studies published between 2021 and 2025, this dataset represented diverse geographical regions, educational contexts, and research methodologies, providing a broad and contemporary evidence base for identifying recurring patterns, inconsistencies, and emerging trends in EMI research.

Lastly, a deductive (codebook-driven) thematic analysis was employed to examine the literature using pre-identified categories to identify the factors influencing EMI effectiveness. Articles with similar thematic patterns were compiled, grouped, and compared to capture recurring insights and notable patterns. The analysis focused on themes such as students' and teachers' English proficiency levels, cultural and contextual constraints, government initiatives supporting EMI, factors that facilitate or hinder EMI, and the outcomes associated with successful EMI implementation. Complementing this, a narrative synthesis was used to summarize and integrate the findings across the 29 articles, organizing the information thematically to provide a coherent overview of strategies, influencing factors, and outcomes reported in the literature.

## RESULT AND DISCUSSION

### 1. Factors Influencing EMI Effectiveness in Enhancing English Proficiency

Table 2 presents a synthesis of the key factors influencing the effectiveness of EMI in enhancing learners' English proficiency, drawing on findings from recent empirical studies across diverse educational contexts.

**Table 2.** Factors Influencing EMI Effectiveness in Enhancing English Proficiency

Factor	Key Findings	Representative Studies
Linguistic Challenges and Proficiency Thresholds	Students with insufficient English proficiency struggle with content comprehension, participation, and incidental language learning. Opportunities to use English beyond the classroom further enhance proficiency gains.	Aizawa et al. (2023, 2024); Kamaşak & Sahan (2024); Salaberri-Ramiro & Sánchez-Pérez (2022)
Language Learning Anxiety as a Psychological Factor	Anxiety, confidence, self-regulation, and learner identity influence engagement and proficiency development. Lower anxiety is associated with greater language gains.	Yuksel et al. (2023); Chong et al. (2025); Permatasari et al. (2024); Zhou et al. (2025)
Pedagogical Approaches	Collaborative learning, instructional scaffolding, peer interaction, and translanguaging support both content learning and language development.	Tang et al. (2021); Thongwichit & Ulla (2024)
Teacher Language Proficiency and Instructional Quality	Teachers' English proficiency and vocabulary knowledge affect the quality of linguistic input, classroom interaction, and students' learning experiences.	Masduki et al. (2022); Malmström et al. (2025); Goriot & Van Hout (2023)
Vocabulary Development Through EMI	Vocabulary growth is enhanced through strategic learning behaviors, metacognitive awareness, and exposure to academic language.	Hanh (2021); Teng (2024)

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Academic Language Skills and Discipline-Specific Proficiency	EMI promotes academic writing, discipline-specific vocabulary, academic discourse, and content-related language skills.	Jiang & Chen (2025); Del Mar Sánchez-Pérez (2023); Barkaoui (2025)
Speaking Proficiency Development	Speaking anxiety, self-perception, and communicative opportunities significantly affect oral proficiency gains.	Chen (2024); Shi et al. (2024); Said et al. (2022)
Socioeconomic and Background Factors	Socioeconomic status, parental education, gender, and prior English exposure influence learners' ability to benefit from EMI.	Muttaqin et al. (2022); Nguyen (2023); Pohnsuriya (2025); Gan et al. (2025)
Multilingual Practices and Identity	Strategic use of multiple languages and positive multilingual identities facilitate content understanding and English proficiency development.	Dang (2023); Yuksel et al. (2025); Luchenko et al. (2024)

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#### a. Linguistic Challenges and Proficiency Thresholds In and Out of the Classroom

A critical factor determining EMI's effectiveness in improving English proficiency is the linguistic challenges students encounter and whether they possess threshold proficiency levels that would benefit from instruction. Research has explored English language proficiency, linguistic challenges, and academic language skills of Japanese students in EMI programs, examining whether specific linguistic obstacles impede content learning and language development, and whether threshold proficiency levels exist below which EMI becomes ineffective or potentially detrimental (Aizawa et al., 2023, 2024). Through linguistic analysis and the documentation of the specific areas of difficulty (vocabulary breadth and depth, grammatical complexity comprehension, and listening fluency), it was found that these affect students' ability to benefit from EMI. Findings reveal that students below certain threshold levels struggle to comprehend lecture content adequately, limiting incidental language acquisition opportunities and creating frustration rather than effectively using facilitative learning conditions. The research's novelty lies in its specification of threshold indicators, providing empirically based guidelines for determining students' readiness for EMI participation.

