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## REVIEW

## A Review on English-Medium Instruction (EMI) in Teaching and Its Effects on University Students' English Proficiency and Content Learning

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## ABSTRACT

English-Medium Instruction (EMI) has gained prominence globally as higher education institutions (HEIs) adopt English to teach academic subjects, particularly in non-Anglophone regions. This review explores the implementation and impacts of EMI on students' English proficiency and content learning in various contexts, including Taiwan, the UAE, Malaysia, and Thailand. EMI has been driven by globalization, institutional internationalization, and the perceived advantages of enhancing students' career prospects and mobility. While EMI has successfully improved English language skills, its effects on content learning remain inconclusive, with studies showing varied outcomes. Key challenges include linguistic barriers, cultural mismatches, insufficient institutional support, and concerns over linguistic and cultural identity erosion. Notable issues such as limited English proficiency often hinder students' ability to fully engage with course material, leading to disparities in academic outcomes. The review also highlights the diversity of EMI implementation across educational levels and regions, ranging from partial integration in Chinese universities to fully English-medium programs in European HEIs. The findings underscore the importance of policy support, bilingual teaching strategies, and adequate teacher training to address the challenges associated with EMI. Ultimately, while EMI enhances international competitiveness and student employ-ability, its broader implications for equity, cultural preservation, and effective content delivery warrant further investigation. This review calls for more rigorous research to explore the intersection of language

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Lai, H., Idris, H.B., 2025. A Review on English-Medium Instruction (EMI) in Teaching and Its Effects on University Students' English Proficiency and Content Learning. Forum for Linguistic Studies. 7(1): 834–846. DOI: https://doi.org/10.30564/fls.v7i1.8107

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Copyright © 2025 by the author(s). Published by Bilingual Publishing Co. This is an open access article under the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License (https://creativecommons.org/licenses/by-nc/4.0/). proficiency, academic ability, and content mastery in EMI settings.

Keywords: English-Medium Instruction; English Proficiency; English Language; Globalization

## 1. Introduction to English-Medium Instruction (EMI)

EMI is defined as "the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English"<sup>[1]</sup>. Over the past two decades, EMI in higher education has witnessed rapid growth, driven by the increasing global dominance of English and the expanding internationalization of higher education<sup>[2]</sup>.

The rising popularity of EMI is influenced by multiple factors, such as the desire to attract international students and faculty<sup>[3]</sup>, enhance institutional internationalization and competitiveness<sup>[4]</sup>, improve students' mobility<sup>[5]</sup>, and secure better employment prospects for graduates<sup>[6]</sup>. Moreover, EMI is perceived as a way to develop English proficiency without negatively impacting content learning<sup>[7]</sup>.

While there is an increasing volume of research exploring the implications of EMI for content learning, only a limited number of studies have empirically assessed its impact through objective testing<sup>[8]</sup>. Consequently, the extent to which EMI influences content learning remains uncertain.

Integrating educational technology (Edutech) into English-Medium Instruction (EMI) programs offers a transformative avenue for addressing some of the challenges associated with teaching content through a non-native language<sup>[9]</sup>. Tools such as AI-driven platforms, cloud-based learning environments, and augmented reality applications can enhance both language acquisition and content comprehension. AI can provide personalized learning pathways, offering students tailored feedback to improve their English proficiency while engaging with academic content<sup>[10]</sup>. Similarly, cloud technologies facilitate seamless access to resources, enabling collaborative learning and providing flexibility for students with varying linguistic backgrounds. Augmented reality further enriches EMI by creating immersive, interactive environments that support contextual learning, bridging linguistic gaps<sup>[11]</sup>. Despite these benefits, the integration of Edutech requires careful consideration of students' digital literacy and institutional support systems to ensure equitable access and effective implementation. By leveraging these technologies, EMI programs can move closer to achieving their dual goals of advancing English proficiency and content mastery, while also addressing concerns related to inclusive and educational outcomes<sup>[12]</sup>.

