



***‘EMIzation’ of the Teaching Practices in Algerian Higher Education:
Challenges and Pedagogical Readiness***

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Received: 31/07/2025

Accepted: 07/11/2025

Abstract

This study investigates the challenges of implementing English as a Medium of Instruction (EMI) in Algerian universities, drawing on a survey of 287 teachers. Adopting a mixed-methods approach, it combines quantitative data and qualitative insights to assess faculty readiness and institutional barriers. Results show that 85.7% recognize EMI's value for internationalization and 78.4% support its role in advancing student learning. Despite this, only 3.5% of instructors boast advanced English proficiency, and institutional support for training (M=2.23) and resources (M=2.90) remains low. A significant correlation ($r=.47$, $p<.001$) indicates that support strongly impacts teaching confidence. While attitudes towards EMI are positive, actual readiness is lacking, with 55.7% prioritizing language training. These findings underscore the need for urgent reforms to improve language skills and institutional resources, enabling Algerian universities to effectively employ EMI for global competitiveness and educational quality.

Keywords: *English Medium Instruction (EMI); Pedagogical Readiness; Institutional Support; Language Proficiency; Algerian Higher Education*

Introduction

In recent years, English has increasingly become the primary language of instruction in higher education across non-Anglophone regions, even as multilingualism continues to be promoted as a pedagogical ideal (Yu & Kaur, 2024). This global shift toward using English to deliver academic content, commonly referred to as English Medium Instruction (EMI), is generally understood as the practice of teaching non-language subjects through English in contexts where English is not the dominant societal language (Macaro et al., 2018).

EMI has gained considerable momentum in higher education, particularly as universities worldwide seek to internationalize and prepare students for a global workforce (Lee, 2024; McKinley, 2024). Many non-native English-speaking countries have adopted EMI to boost academic competitiveness, attract international students, and enhance graduates' employability (Zhou et al., 2025). This trend is often propelled by government policies designed to strengthen institutional reputations and improve students' language and intercultural skills. However, implementation presents challenges, especially in contexts like Algeria, where English is not the first language.

Algeria has recently made significant efforts to transition to EMI, as reflected by mandatory online training, launched in 2023 via platforms like DualEdx and CEIL institutes, to help instructors and students attain B2/C1 CEFR proficiency (Ghouali & Haddam Bouabdallah, 2024). Universities have started implementing EMI programs, signaling institutional alignment with these national reforms.

While this transition offers opportunities to meet international standards, it also exposes concerns about university instructors' readiness and the sufficiency of institutional support (Mansouri, 2025). Research indicates that successful EMI depends primarily on instructors' English proficiency and confidence, their attitudes towards EMI, and the continuous provision of institutional resources such as training and technical support (Lei & Ye, 2025).

The Algerian Ministry of Higher Education and Scientific Research (MESRS) is spearheading these reforms to position the country more competitively on the international academic stage (Benabdelkader, 2025; Boulkroun, 2025). The initiative aims to promote English as a second language and progressively replace French as the primary medium of instruction for STEM fields. Most universities support this shift, viewing it as timely for strengthening regional collaboration and fostering greater academic engagement (Abdel Latif & Alhamad, 2023).

Operational directives from MESRS include a phased EMI implementation, beginning in the 2023–2024 academic year, particularly in science and technology fields. Foundational decrees (No. 1433 and No. 1651, September 2022) and subsequent regulations establish the framework, complemented by the DualEdx platform, which ensures linguistic readiness among instructors. Additional directives have expanded EMI to the humanities, social sciences, and medical faculties, encouraged an English-friendly campus culture, and set B2–C1 proficiency as a baseline for faculty.

More recently, a memorandum from the Directorate-General for Teaching and Training (March 26, 2025) urged universities to continue staff training and report on their progress, following earlier implementation guidance (No. 106, April 7, 2024). Despite this momentum, challenges persist. Many programs, particularly in medical education, still rely heavily on French, and successful EMI adoption ultimately depends on sustained institutional support, teacher training, and the development of locally relevant instructional materials (Mansouri, 2025; Outemzabet & Sarnou, 2023).

This study seeks to explore the multifaceted dimensions, focusing on pedagogical readiness and challenges associated with EMI implementation in Algerian higher education. Five key research questions guided this study:

RQ1: To what extent are university teachers proficient and confident in using English as a medium of instruction?

RQ2: What are their attitudes toward the adoption of EMI in higher education?

RQ3: What are their main challenges in delivering academic content in English?

RQ4: How available is institutional and technical support for EMI?

RQ5: Which aspects of EMI-related training do teachers believe need further development?

By addressing these questions, the study aims to provide a comprehensive understanding of the current state of EMI in Algeria and identify actionable strategies to overcome its challenges.

This research is further grounded in two hypotheses:

H1: A positive correlation exists between instructors' EMI attitudes (perceived benefits, internationalization value, and implementation support) and their self-reported pedagogical competence (teaching confidence and training effectiveness).

H2: Linguistic barriers (instructor/student proficiency) and institutional support gaps (training, resources) will emerge as the most significant EMI implementation challenges.

These hypotheses reflect the complex interplay between individual and systemic factors, as highlighted by Social Cognitive Theory, which emphasizes the dynamic relationship between self-efficacy and environmental influences.