A study examining academic success in EMI courses found that students' language proficiency development is enhanced when they actively use English in multiple domains beyond formal instruction, including social interactions, independent study, and extracurricular activities (Kamaşak & Sahan, 2024). Students who restrict English use to classroom contexts show limited proficiency gains despite EMI exposure, while those who integrate English into broader aspects of university life demonstrate accelerated development. The study's contribution lies in highlighting that EMI catalyzes proficiency improvement primarily when embedded within a supportive multilingual environment that encourages extensive English use.

Furthermore, while students express satisfaction with their teachers' English proficiency and instructional strategies to support comprehension, they continue to experience discomfort when assessed in English, highlighting a gap between instructional clarity and evaluative readiness (Salaberri-Ramiro & Sánchez-Pérez, 2022). The study highlighted that this catalyzed a

lack of confidence in students in their linguistic abilities, especially during graded tasks that heighten linguistic pressure. Moreover, students' desire for more classroom interaction indicates that current teaching practices lack adequate opportunities for active engagement, which are essential for developing communicative competence. The study also shows that a more interactive learning environment for students is crucial in enhancing their confidence and performance in English-medium settings.

#### b. Language Learning Anxiety as a Psychological Factor

The effectiveness of EMI in enhancing English proficiency is significantly controlled by psychological and affective variables that influence students' engagement with English-medium content and their willingness to use English actively. One study examined the role of English language proficiency, language learning anxiety, and self-regulation skills in EMI students' academic success (Yuksel et al., 2023). It is found that psychological factors interact with linguistic proficiency, determining both scholarly outcomes and continued language development in EMI contexts. They also addressed the affective dimension of EMI learning, recognizing that linguistic exposure alone does not guarantee proficiency gains if accompanied by high anxiety or poor self-regulation. This demonstrates that language learning anxiety negatively impacts both immediate comprehension in EMI classes and long-term proficiency development by reducing active participation, question-asking, and risk-taking behaviors essential for language acquisition. Conversely, strong self-regulation skills enable students to employ compensatory strategies, seek additional language support, and persist through linguistic challenges, thereby maximizing proficiency gains from EMI exposure. The study shows that EMI effectiveness depends not only on linguistic inputs but also on psychological factors that determine how students process and respond to these inputs.

Another study investigated language anxiety in EFL and ESL academic environments, including EMI contexts (Chong et al., 2025). Their research compares anxiety levels and their effects across different English learning environments to understand whether EMI contexts generate unique anxiety profiles that affect proficiency development. This situates EMI within the broader landscape of English language education, examining whether the content-focused nature of EMI alleviates or exacerbates language anxiety compared to traditional language classes. Their findings revealed that EMI contexts can generate specific forms of anxiety related to simultaneous overwhelming content and language processing demands, but can also reduce traditional language learning anxiety by shifting focus from linguistic form to meaningful practical communication. Students who view EMI primarily as content courses experience lower language anxiety and, paradoxically, achieve greater proficiency gains through reduced inhibition and increased authentic language use.

Another study found that limited English proficiency created challenges for both international students and teachers, affecting the overall effectiveness of English as a medium of instruction (EMI) in Malaysia (Mohd Faiz & Mohamed, 2022). Students struggling with comprehension, expressing ideas, and handling academic tasks are hindered in their learning progress, reducing their confidence and participation in class. Meanwhile, instructors often struggle to explain complex concepts and maintain clear communication, leading to EMI-related challenges that extend beyond students' readiness, teachers' capability, and instructional demands. Additionally, the findings show that EMI implementation is linked to cultural expectations, linguistic diversity, and pedagogical practices, expressing the need for more holistic support systems that address both students' and teachers' linguistic needs within higher education in Malaysia.