#### 1.1. The Spread of EMI

Coleman explains that once a particular medium achieves a dominant position in the market, switching to an alternative medium becomes increasingly impractical, reinforcing its dominance—an occurrence he refers to as the "Microsoft effect"<sup>[13]</sup>. This phenomenon is evident in the growing adoption of EMI, with a rising number of educational institutions, particularly those in higher education, offering courses or entire programs in English. Higher education institutions (HEIs) aim to expand their international reach by attracting diverse student bodies and faculty, as well as by enhancing their programs and research initiatives<sup>[14]</sup>. Consequently, EMI has become increasingly prevalent in HEIs located in countries where English serves as a second language (L2) —contexts commonly associated with EMI<sup>[15]</sup>.

EMI is widely defined as "the use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English". Similarly, Macaro et al. define EMI as "the teaching of academic subjects through the medium of English in non-Anglophone countries"<sup>[16]</sup>. However, Jenkins challenges this limitation, suggesting that the presence of significant numbers of international students in English L1-dominant settings could also qualify these contexts as EMI environments<sup>[17]</sup>.

The breadth of academic research on EMI worldwide underscores its significance. Studies on the outcomes, challenges, and linguistic and pedagogical implications of EMI span various countries, including Denmark<sup>[18]</sup>, the United Arab Emirates<sup>[19]</sup>, Germany<sup>[20]</sup>, Korea<sup>[21]</sup> and Taiwan<sup>[22]</sup>. This global scope aligns with Brumfit's assertion that, for the first time in history, the entire world shares a common second language for advanced education<sup>[23]</sup>.

One of the perceived advantages driving HEIs to adopt EMI programs is the potential for improving students' proficiency in English as a second language (L2), even though developing L2 skills is not explicitly stated as a goal in formal definitions of EMI<sup>[24]</sup>. Both students and educators often expect that English language skills will develop alongside subject knowledge. Nevertheless, limited English proficiency has been identified as a significant challenge, impacting students' ability to grasp and express disciplinary knowledge effectively in EMI settings<sup>[25]</sup>. Thus, assessing students' performance in EMI programs compared to non-EMI programs is crucial, and this topic is explored further in the next section.

## 1.2. Elements of EMI

#### **1.2.1. Educational Level**

Although recent research predominantly focuses on higher education, EMI is implemented across all educational stages<sup>[26]</sup>. For example, in Anglophone Africa, EMI serves as a standard approach in many schools and is employed at (pre-)primary and secondary levels as well.

## **1.2.2.** Degree of Coverage

Across educational levels, EMI can encompass entire programs or specific segments. For instance, European universities often provide master's programs in the sciences entirely in English. Conversely, Chinese universities may incorporate EMI classes into predominantly Chinese-medium curricula<sup>[27]</sup>. Similarly, at the compulsory school level, EMI coverage may vary from specific subjects, modules, or years to the entire secondary curriculum.

#### 1.2.3. Location

The traditional view situates EMI in regions where English is not the majority's first language, excluding countries such as the UK, the US, Canada, Australia, and New Zealand<sup>[28]</sup>. However, a more recent stance argues for including internationalized, multilingual higher education institutions in Anglophone nations. According to Hüttner and Baker, the linguistic composition of learners and teachers determines EMI status, so even programs in the UK could qualify if predominantly attended by international students for whom English is an additional language<sup>[29]</sup>.

## 1.2.4. Language Policies

EMI contexts often feature bilingual or multilingual interactions, typically involving English and learners' native languages. These setups are usually supported by explicit language policies that define instructional mediums, language proficiency requirements, and support mechanisms. Such policies can vary significantly in their legal authority, specificity, and level of detail, ranging from simple online statements identifying programs as English-medium to comprehensive policy documents<sup>[30]</sup>.

## 1.2.5. Optionality

EMI may be offered as an alternative to education in the national language, providing learners or their families with a choice. However, in some contexts, such as Ghanaian secondary schools, EMI is the sole option. Similarly, specialized graduate programs often lack equivalents in the local language, leaving EMI as the only pathway<sup>[30]</sup>. The degree of "compulsion/optionality" associated with EMI can significantly influence individual learners and the dynamics within student groups.