By examining these critical issues, this study not only sheds light on the current challenges of EMI in Algeria but also offers evidence-based recommendations to bridge linguistic and institutional gaps. Ultimately, it aims to contribute to the broader discourse on EMI adoption in non-native English-speaking contexts, providing insights that can inform policy and practice in Algeria and beyond.

2. Literature Review

The spread of EMI has gained momentum in higher education worldwide, particularly in non-English-speaking countries. In European contexts such as Italy (Costa, 2024) and Spain (Cots & Mancho-Barés, 2024), EMI has gained traction as a strategy to align with broader European Union policies promoting multilingualism and mobility.

In Asian countries, EMI is also prevalent in Japan (Rahman & Hu, 2025), China (Liao et al., 2025), South Korea (Huang, 2024), Malaysia (Lo & Othman, 2023); Indonesia (Hill et al., 2024), and Saudi Arabia (Alanazi & Curle, 2025), as well as in the Arab world (Alhamami, 2024). These examples underscore the growing importance of EMI in reshaping higher education systems globally while highlighting the need to address the linguistic and pedagogical challenges it presents. In Turkey, for instance, universities have increasingly adopted EMI programs to attract international students and enhance academic rankings, despite concerns about their effects on learning outcomes (Özçelik et al., 2024).

North African countries are actively moving towards EMI, particularly in higher education and STEM (Science, technology, engineering, and mathematics) fields, motivated by globalization and economic opportunities. However, this transition faces significant challenges, including teacher preparedness, resource limitations, and complex language policy dynamics (Abdeljaoued, 2023).

This literature review synthesizes existing studies to provide a comprehensive understanding of the challenges, opportunities, and factors influencing EMI adoption, with a specific focus on Algerian higher education. The review is organized around three key themes: (1) Instructor/ teacher Perceptions of EMI Benefits, (2) institutional and systemic challenges in EMI implementation, and (3) the impact of training and support mechanisms on EMI outcomes.

2.1. Instructor/ teacher Perceptions of EMI Benefits

Instructors and teachers play a central role in the successful implementation of EMI. Their perceptions of EMI's benefits directly influence the effectiveness of EMI programs. This section explores educators' views on how EMI enhances student outcomes in terms of global competitiveness career prospects in English-medium work environments.

2.1.1 EMI as a Tool for Globalization and Competitiveness

EMI is increasingly regarded as a strategic means to enhance global competitiveness in higher education, particularly in non-English-speaking countries. Research consistently demonstrates that EMI not only improves students' English proficiency but also equips them with a key skill for international collaboration and academic mobility (Ahmed, 2025; Sahan et al., 2023). Consequently, many institutions adopt EMI to attract international students and faculty, increase visibility, and enrich the learning environment through diverse perspectives. Moreover, as English functions as both the language of the global job market and the academic lingua franca, it grants access to international scholarly materials and global academic discourse (McKinley, 2024).

In addition, English proficiency is frequently perceived as a vital element in enhancing a nation's competitiveness, professionalism, and credibility, factors that can, in turn, attract foreign investment and facilitate international trade (Strango et al., 2025). The discourse linking EMI with national development is therefore powerful, portraying English as essential for maintaining a competitive edge in a globalized world. In the same vein, teacher educators acknowledge that English plays a central role in understanding global trends, engaging in international scholarship, and responding to competitive pressures within universities (Hwang, 2014).

2.1.2 Career Prospects in English-Medium Work Environments

EMI is increasingly viewed as a means of preparing students for success in English-language professional contexts. It attracts learners by offering practical advantages for functioning confidently in English-dominant workplaces, motivating both students and instructors to support it as a pedagogical bridge to global labor demands (Sahan et al., 2023). Teachers highlight that EMI improves English proficiency and employability, fostering alignment between academic goals and career aspirations (Tang & Hu, 2022). Early exposure to EMI further expands opportunities for higher education and well-paid work, as English is widely considered key to international career prospects (Eusafzai, 2024).

Beyond language development, EMI supports motivation, emotional engagement, and broader professional capacities essential in global environments (Lei & Ye, 2025). It also promotes competencies relevant to international sectors such as tourism, encouraging educators to integrate intercultural communication and sociolinguistic awareness into instruction (Supunya & Tangkiengsirisin, 2025). Students recognize that English proficiency gained through EMI enhances job opportunities abroad, reflecting its professional benefits (Eusafzai, 2024). Research further shows that EMI's immersive nature strengthens language learning and provides a competitive edge in the global job market (Ahmed, 2025).

In summary, EMI functions as a link between academic learning and English-medium employment, equipping students with the linguistic and professional skills needed for success in an interconnected world.

2.2 Institutional and Systemic Challenges in EMI Implementation

Implementing EMI in higher education offers promising benefits but also presents significant challenges that institutions must address to ensure success. These challenges span linguistic, pedagogical, administrative, and resource-related dimensions, all of which impact the readiness of both instructors and students to effectively participate in EMI environments. This section outlines the key obstacles faced in EMI implementation and highlights the critical aspects of pedagogical readiness required to overcome them.