There was a report that test preparation in English has a positive impact on learners' proficiency, resulting in substantial score improvements in preparation programs (Permatasari et al., 2024). This enhancement is evident in areas such as writing, speaking, reading, and overall proficiency, yielding broad, transferable language gains rather than benefiting a single competency. Beyond cognitive and skill-based improvements, the results reveal the influence of psychological factors on increased confidence and reduced test anxiety among students, which shape learners' performance. Moreover, these findings highlight the multifaceted nature of effective test preparation, showing that both targeted language training and attention to emotional readiness are critical for maximizing learners' proficiency growth.

Two distinct learner trajectories in EMI, the "surviving" and "thriving" learners, show that the surviving learners, those who were caught in a cycle of frustration and had low confidence, struggled most to meet EMI expectations (Zhou et al., 2025). In contrast, thriving learners are those who build confidence, adopt a proactive approach, seek identity growth, and use metacognitive planning, reflective monitoring, and flexible strategy selection to navigate listening challenges more effectively than "surviving" learners. These trajectories shape the learners' engagement with EMI, showing that while some students are overwhelmed, others can transform challenges into opportunities for linguistic and personal growth. The findings indicate the importance of targeted support to help surviving learners transition toward thriving, emphasizing both skill development and psychological empowerment. Because of these factors, students in EMI classes were quieter than those in Chinese-language classes. Despite those factors, the teachers said that the students didn't refuse EMI and that their attitude towards English seemed more positive compared to Chinese, which was used before.

The students were then questioned, after which most said that they liked learning content-based subjects in English, despite the challenges. When asked about the change in teaching method affecting their studies, the general opinion was that it had a partial effect. Some high-performing students even said that using English was easier and that certain terms are simpler and easier to remember in English, especially in Maths and Sciences, since they are translated from English into Chinese. For instance, in the subject of Science, the term "hydrochloric acid" is hard to write in Chinese. However, some low-performing students admitted they struggled at first with English because they couldn't express themselves well, and they were worried about making mistakes in grammar, pronunciation, or vocabulary. They showed improvements later, however, as even these students stated that they preferred teachers to use English throughout all lessons in a subject. They found it confusing to switch between English and Chinese within the same subject, as one student in particular has found difficulty in remembering two sets of words, both Chinese and English, and then having to remember both in their exams. For all students, the biggest challenge in learning through English was vocabulary, as different subjects used their own jargon, causing misunderstandings.

### c. Pedagogical Approaches Through Instructional Scaffolding and Translanguaging, Collaborative Instructional Strategies, and Appropriate Policy Implementation

The pedagogical methods employed within EMI contexts significantly influence their effectiveness in enhancing English proficiency. For instance, a research synthesis examined the effects of cooperative, collaborative, and peer-tutoring strategies on English learners' reading and speaking proficiencies in English-medium contexts (Tang et al., 2021). The research aimed to identify which instructional approaches most effectively support both content learning and language development in EMI settings. This study addresses the pedagogical dimension of EMI effectiveness, recognizing that merely delivering content in English does not optimize language

learning without appropriate instructional scaffolding. By systematically synthesizing evidence across multiple studies to identify best practices, it was revealed that interactive, student-centered approaches significantly enhance proficiency outcomes compared to traditional lecture-based EMI instruction. Cooperative learning structures provide multiple opportunities for meaningful English use, immediate peer feedback, and negotiation of meaning, all critical processes for language acquisition. Peer tutoring arrangements enable students to receive comprehensible input adjusted to their proficiency levels while practicing explanatory language use.