#### 1.2.6. Relation to English Language Education

While EMI is generally neutral regarding its connection to English language instruction, studies reveal considerable diversity in how this relationship manifests<sup>[31]</sup>. Some EMI programs lack explicit language learning objectives, while others adopt implicit approaches that promote language acquisition through usage, akin to the "language bath" concept from Canadian immersion programs. In some cases, programs explicitly integrate English learning goals with tailored support based on students' proficiency levels.

## 2. Effects of EMI on Content Learning

Research on the effects of EMI has predominantly focused on language learning, with significantly less attention given to its impact on content learning<sup>[32]</sup>. For instance, in a global systematic review of EMI research in higher education, Macaro et al. found that only four out of 83 studies specifically assessed the effects on content learning<sup>[1]</sup>.

The findings from the limited research on content learning are varied and inconclusive. While some studies<sup>[32, 33]</sup> reported negative effects of EMI on content learning, others observed either positive or non-significant impacts<sup>[34]</sup>. For example, Arco-Tirado et al. examined the academic performance of students enrolled in a bilingual program at a Spanish university and found that these students experienced "a cost in academic performance" compared to those taught in their first language<sup>[32]</sup>. Similarly, Li's investigation into a bilingual social science course in a Chinese university revealed an adverse effect on students' content learning<sup>[33]</sup>.

Conversely, Hernández-Nanclares and Jiménez-Muñoz found no significant difference in academic outcomes between English-taught and Spanish-taught students at a Spanish university<sup>[34]</sup>. Likewise, Lin and He analyzed the academic performance of 498 undergraduate students enrolled in a core business course at a Chinese university and reported no statistically significant differences between bilingual and first-language instruction groups<sup>[35]</sup>. Similarly, Dafouz et al. in their comparison of academic outcomes across three courses, concluded that "the language of instruction does not seem to compromise students' learning of academic content"<sup>[36]</sup>. Guo et al. also conducted a quasi-experimental study on the academic, affective, and linguistic outcomes of EMI and found no negative effects on content learning<sup>[37]</sup>.

Overall, there is no definitive evidence regarding the impact of EMI on content learning in higher education<sup>[1]</sup>. Macaro et al. attributed this lack of clarity to "research methodology problems both at the micro and macro level" in existing studies<sup>[1]</sup>. Key issues include the absence of standardized, valid, and reliable content assessments<sup>[38]</sup> and the lack of comparable control groups<sup>[39]</sup>.

Hernández-Nanclares and Jiménez-Muñoz's study stands out as one of the few that utilized equivalent assessment methods and comparable control groups, with students in both English- and Spanish-taught cohorts taking the same exam in their respective languages<sup>[34]</sup>. The rigorous design of this study lends greater credibility to its findings compared to those from less robust methodologies. Given the scarcity of research on EMI's effects on content learning, there is a clear need for further studies employing the most rigorous research designs available.

## **3. Effects of English Proficiency on EMI Content Learning**

The existing literature suggests that students enrolled in EMI programs often face language challenges that can limit their ability to fully benefit from this mode of instruction<sup>[8]</sup>. Dalton-Puffer highlights that students' inadequate proficiency in the language of instruction can hinder their comprehension of lectures<sup>[40]</sup>. This limitation may lead instructors to simplify content delivery, which could negatively affect students' understanding and mastery of subject material.

Self-assessments of English proficiency by students frequently identify insufficient language skills as a significant barrier to effective content learning in courses delivered in English or a combination of English and their first language<sup>[41]</sup>. For example, students in Hellekjaer's study of English-taught programs in Norway reported difficulties in understanding lectures<sup>[42]</sup>. Similarly, Korean students in Choi's research identified inadequate English proficiency as the primary obstacle to their learning<sup>[43]</sup>. Kim and Shin also found that limited English proficiency impeded students' ability to grasp course content in an EMI program at a Korean university<sup>[44]</sup>. Additionally, studies exploring perceptions of EMI have found that students generally believe they learn content more effectively in their first language than in English<sup>[45]</sup>. Lei and Hu observed that Chinese students in their study found it easier to comprehend and learn content in Chinese<sup>[3]</sup>, while Turkish students in Kirkgöz's research similarly found learning in their first language less demanding than learning in English<sup>[45]</sup>.