2.2.1 Language Proficiency Barriers and Pedagogical Skills

One of the primary challenges in EMI implementation is the limited English proficiency among instructors. Teachers often lack the necessary English skills to teach their specialized content effectively, and many have not received formal pedagogical training for EMI contexts (Cui et al., 2024). Inadequate language proficiency can also lead to errors in teaching materials and assessments, as seen in healthcare education, for example (Alhamami, 2024). Instructors may struggle to deliver content clearly, while

students often face difficulties in understanding lectures and academic materials, which compromises their academic success and engagement, and impacts the effectiveness of EMI programs (Ahmed, 2025; McKinley, 2024). This is compounded by the expectation to shift from traditional teacher-centered approaches to more interactive, student-centered methodologies without sufficient training or institutional support.

Existing studies have pointed to the lack of well-trained EMI teachers, insufficient professional development, and limited pedagogical readiness among faculty, many of whom are accustomed to teaching in French and may lack the necessary English proficiency for effective EMI delivery (Abdeljaoued, 2023). Although EMI primarily emphasizes subject content rather than language development, there remains a clear need for targeted professional development within EMI contexts. Such development should include:

1. Training in English for Academic Purposes (EAP), which addresses the social, cognitive, and linguistic demands of academic settings, equipping both students and teachers with the skills necessary to navigate complex academic discourses such as academic writing, lecture comprehension, and note-taking (Alhamami, 2023);
2. Training in English for Specific Purposes (ESP), which focuses on the particular language needs of students and teachers to enhance academic success and self-efficacy, especially among those with limited prior exposure to EMI (Cui et al., 2024); and
3. Training in Content and Language Integrated Learning (CLIL), which promotes a dual focus on content and language by integrating student-centered and intercultural competence strategies, thereby strengthening language learning alongside subject mastery (Lee et al., 2025; Zhou, 2025).

Moreover, the integration of student-centered and intercultural competence approaches is increasingly recognized as essential in EMI contexts to enhance engagement and learning outcomes (McKinley, 2024), particularly given the diversity of student backgrounds and the need to align course content with learners' expectations and professional goals (Meristo & Heero, 2026).

2.2.2 Instructors' Pedagogical Readiness, Challenges, and Institutional Support for Effective EMI Implementation

Effective implementation of EMI relies heavily on instructors' pedagogical readiness, English proficiency, and the level of institutional support provided. Many teachers lack specific training in EMI or second/foreign language pedagogy, which hinders their ability to balance content delivery with language instruction (Yuan et al., 2024). Insufficient teacher training and varying levels of English proficiency among instructors often limit instructional quality, student engagement, and overall program effectiveness (Ahmed, 2025; Sipe et al., 2024). For EFL teacher trainees, inadequate English proficiency can negatively affect academic performance and classroom participation, underscoring the need for ongoing language and pedagogical support (Alanazi & Curle, 2025; Mekheimer, 2025).

Effective EMI pedagogy requires developing new teaching approaches and activities that integrate disciplinary knowledge with language support. Instructors also need to foster intercultural communicative competence and manage diverse classrooms, skills essential in EMI contexts (Lo & Othman, 2023). However, heavy workloads, limited teaching resources, and insufficient institutional backing often constrain their ability to innovate and adapt. Institutional support through adequate resources, manageable workloads, and continuous professional development is therefore essential (Ahmed, 2025).

To address these challenges, universities have introduced quality assurance mechanisms such as language proficiency requirements and locally-developed assessments to ensure lecturers are capable of teaching subject-specific content in English (Dimova, 2017). Research highlights that institutional dynamics, including access to EMI-specific training, mentoring, and the EMI Professionalisation Framework (EMI ProF), play a decisive role in shaping teachers' readiness and confidence (Akıncioğlu,

2025). Personalized and targeted training programs remain vital in supporting instructors to mediate effectively between content knowledge and language instruction (Han, 2023).

Ultimately, successful EMI implementation demands a comprehensive approach that combines individual and institutional efforts. Addressing language proficiency gaps, providing context-sensitive pedagogy training, and building sustained institutional support mechanisms are critical for ensuring instructor preparedness. Continuous investment in teacher development, quality assurance, and supportive policies will enhance teaching quality and ensure the sustainable success of EMI programs (Ahmed, 2025; Alanazi & Curle, 2025; Mekheimer, 2025).

2.2.3 Administrative and Policy-Related Challenges

EMI policies are often implemented in response to internationalization and globalization pressures, but they can be accompanied by unclear guidelines and insufficient institutional support. Faculty may struggle with unclear roles regarding language support, and the coexistence of English-medium and local/second-language instruction can add complexity to policy implementation. Misconceptions about the requirements for EMI (such as the need for near-native English proficiency) can shape policy and practice in problematic ways, leading to confusion and inconsistent application across institutions (Liao et al., 2025).

Moreover, EMI initiatives frequently generate unforeseen administrative burdens, including coordination difficulties and increased workload for faculty and staff. Additionally, there can be misalignment between governmental policies promoting EMI and the actual institutional practices and capacities to implement such policies effectively (Lee, 2024). These administrative challenges can result in inconsistent application and limited institutional support for EMI programs.