On the other hand, a study examined translanguaging pedagogy in Thailand's EMI-using classrooms, exploring teachers' perspectives and practices (Thongwichit & Ulla, 2024). Their research aims to understand how the strategic use of students' first languages alongside English affects content comprehension and the development of English proficiency in EMI contexts. This challenges monolingual assumptions underlying traditional EMI implementation, investigating whether multilingual pedagogical approaches enhance or undermine English proficiency goals. Demonstrating judicious translanguaging (strategic movement between languages for specific pedagogical purposes) can facilitate English proficiency development by ensuring content comprehension, reducing cognitive overload, and maintaining student engagement. When students understand content through L1 support, they can subsequently focus cognitive resources on English language features and academic discourse patterns. Complete English immersion, by contrast, may cause comprehension breakdowns that impede both content learning and language acquisition. Through this, EMI effectiveness was reconceptualized, showing that English proficiency development is optimized through flexible multilingual pedagogies rather than strict English-only policies.

#### d. Teacher Language Proficiency and Instructional Quality

The English proficiency levels of instructors delivering EMI courses constitute a critical yet often overlooked factor affecting students' language development opportunities. A study investigated teachers' English proficiency, specifically examining whether students perceive it as a threat or an opportunity (Masduki et al., 2022). Their research aims to understand how instructor language proficiency influences students' perceptions of learning opportunities and actual linguistic development in EMI contexts. In their study, they addressed the input quality dimension of language learning, recognizing that students' language development depended significantly on the linguistic models and interaction opportunities their instructors provide. It was then revealed that students acutely perceive variations in an instructor's English proficiency and that these perceptions affect their engagement, confidence, and willingness to use English actively in class. Instructors with limited English proficiency may inadvertently model non-standard language forms, provide insufficient linguistic scaffolding, or create environments where English use is minimized to accommodate instructors' limitations. Conversely, highly proficient instructors offer rich linguistic input, effectively address students' language questions, and create confidence that supports active English use. The study highlights this often-neglected dimension of EMI quality, suggesting that teacher language development must accompany EMI expansion for optimal student proficiency outcomes.

In a related study, teachers' receptive and productive vocabulary sizes in English-medium instruction were examined (Malmström et al., 2025). Their research aims to assess whether EMI instructors possess vocabulary breadth and depth sufficient to support students' academic language development alongside content instruction. This study is particularly relevant as it moves beyond general proficiency measures to examine specific linguistic dimensions critical for

effective EMI teaching. In their research, they documented considerable variation in instructors' knowledge of academic vocabulary, with some possessing vocabularies insufficient to discuss disciplinary content with full lexical precision or to effectively explain terminology to students. Limited instructor vocabulary restricts the lexical richness of classroom discourse, potentially constraining students' vocabulary acquisition opportunities. Their study specified linguistic requirements for effective EMI instruction, demonstrating that content expertise alone does not ensure that EMI courses provide optimal environments for English proficiency development. The research suggests that systematic attention to instructor language development is essential to maximizing EMI's potential for enhancing student proficiency.

Several studies have explored the effects of English-medium instruction (EMI) on both teachers and students. Teachers at early English schools generally held positive beliefs about the benefits of early English education for communicative development, with those teaching English themselves or rating their English-speaking skills higher expressing more favorable perceptions of disadvantaged learners and their own teaching abilities; these beliefs were significantly associated with school type and teachers' English proficiency, suggesting the need for assessment of teachers' language skills (Goriot & Van Hout, 2023). It implies that students' perceptions of EMI are generally positive, even when groups differ in length of exposure to English instruction, as learners view EMI as supportive, motivating, and beneficial for both English proficiency and academic skill development, with teaching materials aligned to their needs. While English proficiency positively influences student performance, regression analyses indicate that general academic skills are often a stronger predictor of achievement, and EMI does not negatively affect content learning when courses provide close instructional support; workload management also plays a role, as students taking more credit hours tend to perform slightly worse (Lin & Lei, 2021). EMI students face distinct linguistic and cognitive challenges that require targeted support, highlighting the importance of integrating language assistance and adapting teaching strategies to ensure programs are effective and equitable; despite global adoption, evidence regarding EMI's broader educational and economic impact remains limited (Aizawa et al., 2023, 2024).