Despite these concerns, as Joe and Lee pointed out, there has been limited empirical research investigating the relationship between students' English proficiency and their academic performance in EMI settings<sup>[4]</sup>. A notable exception is the study by Rose et al., which examined the connection between academic performance, English proficiency, motivation, and academic English skills in an EMI business program at a Japanese university<sup>[46]</sup>. The findings revealed that English proficiency and academic English skills were significant positive predictors of students' academic success. Similarly, Xie and Curle, in a mixed-methods study of business management undergraduates at a Chinese university, found that proficiency in business English significantly predicted academic success<sup>[47]</sup>. Li's investigation of a bilingual social science program at a Chinese university further identified general English proficiency as the strongest predictor of students' content learning outcomes<sup>[33]</sup>.

These findings underscore the role of English profi-

ciency in influencing content learning in EMI programs. Students' reported language difficulties and the positive correlations identified between English proficiency and academic performance suggest that language skills are a critical factor in EMI success. However, the precise importance of English proficiency relative to other factors, such as academic ability, remains unclear and warrants further investigation.

## 4. Effects of Academic Ability on EMI Content Learning

The existing literature suggests that students can leverage language-independent knowledge to mitigate the impact of language difficulties on their content learning, with academic ability potentially playing a mediating role<sup>[48]</sup>. For instance, Hu and Gao investigated self-regulated strategic writing in an EMI context and found that high-achieving students strategically utilized resources to overcome challenges in academic writing. Similarly, Airey and Linder demonstrated that students learning in a second language (L2) adapted their strategies to address language-related challenges, such as preparing by reading pre-lecture materials and minimizing note-taking to focus on listening during lectures<sup>[49]</sup>.

A study by Tatzl involving a questionnaire survey of Austrian students' experiences, attitudes, and challenges in EMI revealed that students acknowledged the difficulties associated with learning in EMI courses and actively developed strategies to address them. While these findings highlight the role of academic ability in helping students navigate language barriers in EMI settings, relatively few studies have quantified this effect<sup>[50]</sup>.

## 5. Case Study

In this part of the review, EMI practices and study in few countries are compiled, analysed and discussed. These include study in Taiwan<sup>[51]</sup>, UAE<sup>[52]</sup>, Thailand<sup>[53]</sup> and Malaysia<sup>[54]</sup>.

#### 5.1. EMI in Taiwan

The global rise of English as a dominant language has driven many countries to adopt EMI in higher education, including Taiwan. This shift aligns with Taiwan's emphasis on internationalization following its entry into the World Trade Organization in 2002. Policies such as the "Aim for the Top University Project" and "Teaching Excellence Project" have prioritized EMI to enhance the global competitiveness of Taiwanese students, attract international learners, and mitigate the challenges of declining local student populations caused by a low birth rate<sup>[55, 56]</sup>. These initiatives underscore the government's view of EMI as a crucial element in fostering academic internationalization.

Despite its growing prevalence, EMI in Taiwan is still in its early stages, especially when compared to regions with historical ties to the English language, such as Singapore and Malaysia<sup>[56]</sup>. Research on EMI implementation in Taiwan has predominantly utilized quantitative methods, including surveys and quasi-experimental studies, to examine aspects such as students' English proficiency, content knowledge, and attitudes toward EMI<sup>[57]</sup>. While these studies often report improvements in students' listening, vocabulary, and confidence<sup>[58]</sup>, the interpretation of these outcomes is often influenced by the alignment of research objectives with government policies. The emphasis on "academic internationalization" as a funding criterion for research projects has been noted as a factor shaping these findings<sup>[59]</sup>.