2.2.4 Resource Availability and Adaptation

A significant practical challenge is the scarcity of appropriate instructional materials personalised for EMI contexts. Existing resources often need adaptation to suit EMI teaching, but limited expertise and time constraints restrict this process (Han, 2023). Teachers often need to adapt their pedagogical approaches and classroom management techniques to address linguistic and content-related challenges. This includes simplifying language, making pedagogical adjustments, and employing specific classroom management strategies to maintain effective teaching and learning. The development and adaptation of suitable teaching materials for EMI contexts are also highlighted as ongoing needs, with a particular emphasis on collaboration between content and language teachers to support students' academic language development (Alanazi & Curle, 2025; McKinley, 2024). This lack of accessible and suitable materials further complicates the delivery of content and the ability to engage students effectively in an English-medium environment.

2.3 The impact of Training and Support Mechanisms on EMI Outcomes

2.3.1 Instructor Training for Effective EMI Delivery

Central to pedagogical readiness is effective faculty recruitment and comprehensive training programs designed specifically for EMI contexts. Studies emphasize that instructors must be prepared to move beyond simply translating content into English; they need to adopt learner-centered instructional approaches, balance content and language teaching, and use pedagogical strategies that facilitate comprehension for learners with varied language proficiencies (Prabjandee & Nilpirom, 2022). Training that integrates English proficiency development and pedagogy simultaneously is fundamental, enabling instructors to manage the dual challenge of delivering subject content while supporting language acquisition.

2.3.2 Support Systems for Addressing Linguistic and Pedagogical Challenges

In addition to training, the establishment of robust support systems for both instructors and students is vital. These systems can include ongoing professional development, peer collaboration opportunities, and resources to scaffold teaching and learning in EMI settings (McKinley et al., 2024). Support for students is equally important, helping them adapt to academic content delivered in English

through supplementary materials and language assistance. These structures help mitigate the challenges that arise from linguistic barriers and unfamiliar pedagogical demands, creating a more conducive learning environment. Educators face pressure to balance content delivery with language instruction, which can affect student learning outcomes and classroom interaction (Ahmed, 2025; Akıncıoğlu, 2025).

2.3.3 Pedagogical Strategies and Reflective Practice

Adopting effective pedagogical strategies such as task-based instruction and interactive, multimodal teaching techniques is essential for EMI success. These methods promote active learner engagement, scaffolded support, and communicative competence development in English (Prabjandee & Nilpirom, 2022). Moreover, reflective practice enables instructors to critically evaluate and adapt their teaching approaches, balancing content expertise with language demands and continuously improving their EMI pedagogy to better meet student needs. Together, these elements of pedagogical readiness form the foundation for high-quality EMI instruction, addressing the intertwined challenges of language proficiency and content delivery in multilingual higher education contexts.

3. Methodology

3.1 Research Design

This study used a mixed-methods approach, combining both quantitative and qualitative methodologies to explore the challenges and pedagogical readiness associated with implementing EMI in Algerian higher education. In line with established research methodology principles, the use of both quantitative and qualitative approaches enriches the depth and breadth of educational research and provide a more comprehensive understanding of research problems than relying on a single approach, thereby increasing the overall strength of the study (Creswell & Plano Clark, 2018). The research design focused on eliciting instructors' self-reported data concerning their English language proficiency, attitudes toward EMI, and pedagogical competence, as well as the institutional and linguistic constraints that influence the adoption of EMI practices.

3.2 Participants

The sample consisted of 287 university instructors drawn primarily from scientific and technical faculties, reflecting the multidisciplinary nature of EMI implementation in Algeria. The demographic profile of the study participants is summarized in Table 1.

Table 1: The demographic characteristics of the participants

	Variables	Iteration	Ratio
Gender	male	83	28.90
	female	204	71.10
Age	Under 30 years old	2	0.70
	Between 30 and 40 years old	78	27.20
	Over 40 years old	208	72.10
Teaching Experience	Less than 5 years	41	14.30
	Between 6 and 10 years	55	18.8
	Between 11 and 15 years	70	24.40
	More than 15 years	122	42.50
Affiliation (Faculty)	Natural Sciences	58	20.20
	Engineering and Technology	110	38.30
	Mathematics	30	10.50
	Medical Sciences	48	16.70
	Economic Sciences	28	9.80
	Human Sciences	13	4.50

Source: Prepared by the researcher using a program SPSS V29.0

The demographic characteristics of the participants indicate that the sample was predominantly composed of female university instructors (71.10%), with males representing 28.90%. A significant majority of respondents were over the age of 40 (72.10%), while only a small fraction (0.70%) were

under 30. This age distribution suggests that the sample consisted mainly of senior academics. Consistently, 42.50% of the participants reported having more than 15 years of teaching experience.

In terms of academic affiliation, most respondents were from faculties of Engineering and Technology (38.30%) and Natural Sciences (20.20%), followed by Medical Sciences (16.70%) and Mathematics (10.50%). Fewer participants were from Economic Sciences (9.80%) and Human Sciences (4.50%). This distribution reflects a sample primarily drawn from scientific and technical fields, which is particularly relevant given the study's focus on EMI in Algerian higher education. The predominance of experienced academics from STEM disciplines enhances the relevance of the insights provided regarding EMI-related challenges and implementation.