#### e. Vocabulary Development Through EMI

Vocabulary acquisition represents a crucial component of English proficiency development, and EMI contexts provide specific opportunities and challenges for lexical growth. A study investigated vocabulary learning strategies and Vietnamese university students' learning in EMI classrooms (Hanh, 2021). The research aimed to identify which vocabulary learning strategies students employ in EMI contexts and how these strategies contribute to lexical development and overall proficiency gains. It was then discovered that vocabulary constitutes a foundational element of language proficiency, and understanding how students approach vocabulary learning in content courses illuminates the mechanisms through which EMI facilitates proficiency development. Successful EMI students who actively employ diverse vocabulary-learning strategies, including contextual guessing, strategic dictionary use, note-taking techniques, and deliberate review practices, are documented. Students who passively attend EMI classes without strategic vocabulary engagement show limited lexical gains despite exposure to the vocabulary content. The study demonstrated that EMI effectiveness for proficiency development depends significantly on students' metacognitive awareness and strategic behavior regarding vocabulary learning, suggesting that explicit strategic instruction could enhance EMI's linguistic benefits.

A study also examined the roles of second-language proficiency level and working memory on vocabulary learning from word-focused exercises, with implications for EMI contexts (Teng, 2024). The research aims to understand how individual differences in proficiency and cognitive

capacity influence vocabulary acquisition from focused language activities that might supplement EMI content courses. It addresses the cognitive mechanisms underlying vocabulary learning, helping explain why EMI exposure yields varied proficiency outcomes among students. Their research found that working memory capacity moderates vocabulary learning effectiveness, with higher working memory enabling students to process, retain, and integrate new vocabulary encountered in EMI contexts efficiently. Students with limited working memory may require more explicit vocabulary instruction and review to benefit from incidental vocabulary exposure in content courses. The study highlights cognitive individual differences as factors influencing EMI's effectiveness for proficiency development, suggesting that supporting structures must account for varied cognitive profiles among EMI students.

#### f. Academic Language Skills and Discipline-Specific Proficiency

EMI's impact on English proficiency extends beyond general language competence and encompasses academic language skills and discipline-specific linguistic proficiencies essential for higher education success. A multi-dimensional rating scale for lexical proficiency in L2 academic speech was validated through a mixed-methods approach to develop fine-grained assessment tools capable of capturing the sophisticated academic language skills that EMI contexts potentially develop (Jiang & Chen, 2025). The research addressed measurement challenges in documenting EMI's effects on academic English proficiency, recognizing that general proficiency tests may not capture discipline-specific or academically oriented language gains. It demonstrated that EMI students develop specialized academic speaking proficiencies, including discipline-specific terminology use, complex syntactic structures appropriate for academic discourse, and rhetorical features of scholarly communication. These specialized proficiencies may not be reflected in general English tests but constitute crucial linguistic competencies for academic success and professional communication. A multidimensional approach to proficiency assessment was highlighted, providing tools that can accurately capture the specific linguistic benefits EMI provides (Jiang & Chen, 2025).

The impact of EMI on student English writing proficiency in a Spanish undergraduate engineering context was also investigated, showing that content courses taught in English enhance students' academic writing abilities, a critical component of overall English proficiency (Del Mar Sánchez-Pérez, 2023). Writing is a productive skill that can be challenging to develop in engineering contexts, which typically emphasize technical content over linguistic form. Measurable improvements in academic writing proficiency were documented among EMI students, including enhanced grammatical accuracy, increased vocabulary sophistication, and improved discourse organization in written assignments. Gains were most pronounced when EMI courses explicitly addressed writing conventions and provided feedback on linguistic features alongside content evaluation. Writing proficiency, often neglected in EMI research that focuses on receptive skills, was shown to depend on the pedagogical integration of language and content objectives (Del Mar Sánchez-Pérez, 2023).