One of the key challenges of EMI implementation in Taiwan lies in its accessibility and effectiveness. Both students and educators frequently report difficulties in comprehending lectures delivered entirely in English. For example, Chang found that only 20% of students could understand more than 75% of their EMI lectures<sup>[59]</sup>. Similarly, Yeh noted that instructors observed students struggling with lectures, often requiring bilingual support to improve engagement<sup>[60]</sup>. The challenges are compounded by cultural factors, such as students' modesty, which influences their self-assessments of English proficiency. Many students rate their skills as "fair" or "poor," despite their education providing them with basic communicative competence<sup>[61]</sup>.

This perception has led to concerns about creating a divided education system where EMI is seen as an elite privilege, accessible only to students with higher English proficiency. Such divisions may reinforce social inequalities, as students with limited English skills are excluded from opportunities tied to EMI<sup>[62]</sup>. Additionally, the focus on English risks overshadowing other linguistic and cultural resources, potentially eroding Taiwan's multilingual heritage<sup>[63]</sup>.

The adoption of EMI is often justified on the grounds of its benefits for employ ability, mobility, and competitiveness in the global job market<sup>[59]</sup>. Students and educators frequently view EMI as a means to acquire cultural capital and enhance social status. However, this perspective warrants critical reflection, as it risks perpetuating the ideology that English is the sole pathway to success<sup>[64]</sup>. The adoption of EMI without addressing these underlying ideologies may lead to unintended consequences, including widening socioeconomic disparities and undermining students' confidence.

Culturally, EMI poses questions about its impact on classroom dynamics and the role of diverse linguistic resources. Teachers often question the necessity of EMI when students lack readiness, advocating instead for a more linguistically aware approach that integrates local languages with English<sup>[59]</sup>. This shift could help preserve Taiwan's rich linguistic diversity while still meeting the goals of internationalization.

The study also suggests that future research on EMI in Taiwan should explore the broader implications of its adoption, including its impact on social equity and cultural preservation. Researchers are encouraged to use methodologies such as critical ethnography and nexus analysis to examine the ideological underpinnings of EMI policies and their effects on various stakeholders. Such approaches can provide a more nuanced understanding of the challenges and opportunities associated with EMI<sup>[51]</sup>.

#### 5.2. EMI in UAE

The global spread of English has significantly influenced language policies worldwide, particularly in the Gulf countries, EMI has been adopted extensively in higher education. In nations like the UAE, Oman, and Saudi Arabia, EMI has replaced Arabic Medium Instruction (AMI) in many educational institutions. This policy aims to prepare students for participation in a globalized economy and to enhance national economic policies by replacing expatriate work forces with Gulf nationals proficient in English<sup>[65, 66]</sup>. However, this transition has sparked concerns about the impact on students' academic performance and cultural identity.

The UAE has embraced EMI as a tool for modernization and international competitiveness, with higher education institutions predominantly offering courses in English. Despite its advantages, such as improving English proficiency and employ ability, EMI poses significant challenges for students whose first language is Arabic. Research indicates that many students face difficulties understanding lectures, completing assignments, and participating in discussions due to their limited English proficiency<sup>[67]</sup>. Moreover, a substantial number of students must enroll in foundational English programs before commencing their degree studies, which underscores the gap between school-level English education and the demands of EMI in higher education.

The findings of this study reveal that while students recognize the necessity of EMI for career prospects, they struggle with academic comprehension and performance<sup>[52]</sup>. Many students report low satisfaction with their grades, attributing their under-performance to language barriers rather than a lack of effort. This issue is particularly pronounced during exams, where students often misunderstand questions due to their limited English skills, resulting in incorrect answers<sup>[68]</sup>. Additionally, the reliance on simplified materials, such as handouts and summaries, limits students' exposure to comprehensive academic content, which affects the depth of their learning experience.

The adoption of EMI has also raised concerns about the erosion of Arabic as a language of science and academia. Scholars argue that EMI marginalizes Arabic, associating it with tradition and religion while English is linked to modernity and global progress<sup>[67]</sup>. This linguistic-cultural dualism risks diminishing the educational and cultural significance of Arabic, potentially leading to its relegation as a second-class language.