3.3 Data Collection Tools and Procedure

Data were gathered through an online questionnaire distributed to faculty members at various Algerian universities via Google Forms over a three-month period from March 21 to June 27, 2024. The survey, consisting of multiple Likert-scale items, including both positive and negative statements to minimize response bias, was designed to assess five key areas: self-rated English proficiency according to CEFR levels, attitudes and readiness for EMI, encountered challenges, sufficiency of institutional support, and perceived training needs for effective EMI implementation.

All teachers who completed the questionnaire were subsequently invited via email to participate in follow-up interviews. Thirty-five (35) volunteered and were interviewed online through Google Meet. This stage yielded richer qualitative insights, deepening the understanding of participants' perspectives and complementing the quantitative survey data (Lim, 2025).

3.4 Ethical considerations

In studies that involve human subjects, ethical responsibility forms the foundation of sound research practice (Creswell & Creswell, 2023). This investigation complied with rigorous ethical standards to ensure participants' informed consent, autonomy, and the protection of personal data. Informed consent was ensured throughout the online survey process. Participants were provided with clear information about the study's objectives, potential benefits, and any foreseeable risks before participation. Anonymity and confidentiality of participants were strictly maintained. No personally identifiable information was collected, and responses were used exclusively for the stated research purposes.

3.5 Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 29.0. Reliability checks employing Cronbach's Alpha evaluated the internal consistency of key constructs. Descriptive statistics summarized demographic and proficiency data, as well as mean scores for attitudes, challenges, and training needs. Correlational analyses (Pearson's r) examined relationships between instructors' attitudes, pedagogical competence, and institutional factors. Regression analyses further identified significant predictors of confidence in EMI teaching, controlling for related variables.

Qualitative data from open-ended responses were subjected to thematic analysis to identify emergent themes regarding training priorities and institutional support recommendations.

3.6 Hypotheses

The study tested two primary hypotheses derived from the literature and the Social Cognitive Theory Bandura's (1986) theoretical framework:

- **H1:** There is a positive correlation between instructors' EMI attitudes (perceived benefits, internationalization value, and implementation support) and their self-reported pedagogical competence (teaching confidence and training effectiveness).
- **H2:** Linguistic barriers (instructor and student proficiency) and gaps in institutional support (training and resources) constitute the most significant challenges to EMI implementation.

Social Cognitive Theory (SCT) (Bandura, 1986) was chosen as the guiding framework for this study because it emphasizes how human behavior results from the dynamic interplay of personal factors, behaviors, and environmental influences, perfectly aligning with both of the abovementioned hypotheses. The first hypothesis, linking instructors' EMI attitudes and pedagogical competence, reflects central SCT constructs such as self-efficacy (confidence and perceived effectiveness) and the role of personal beliefs in shaping professional behavior. The second hypothesis, highlighting the significance of linguistic barriers and institutional support gaps, addresses the environmental constraints that SCT posits are equally crucial in influencing learning and teaching outcomes within social and educational contexts. Thus, this theory was selected because it offers a comprehensive lens to examine how both internal (attitudes, competence) and external (linguistic, institutional) factors interrelate, echoing SCT's core premise of reciprocal determinism in behavior change and professional practice.

4- Results

4.1 Quantitative Results from the Questionnaire

4.1.1 Reliability Analysis of EMI Study Constructs

Table 2 below displays the reliability statistics for the two key constructs of the study, attitudes toward EMI and pedagogical competence, and challenges faced by EMI instructors, highlighting the internal consistency of each scale used in the analysis. A reliability analysis was conducted for the scale assessing the challenges faced by university teachers in implementing EMI.

Construct	Number of Items	Cronbach's Alpha	Reliability Level
Attitudes toward EMI and Pedagogical Competence	7	0.746	Acceptable
Challenges Faced by EMI Instructors	14	0.891	Very Good

Source: Prepared by the researcher using a program SPSS V29.0

Table 2. Reliability Statistics for EMI Study Constructs

As for teachers' attitudes toward EMI, one negatively worded item was reverse-coded to align with the rest. Based on 287 valid responses, the analysis yielded a Cronbach's Alpha of 0.746, indicating an acceptable level of internal consistency. The scale included fourteen positively worded Likert-type items addressing linguistic, pedagogical, and institutional challenges. The analysis produced a Cronbach's Alpha of 0.891, indicating a very high level of internal consistency. This result confirms that the items form a reliable and cohesive construct, making the scale appropriate for further statistical analysis and interpretation.

4.1.2 Self-Assessed English Language Proficiency Levels of the Respondents

Section 2 explores participants' self-assessed English language proficiency. Table 3 below presents the distribution of participants' self-assessed English language proficiency, revealing their functional command of English across six CEFR-aligned levels based on responses from 287 university instructors.

Table 3: Self-Assessed English Language Proficiency Levels of the Respondents

Variables	Iteration	Ratio
A1. Basic (lower)	32	11.20
A2. Basic (upper)	56	19.50
B1. Intermediate (lower)	116	40.40
B2. Intermediate (upper)	72	25.10
C1. Advanced	10	3.50
Missing	01	0.30
Total	287	100

Source: Prepared by the researcher using a program SPSS V29.0

The analysis of participants' self-reported English language proficiency reveals that the majority of university instructors in the sample possess an intermediate command of English. Specifically, 40.40% rated themselves at the B1 (lower intermediate) level, followed by 25.10% at B2 (upper

intermediate). A notable portion of respondents (19.50%) identified with the A2 (upper basic) level, while 11.20% reported a more limited A1 (lower basic) proficiency. Only a small fraction of participants (3.50%) assessed themselves at the C1 (advanced) level, indicating a high degree of fluency. These results suggest that while most instructors can manage English communication at a functional level, relatively few possess advanced proficiency, which may have implications for the effective implementation of EMI in Algerian higher education.