The relationship between English language proficiency (ELP) test scores and academic achievement varies depending on the test and students' fields of study. Both IELTS Academic and TOEFL iBT scores were positively associated with first-semester GPA, but the strength of this association differed across disciplines. Longitudinally, students with higher IELTS scores maintained more stable GPA trajectories over ten semesters, while those with lower scores experienced a greater decline in academic performance, suggesting that stronger initial ELP may contribute to greater academic resilience (Barkaoui, 2025). Thus, ELP scores can predict academic

success to some extent; however, the predictive power is influenced by the type of test, discipline, and individual student characteristics.

Students tend to use deep processing approaches in their studies, with elaboration being the most common, followed by organization and critical thinking. Learners with low proficiency engage in more laborious, detailed previewing to compensate for their lack of skills, whereas learners with high proficiency rely on lighter, more efficient preparation. As self-efficacy is associated with critical thinking, students with higher self-efficacy are more engaged in evaluating ideas, while students with lower self-efficacy are more hesitant and doubtful. Motivation and confidence shape learners' engagement not only in language proficiency (Zhou et al., 2025).

#### g. Speaking Proficiency Development in EMI

Oral communication proficiency represents a critical outcome of EMI participation, yet speaking development through content courses faces unique challenges. A study of Chinese undergraduate students examined English language speaking anxiety, expectancy-value beliefs, and spoken English proficiency to understand how affective and motivational factors influence speaking development in EMI contexts, where oral communication is essential yet anxiety-provoking (Chen, 2024). Speaking proficiency often lags behind receptive skills even after extensive EMI exposure, and the study showed that speaking anxiety significantly inhibits oral proficiency development by reducing students' willingness to participate in class discussions, ask questions, or engage in collaborative verbal exchanges. Students' expectancy-value beliefs, such as their confidence in their ability to improve and their valuation of speaking skills, moderate the relationship between EMI exposure and gains in speaking proficiency, suggesting that psychological interventions could enhance EMI's effectiveness for oral proficiency development (Chen, 2024).

In a related study, Chinese college students' perceptions, needs, and self-assessment of spoken English competency were investigated to understand how subjective evaluations align with objective proficiency levels in EMI contexts (Shi et al., 2024). Accurate self-assessments were found to correlate with more effective speaking development, as students can target appropriate improvement strategies, whereas excessive self-criticism or underestimation of skills inhibited participation. Metacognitive dimensions of speaking proficiency demonstrate that supporting accurate self-evaluation enhances students' capacity to benefit linguistically from EMI participation (Shi et al., 2024).

(Muttaqin et al., 2022) In addition, students' proficiency and language engagement reveal that speaking and listening constitute the most significant barriers to authentic language use, while writing presents a lesser constraint, and reading is not perceived as difficult (Said et al., 2022). Learners tend to value and struggle with the same skills, highlighting the interplay between motivation, confidence, and practical ability in communicative English, and underscoring the need for more opportunities to build interactive language skills (Said et al., 2022).

#### h. Socioeconomic and Background Factors

The effectiveness of EMI in improving English proficiency is mediated by students' socioeconomic backgrounds and prior educational experiences, factors that create differential access to EMI benefits. The mediating role of English proficiency and the moderating effect of parents' education in the SES-academic achievement relationship indicate that students from higher socioeconomic backgrounds typically enter EMI programs with stronger English proficiency, which enables them to benefit more substantially from instruction, creating a cumulative advantage effect; parents' education levels also influence home literacy environments,

access to supplementary English resources, and cultural capital related to academic English use (Muttaqin et al., 2022). EMI implementations, therefore, involve broader issues of educational equity and success beyond pedagogical factors.

Demographic variables also play a pivotal role in shaping English proficiency outcomes. Higher GPA, greater exposure to English, and advanced year levels are associated with higher proficiency scores, whereas limited exposure is associated with lower performance, highlighting disparities across learner groups and the need for targeted support strategies (Pohnsuriya, 2025). Entry-level English proficiency, gender, province of origin, and semester timing are statistically significant predictors of GPA, though their overall practical impact is limited. Female students outperform male students across majors, and semester timing influences retention, while adaptation and individual learner characteristics are critical for academic success. Regional differences in GPA do not correspond directly to economic wealth, suggesting that factors such as motivation and study habits are more influential than geographic background (Gan et al., 2025).