The study employed a mixed-methods approach, including questionnaires, interviews, and classroom observations, to capture a comprehensive picture of students' experiences with EMI. The analysis highlighted gender-neutral perceptions of EMI, with students largely agreeing on the policy's necessity despite its challenges. However, many participants suggested that implementing AMI alongside EMI, or allowing students the choice of language for instruction, could address some of these challenges.

To address the identified issues, the study recommends several strategies:

- Strengthening English Education at the School Level: Schools should improve English instruction to better prepare students for higher education.
- (2) Introducing Arabic Medium Options: Offering certain

courses in Arabic could enhance comprehension and academic performance while preserving cultural identity.

- (3) Enhancing Teacher Training: Lecturers should be equipped to support students with limited English proficiency, including using bilingual approaches where necessary.
- (4) Developing Specialized English Programs: Courses in English for Academic Purposes (EAP) and English for Specific Purposes (ESP) could help students acquire the language skills needed for their fields of study<sup>[69]</sup>.

#### 5.3. EMI in Malaysia

The adoption of English as an EMI in non-native English-speaking countries, including Malaysia, reflects the influence of globalization and the growing emphasis on internationalization in higher education. EMI has been implemented in public and private Malaysian universities to attract international students and enhance the employ ability of local graduates in global job markets<sup>[70]</sup>. This case study explores institutional and individual ideologies surrounding EMI at a Malaysian public research university, pseudonymously referred to as Purple University.

Malaysia has a dual medium of instruction system. While Malay remains the official language and medium of instruction in most public universities, English has become the de facto medium for several programs, particularly in private institutions<sup>[71]</sup>. The increasing preference for EMI aligns with Malaysia's vision of becoming a global hub for higher education, aiming to attract 250,000 international students by 2025<sup>[72]</sup>. This strategy positions English as a lingua franca, facilitating communication and instruction in a culturally diverse academic environment.

At a Malaysian public research university (Purple University, pseudonym as indicated in the original manuscript), EMI has been adopted across multiple undergraduate and postgraduate programs, particularly in the School of Management and the School of Industrial Technology. Admission to these programs requires students to meet stringent English proficiency criteria, reflecting the institution's commitment to maintaining high academic and linguistic standards<sup>[73]</sup>.

The university's language policy and curriculum reflect an institutional ideology that emphasizes English as a global academic language. English is seen as crucial for facilitating international collaboration, accessing global research, and producing graduates with competitive communication skills. The institution's vision aligns with broader trends in international higher education, where English is regarded as the "passport to globalization"<sup>[74]</sup>.

Lecturers at Purple University generally support EMI, associating it with enhanced academic and professional opportunities for students. They believe EMI prepares students for global employment markets and academic pursuits abroad. However, they also acknowledge the challenges faced by students, particularly non-native English speakers, in adapting to EMI environments. These challenges include limited vocabulary, difficulty in understanding technical terms, and reduced participation in classroom discussions<sup>[75]</sup>.

EMI is widely perceived to improve students' English proficiency, fostering better oral and written communication skills essential for international business and research. Lecturers noted that regular exposure to English in an academic setting helps students build confidence and competence in the language<sup>[72]</sup>.

Additionally, EMI enhances the global competitiveness of Malaysian universities by attracting international students and faculty. The presence of a diverse academic community promotes cultural exchange and prepares students for multicultural professional environments<sup>[76]</sup>.

Despite its benefits, EMI poses significant challenges, particularly in terms of linguistic and cultural inclusivity. Students from non-native English backgrounds often struggle to comprehend course material, which can hinder their academic performance. This challenge is compounded by the lack of bilingual support in some programs. Moreover, the dominance of English in academia risks marginalizing the Malay language, raising concerns about cultural erosion and inequality in educational access<sup>[71]</sup>.

EMI in Malaysia reflects the broader sociolinguistics reality of English as a marker of prestige and socioeconomic mobility. Students and parents view English-medium education as a means to achieve social status and professional success. However, this perception can create disparities in educational access, favoring those with prior exposure to English over students from rural or underprivileged back-grounds<sup>[77]</sup>.