4.1.3 Respondents' Attitudes toward EMI and their Pedagogical Competencies

The analysis of Table 4, which examined instructors' attitudes towards EMI and their pedagogical competence, reveals generally positive perceptions with some notable concerns.

Table 4: Respondents' Attitudes toward EMI and their Pedagogical Competencies

Items	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Weighted arithmetic mean	Standard deviation	Rank	General direction
	Iteration	Iteration	Iteration	Iteration	Iteration				
	%	%	%	%	%				
I think EMI is beneficial for improving students' language skills.	120	82	51	17	17	3.944	1.169	3	Agree
	41.8	28.6	17.8	5.9	5.9				
EMI is important for the internationalization of higher education in Algeria.	169	77	24	9	8	4.359	0.961	1	Strongly agree
	58.9	26.8	8.4	3.1	2.8				
I support the continued implementation of EMI in higher education in Algeria.	140	85	36	12	14	4.132	1.098	2	Agree
	48.8	29.6	12.5	4.2	4.9				
Initial training in EMI is effective in preparing me to teach in English.	104	87	46	22	28	3.356	1.286	6	Neutral
	36.2	30.3	16.0	7.7	9.8				
I find it difficult to explain complex concepts in English.	29	36	65	86	71	3.467	1.267	4	Agree
	10.1	12.5	22.6	30.0	24.7				
I am confident in delivering courses in English.	57	89	70	45	26	3.369	1.222	5	Neutral
	19.9	31.0	24.4	15.7	9.1				
I have received specific training on how to adapt my teaching methods EMI.	13	36	67	58	113	2.227	1.221	7	Disagree
	4.5	12.5	23.3	20.2	39.4				
Weighted average of Perceptions of EMI Benefits and Pedagogical Readiness						3,551	1,175	Agree	

Source: Prepared by the researcher using a program SPSS V29.

The highest level of agreement was observed for the statement that EMI is important for the internationalization of higher education in Algeria, with a mean score of 4.359 and 85.7% of respondents expressing agreement or strong agreement. Similarly, strong support was reported for the continued implementation of EMI ($M = 4.132$), and for its perceived benefits in enhancing students' language skills ($M = 3.944$). These findings suggest a clear recognition among faculty of EMI's strategic value and educational advantages.

However, responses indicate moderate levels of concern regarding instructors' confidence and preparedness. While a modest proportion of respondents expressed confidence in delivering courses in English ($M = 3.369$), and a relatively neutral position was found regarding the difficulty of explaining complex concepts in English ($M = 3.467$), there is a clear shortfall in training. The lowest-rated item was the statement regarding the receipt of specific training on adapting teaching methods to EMI, with a mean of only 2.227 and over 59.6% of participants disagreeing or strongly disagreeing.

These results highlight a gap between positive attitudes toward EMI and the actual institutional and professional support required for its effective implementation. The overall mean for the responses was 3.551, indicating a generally favorable direction, but pointing to the urgent need for structured training programs to enhance pedagogical readiness for EMI in Algerian universities.

4.1.4 Results of the Analysis of the Challenges Faced by EMI Instructors

The findings in Table 5 below provide a comprehensive overview of the main challenges encountered by university instructors in implementing EMI.

Table 5: Distribution of Responses Regarding Challenges Faced by EMI Instructors

Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Weighted arithmetic mean	Standard deviation	Rank	General direction
	Iteration	Iteration	Iteration	Iteration	Iteration				
	%	%	%	%	%				
I find it difficult to deliver training programs in EMI due to lack of time.	36	54	68	73	56	3.206	1.299	8	Neutral
	12.5	18.8	23.7	25.4	19.5				
I often face a lack of adequate resources and teaching materials to effectively support my teaching in English.	55	65	58	72	37	2.899	1.325	13	Neutral
	19.2	22.6	20.2	25.1	12.9				
I often face a lack of adequate resources and teaching materials to effectively support my teaching in English.	22	37	74	78	76	3.519	1.226	1	Agree
	7.7	12.9	25.8	27.2	26.5				
My limited English proficiency is an obstacle when participating in training and teaching in English.	29	51	52	84	71	3.408	1.305	4	Agree
	10.1	17.8	18.1	29.3	24.7				
I find it difficult to adapt my teaching strategies to effectively engage students in an EMI context.	44	52	68	78	45	3.098	1.300	11	Neutral
	15.3	18.1	23.7	27.2	15.7				
I am sometimes reluctant to teach in English due to my lack of linguistic confidence or my preference for teaching in my native language.	33	49	65	70	70	3.331	1.322	6	Neutral
	11.5	17.1	22.6	24.4	24.4				
I think my university does not provide enough support, such as teaching assistants or technology, for the implementation of EMI.	36	51	81	62	57	3.185	1.289	10	Neutral
	12.5	17.8	28.2	21.6	19.9				
I find it difficult to effectively assess	22	46	66	87	66	3.450	1.222	3	Agree