Thus, participation in EMI programs is associated with higher English proficiency, as demonstrated among Vietnamese university students, with female participants benefiting more than males. This indicates that while EMI can enhance proficiency, its effects vary across gender and socioeconomic groups, emphasizing the importance of considering social and economic background in evaluating EMI effectiveness and shaping language policy (Nguyen, 2023).

#### i. Multilingual Practices and Identity

Contemporary EMI research increasingly recognizes that English proficiency development occurs within multilingual contexts where students' other languages play significant roles. A mixed-methods study of multilingual practice and multilingual selves among EMI international students in Japan examined how students navigate multiple languages in EMI contexts and how their multilingual identities shape the development of English proficiency (Dang, 2023). This challenges deficit perspectives that view students' other languages as obstacles, instead highlighting multilingualism as a resource. Students who strategically integrate their multiple languages (e.g., for comprehension, concept formation, and peer collaboration) often achieve stronger English proficiency gains than those who attempt to operate exclusively in English. Multilingual practices support cognitive processing and reduce affective barriers, creating conditions conducive to language learning. In other words, students with positive multilingual identities engage more confidently with English in EMI contexts, facilitating proficiency development.

In this context, EMI students' attitudes towards translanguaging and English proficiency thresholds across disciplines have been explored to examine how perspectives on multilingual practices vary by disciplinary context and proficiency level, and how these attitudes influence language development (Yuksel et al., 2023, 2025). It implies that lower-proficiency students view strategic L1 use positively as a learning support, whereas advanced students increasingly prefer English-only environments for immersion. Disciplinary differences also emerge, with emphasis on abstract concepts leading to greater acceptance of multilingual practices than on concrete or visually representable content.

Teachers' perspectives on EMI in multilingual classrooms have further highlighted both opportunities and challenges. Non-native Japanese teachers reported using EMI widely to enhance understanding and facilitate language transition, recognizing its benefits for promoting multilingualism and content comprehension, while also noting limitations such as students' limited English proficiency and resource shortages (Luchenko et al., 2024). Teachers generally perceive EMI as helpful but acknowledge significant obstacles related to students' language skills

and classroom dynamics. So, mixed opinions about EMI use in Japanese language classrooms, along with the study's self-selected sample, suggest that more research is needed to explore students' experiences across diverse global contexts.

## DISCUSSION

The synthesis of the 29 reviewed articles reveals several research gaps that remain unaddressed in current EMI literature. Despite the expanding range of EMI studies, a major gap remains in understanding how EMI leads to measurable gains in English proficiency. Research generally supports the idea that EMI correlates with improved proficiency (Nguyen, 2023), yet few studies examine the underlying mechanisms, such as vocabulary acquisition, the cognitive processes influencing comprehension, or how multilingual strategies support learning (Dang, 2023; Hanh, 2021). Long-term studies are also limited, leaving unclear how proficiency evolves over academic periods, particularly for students with differing initial proficiency, working memory, or academic ability (Gan et al., 2025; Teng, 2024).

Findings support the significance of minimum English proficiency for participation in EMI, though no uniform threshold has been established, indicating a lack of standardized proficiency requirements for EMI readiness (Aizawa et al., 2024; Yuksel et al., 2023, 2025). Research also highlights that instructors' language proficiency is vital for EMI success, while institutional strategies for training, assessing, or supporting EMI teachers remain insufficient (Malmström et al., 2025; Masduki et al., 2022). Pedagogical approaches such as translanguaging, cooperative learning, and interactive strategies demonstrate clear benefits (Tang et al., 2021; Thongwichit & Ulla, 2024), but existing studies primarily describe practices rather than measuring their long-term impact on proficiency. This gap is particularly critical in multilingual and resource-limited contexts, where inconsistent teacher preparation continues to affect learning outcomes (Luchenko et al., 2024).