Economically, EMI aligns with Malaysia's efforts to

integrate into the global knowledge economy. Proficiency in English is considered essential for careers in international business and technology sectors, making EMI a valuable component of Malaysia's higher education strategy<sup>[78]</sup>.

## 5.4. EMI in Thailand

Tang investigates the challenges and importance of implementing EMI at Thailand International College. EMI, while an effective strategy for internationalization, faces linguistic, cultural, structural, and institutional challenges that require careful navigation to maximize its benefits<sup>[53]</sup>.

Thailand has adopted EMI in higher education institutions as a key strategy for internationalization and to prepare students for the ASEAN Economic Community (AEC) and the global labor market. By emphasizing English proficiency, EMI aims to produce graduates who are competitive internationally. However, despite this policy emphasis, Thailand ranks low in global English proficiency rankings, highlighting the challenges faced by educators and learners<sup>[79, 80]</sup>.

The primary objective of EMI in Thailand is not only to enhance students' English language skills but also to prepare them for subject-specific academic and professional contexts. Lecturers are expected to deliver academic content in English while simultaneously facilitating language acquisition. This dual focus positions EMI as a tool for both language learning and academic development, though its implementation has not been without difficulties<sup>[81]</sup>.

The study identifies four primary challenges in implementing EMI:

- (1) Linguistic Challenges: Students often struggle with understanding lectures, reading academic texts, and producing written assignments in English. Lecturers also face difficulties in addressing the varied levels of English proficiency among students. Limited exposure to English outside the classroom exacerbates these issues, particularly for students in rural areas<sup>[82]</sup>.
- (2) Cultural Challenges: Differences in teaching and learning styles between foreign and local lecturers often create cultural mismatches. For instance, interactive teaching methods preferred by foreign lecturers may not align with the passive learning styles prevalent among Thai students. Additionally, the dominance of Thai as the primary language creates cultural anxieties about EMI's

perceived superiority over the local language<sup>[83]</sup>.

- (3) Structural Challenges: The lack of institutional support, such as training programs for EMI lecturers and sufficient EMI courses, hinders effective implementation. Many lecturers feel underprepared due to inadequate professional development opportunities<sup>[84]</sup>.
- (4) Identity-Related Challenges: EMI raises concerns about the marginalization of the Thai language and its cultural identity. The focus on English risks creating a dichotomy between global aspirations and local heritage, challenging the balance between modernization and cultural preservation<sup>[85]</sup>.

Despite these challenges, the study underscores the critical importance of EMI in four key areas<sup>[53]</sup>:

- Language Improvement: EMI provides students with exposure to English in academic contexts, enhancing their communication and technical language skills. However, the effectiveness of language improvement depends on regular practice and integration into students' daily lives.
- (2) Subject Matter Learning: EMI facilitates access to English-language academic resources, enabling students to engage with globally relevant content. However, limited language proficiency often hinders students from fully benefiting from these opportunities.
- (3) Career Prospects: Graduates proficient in English are better equipped for international job markets and academic opportunities. EMI contributes to building a workforce with the professional and linguistic skills needed to compete globally.
- (4) Internationalization Strategy: EMI positions Thai universities as competitive global institutions, attracting international students and enhancing the country's educational reputation. This aligns with national strategies for economic and educational globalization.

The tension between adopting English-Medium Instruction (EMI) and preserving native languages poses a significant cultural challenge, as students and educators navigate a complex interplay of globalization and cultural identity. For many, EMI represents an opportunity to enhance global mobility and career prospects, but it also risks diminishing the status and use of native languages in academic and professional contexts. Students often face a dual burden: striving to master academic content in a second language while contending with the erosion of their linguistic and cultural heritage. Educators, meanwhile, may struggle to balance the demands of delivering content in English with fostering a classroom environment that values and integrates native linguistic resources. To navigate this tension, some institutions adopt bilingual or multilingual approaches, allowing for the inclusion of native languages alongside English to facilitate understanding and maintain cultural relevance. Others emphasize cultural competency training for educators to help them respect and incorporate students' linguistic identities into EMI settings. These strategies not only mitigate the perceived cultural loss but also highlight the value of linguistic diversity as a complementary asset in globalized education, fostering a more inclusive approach to learning and identity preservation.