students’ understanding in an EMI context due to language barriers.	7.7	16.0	23.0	30.3	23.0				
I notice that my students’ limited English proficiency creates difficulties in comprehension and engagement.	22	35	83	82	65	3.463	1.188	2	Agree
	7.7	12.2	28.9	28.6	22.6				
I struggle to maintain student motivation in my class where English is used as the medium of instruction.	29	48	96	66	48	3.195	1.199	9	Neutral
	10.1	16.7	33.4	23.0	16.7				
I find it difficult to balance teaching the subject matter and teaching the English language.	28	64	64	77	54	3.227	1.260	7	Neutral
	9.8	22.3	22.3	26.8	18.8				
I feel that cultural resistance to EMI hinders my ability to implement it effectively.	57	71	77	55	27	2.735	1.243	14	Neutral
	19.9	24.7	26.8	19.2	9.4				
I sometimes lack confidence to teach effectively in contexts where English is used as the medium of instruction.	53	51	61	78	44	3.031	1.344	12	Neutral
	18.5	17.8	21.3	27.2	15.3				
I feel I do not receive enough ongoing support to improve my EMI teaching practices.	31	45	74	70	67	3.338	1.288	5	Neutral
	10.8	15.7	25.8	24.4	23.3				
Weighted average of Challenges Faced by EMI Instructors						3,220	1,272	Neutral	

Source: Prepared by the researcher using a program SPSS V29.0

The overall weighted mean of 3.220 and a standard deviation of 1.272 suggest a general perception of moderate challenges, with variation in intensity across different dimensions. The highest-rated item was: "I notice that my students' limited English proficiency creates difficulties in comprehension and engagement" (M = 3.463, Rank 2), followed closely by the difficulty in "assessing students' understanding due to language barriers" (M = 3.450, Rank 3). These responses indicate that student-related language barriers are perceived as among the most pressing obstacles to effective EMI delivery.

Additionally, instructors' own linguistic limitations were reported as significant challenges, particularly in the items: "My limited English proficiency is an obstacle when participating in training and teaching in English" (M = 3.408, Rank 4) and "I feel I do not receive enough ongoing support to improve my EMI teaching practices" (M = 3.338, Rank 5). These results highlight the dual burden of insufficient language proficiency and lack of institutional support, which may hinder instructors' confidence and teaching performance.

Interestingly, pedagogical and institutional challenges, such as the lack of time (M = 3.206), inadequate resources (M = 2.899), and cultural resistance to EMI (M = 2.735), were ranked lower, suggesting that while important, these factors are perceived as less urgent compared to language-related barriers. Several items also showed neutral tendencies, including challenges with balancing content and

language teaching ($M = 3.227$) and maintaining student motivation ($M = 3.195$), reflecting variation in instructors' experiences depending on context and discipline. Overall, the data emphasize that language proficiency, both among instructors and students, along with the need for sustained pedagogical support, are central concerns in EMI implementation.

4.1.5 Results of Suggested Areas for Further Development in EMI Training

To better understand faculty needs for professional development, participants were asked to identify areas of EMI training that they believe require further enhancement. Table 6 highlight the areas

Variables	Iteration	Ratio
Mastery of the English language	160	70.55
Teaching methods and strategies	40	90.13
Classroom management in an EMI context	22	70.7
Assessment of student learning in an EMI context	13	50.4
Adapting content for teaching in English	47	40.16
Missing	05	70.1
Total	287	100

Source: Prepared by the researcher using a program SPSS V29.0

that university instructors consider most in need of further development in relation to EMI.

Table 6: Results of Priority Areas for EMI Training Development

A majority of respondents (55.70%) emphasized the need to improve mastery of the English language, underscoring that linguistic competence remains a primary barrier to effective EMI implementation. This finding aligns with earlier results indicating limited confidence and fluency among instructors when teaching in English. Additionally, 16.40% of the respondents identified adapting content for instruction in English as a key area for development, suggesting challenges in aligning subject-specific material with language proficiency. A smaller proportion cited teaching methods and strategies (13.90%) and classroom management (7.70%) in EMI contexts, while only 4.50% stressed the importance of developing training in student assessment under EMI.

4.2 Hypothesis 1 Results: "There is a positive correlation between instructors' attitudes toward EMI and their perceived pedagogical competence."

4.2.1 Correlation Analysis Findings

The analysis of the results presented in Table 7 below, revealed statistically significant positive correlations between instructors' attitudes toward EMI implementation and their self-reported pedagogical competence.

Table 7: Pearson Correlations between EMI Attitudes and Pedagogical Competence Indicators

Attitude Dimension	Survey Item	Teaching Confidence (r)	Training Effectiveness (r)
Perceived Benefits	"I think EMI is beneficial for improving students' language skills."	.39**	.33**
Internationalization Importance	"EMI is important for the internationalization of higher education in Algeria."	.42**	.31**
Implementation Support	"I support the continued implementation of EMI in higher education."	.47**	.29**

Notes: N = 287 for all analyses. ** $p < .001$ (two-tailed). Correlation coefficients represent Pearson's r values.