Only a few studies track language development over extended periods, highlighting a need for longitudinal analysis to assess EMI's sustained effects (Barkaoui, 2025). Affective factors, including self-regulation and anxiety, have been shown to influence EMI learning (Chong et al., 2025; Yuksel et al., 2023, 2025), yet the extent to which these factors vary across academic disciplines remains underexplored. Socioeconomic status also affects English proficiency and academic performance (Muttaqin et al., 2022; Yuksel et al., 2023, 2025), further indicating a gap in understanding how EMI outcomes are shaped by social and economic conditions.

Although translanguaging has been shown to benefit EMI classrooms (Luchenko et al., 2024; Thongwichit & Ulla, 2024), institutional policies often remain in English only, highlighting a disconnect between research-supported practices and real-world implementation. Similarly, while general English proficiency development is documented (Del Mar Sánchez-Pérez, 2023; Jiang & Chen, 2025). Also, there is limited evidence on discipline-specific academic English, indicating a gap in field-specific language development. Most EMI studies have been conducted in domestic contexts (Gan et al., 2025; Nguyen, 2023), revealing a need for international research to broaden applicability.

Moreover, the influence of sociocultural, socioeconomic, and demographic factors on EMI remains underexplored. Variables such as gender, prior exposure, and learning environment affect proficiency outcomes (Gan et al., 2025; Muttaqin et al., 2022; Pohnsuriya, 2025), but these are often examined in isolation rather than in interaction with linguistic, psychological, and instructional factors, identifying a clear research gap. Multilingual identity has been shown to enhance interactive performance and learner confidence (Dang, 2023; Yuksel et al., 2023, 2025), yet research on its impact on long-term proficiency development is limited. These gaps

collectively suggest the need for a comprehensive, mixed-method approach to examine how diverse learners intersect with key factors, including linguistic readiness, affective conditions, pedagogical strategies, teacher proficiency, and multilingual practices, in shaping EMI effectiveness.

Despite reviewing 29 studies, this synthesis has some limitations that should be considered. First, there may be selection bias, as the review was conducted by researchers enrolled in an English Language program, which may have influenced the choice of topic and the selection of studies. In particular, the search was primarily limited to English-language sources and major academic databases, which may have excluded relevant studies published in other languages or less accessible sources. In addition, publication bias may also be present, as studies reporting positive or significant effects of EMI on English proficiency are more likely to be published, while studies with null or negative findings are less frequently reported.

## CONCLUSION

This review contributes to the growing body of EMI literature by synthesizing evidence that EMI plays a crucial role in shaping students' English proficiency, academic engagement, and discipline-specific competencies. Rather than functioning solely as a mode of content delivery, EMI emerges as a complex linguistic and cognitive environment where language development occurs alongside academic knowledge construction. The findings reinforce that English proficiency is a key enabler of successful participation in EMI settings, as students with stronger language skills demonstrate higher levels of comprehension, engagement, and academic performance.

Importantly, this review highlights EMI as a multidimensional phenomenon influenced by the interaction of linguistic readiness, prior English exposure, socioeconomic background, and affective factors such as language anxiety and learner confidence. These interrelated variables suggest that EMI outcomes are not uniform, and without appropriate institutional support, EMI may inadvertently reinforce existing educational inequalities rather than reduce them.

In response, the review highlights the need for a more structured and inclusive EMI implementation framework. This includes the establishment of clear yet context-sensitive language proficiency benchmarks, sustained language development support (e.g., tutoring, vocabulary enrichment, and academic literacy programs), and pedagogical approaches that accommodate diverse learner profiles. Furthermore, the findings emphasize the central role of teachers in EMI success, highlighting the need for targeted professional development in EMI-specific pedagogies such as scaffolding, translanguaging, and academic discourse mediation.

Simply put, this review argues that EMI can be a powerful mechanism for advancing both language development and academic achievement when supported by coherent institutional policies and pedagogically responsive practices. Its effectiveness depends not only on students' initial language proficiency but also on sustained institutional commitment to reducing linguistic barriers and promoting equitable participation. When implemented strategically, EMI has the potential to transform higher education by integrating language learning with disciplinary knowledge in meaningful and inclusive ways.

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