# 5.5. Comparison of Emi in Different Regions and Countries

In comparing EMI across different regions, striking differences emerge between Europe and Asia, reflecting varied historical, linguistic, and educational contexts. In Europe, where many countries boast high levels of English proficiency as a second language, EMI often integrates seamlessly into higher education systems. For instance, countries like Denmark and the Netherlands prioritize robust support mechanisms, including pre-course English training and standardized language requirements for students and instructors. This contrasts with Asia, where countries such as Taiwan, Thailand, and the UAE face more pronounced linguistic and cultural challenges. Asian institutions often contend with a broader range of English proficiency levels among students, necessitating bilingual support or parallel instructional strategies. Moreover, European EMI programs tend to benefit from greater institutional and governmental alignment on internationalization policies, whereas in Asia, EMI frequently grapples with socio-cultural tensions, such as concerns over the erosion of local languages and identities. These regional contrasts highlight not only the adaptive strategies required for EMI's success but also the need for tailored approaches to address context-specific challenges.

#### 5.6. Future Studies

Despite the growing body of research on EMI, evidence regarding its impact on students' academic content learning

remains inconclusive. This ambiguity stems from several gaps in existing studies, including methodological limitations, the lack of standardized content assessment tools, and insufficient longitudinal research. For example, many studies rely on self-reported data or non-comparable control groups, which limits their reliability and generalization. Furthermore, the interplay between language proficiency, cognitive load, and content mastery is often under explored, leaving critical questions unanswered. To address these gaps, future studies should employ rigorous research designs, such as randomized controlled trials and mixed-methods approaches, to provide more robust evidence. Longitudinal studies that track students over the course of their academic programs could offer deeper insights into how EMI influences learning outcomes over time. Additionally, developing standardized, discipline-specific content assessment tools would enhance comparability across studies. Exploring the role of bilingual or multilingual support strategies within EMI settings could also reveal pathways to mitigate linguistic barriers while preserving content integrity. By addressing these gaps, future research can provide clearer guidance on optimizing EMI for both language and academic learning.

## 5.7. Suggestion For Educator and Policy Maker

To address the challenges inherent in EMI, policymakers and educators should consider adopting practical strategies that foster both language proficiency and academic success. Implementing bilingual teaching strategies can mitigate linguistic barriers by allowing educators to alternate between English and students' native languages for complex concepts, ensuring comprehension without compromising language acquisition. Tailored teacher training programs are equally crucial, equipping instructors with skills to effectively navigate EMI settings, such as scaffolding techniques, culturally responsive pedagogy, and strategies for integrating language support into content instruction. Additionally, creating accessible resources like glossaries of key terms in multiple languages and incorporating technology-driven solutions, such as AI-based personalized learning platforms, can further enhance the EMI experience. Policymakers should also prioritize the establishment of clear language policies and provide consistent funding for resources and professional development to ensure sustainable implementation. These initiatives not only address immediate challenges but also

promote equity, exclusivity, and long-term success in EMI Conflict of Interest programs.

## 6. Conclusions

EMI has emerged as a critical strategy in higher education to promote internationalization, enhance English proficiency, and boost students' competitiveness in global markets. Despite its evident benefits, such as improved language skills and international mobility, the implementation of EMI presents significant challenges, including linguistic barriers, cultural tensions, and risks to local languages and identities. This review highlights the diverse impacts of EMI across different educational and cultural contexts, underscoring the need for tailored policy frameworks and robust teacher support. Future research must explore innovative pedagogical strategies and equitable solutions to maximize EMI's potential while mitigating its challenges.

## Author Contributions

L.H. and H.B.I. jointly conceived and designed the study, conducted the analysis, and interpreted the results. Both authors collaboratively drafted and revised the manuscript and approved the final version for submission. All authors have read and agreed to the published version of the manuscript.

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