Source: Prepared by the researcher using a program SPSS V29.0

Specifically, all three attitude measures showed moderate to strong associations with teaching confidence and training effectiveness: perceived benefits of EMI for student language skills ($r = .39$ with confidence, $r = .33$ with training effectiveness, $ps < .001$), belief in EMI’s role in internationalization ($r = .42$ with confidence, $r = .31$ with training effectiveness, $ps < .001$), and general support for EMI implementation ($r = .47$ with confidence, $r = .29$ with training effectiveness, $ps < .001$).

Notably, institutional support demonstrated the strongest association with teaching confidence ($r = .47$), suggesting that organizational endorsement may be particularly influential in fostering instructors’ readiness for EMI. All correlations remained significant after Bonferroni correction (adjusted $\alpha = .008$), with effect sizes ($r = .29-.47$) indicating practically meaningful relationships according to conventional benchmarks.

4.2.2 Regression Analysis Results

Table 8 below presents the regression coefficients for the variables predicting attitudes toward EMI in Algerian universities. The model includes three key predictors: perceived benefits, internationalization value, and implementation support. These factors were examined to determine their relative influence on participants’ overall EMI attitude scores.

Table 8: Regression Coefficients for EMI Attitude Predictors

Predictor & Survey Item	β	*t*	*p*	95% CI	Interpretation
1. Perceived Benefits “Improving students’ language skills”	.081	1.06	.290	[-.07, .24]	Not significant
2. Internationalization Value “Important for Algeria’s higher education”	.117	1.37	.171	[-.05, .28]	Not significant
3. Implementation Support “Support continued EMI use”	.329	3.94	<.001	[.18, .48]	Significant predictor

The findings reveal significant insights into the factors influencing instructors’ confidence in implementing EMI in Algerian universities. Notably, Implementation Support emerged as the strongest unique predictor, with a standardized coefficient of $\beta = .329$ and a significance level of $p < .001$.

In contrast, while Perceived Benefits ($\beta = .081$) and Internationalization Value ($\beta = .117$) exhibited positive associations with teaching confidence, neither of these factors reached statistical significance in the multivariate model ($ps > .05$). This suggests that, although instructors may recognize the potential advantages of EMI and its role in internationalization, these perceptions do not independently enhance their confidence in the same way that institutional support does.

4.3 Hypothesis 2 Results: “Linguistic and Institutional Challenges as Primary Barriers to EMI Implementation.”

The descriptive statistics in Table 9 below reveal key challenges faced by instructors in implementing EMI, based on responses from 287 participants.

Table 9: Descriptive Statistics of EMI Challenge Dimensions

Challenge Category	Representative Item (Abbreviated)	Mean	SD	Interpretation
Linguistic Challenges	Teachers' Limited English proficiency	3.41	1.31	High concern
	Students' limited English	3.46	1.19	Most severe
Institutional Support	Lack of university support	3.18	1.29	Moderate concern
	Inadequate teaching resources	2.90	1.32	Mild concern

The findings and their interpretation collectively highlight critical barriers to the effective implementation of EMI in Algerian higher education, revealing a significant gap between policy aspirations and practical realities. Linguistic challenges emerged as the most pressing issue, with mean scores ranging from 3.41 to 3.46, consistently surpassing the neutral midpoint of 3.0.

Students' limited English proficiency was identified as the most severe obstacle, underscoring the urgent need for targeted language development programs. Institutional challenges, while slightly less pronounced ($M = 2.90\text{--}3.18$), also represent significant barriers, further complicating the adoption of EMI.

Additionally, the high standard deviations (1.19–1.32) indicate substantial variability in instructors' experiences, suggesting that the challenges are not uniformly distributed but rather context-dependent. These findings confirm Hypothesis 2, demonstrating that both linguistic and institutional factors are meaningful barriers, with language-related challenges being particularly acute.

4.4 Qualitative Results from the Interview

In addition to the closed-ended survey items, 35 respondents provided open-ended feedback identifying several recurring themes regarding challenges and recommendations for EMI at the Algerian university. Interviewees were encouraged to speak in whichever language, Arabic, English or French; they felt most comfortable using to ensure genuine and thoughtful responses. Many faculty saw EMI as a stepping-stone to international opportunities for students and institutional development: *"As a lecturer, I see EMI not just as a teaching requirement, but as an opportunity for our students. It opens doors for them in the international arena and gives them essential skills that will benefit their careers wherever they go."*

Another teacher reinforced the perceived value for internationalization and student employability: *"While I know EMI poses its challenges, I believe it plays an important part in making our university more globally competitive. By teaching in English, we're helping our students meet international standards and become more employable worldwide."*

Despite these benefits, the dominant themes were barriers, both linguistic and structural. Several lecturers expressed the difficulty of communicating complex content in English: *"As an instructor, I feel that my English is generally adequate for daily communication, but when it comes to teaching complex topics, I sometimes struggle to explain the material as clearly as I'd like. I find myself slowing down and repeating ideas, which can frustrate both me and my students."*

Interviewees also reported the mutual challenges of EMI for both themselves and their students: *"My students and I are both learning to navigate advanced subjects in English, and it's not easy. Even when I think I understand the content well, communicating it effectively in English is a challenge; it often takes extra time to clarify concepts and make sure everyone is following along."*

Virtually all interviewees described inadequate institutional and professional support. One said: *"As a teacher, I was asked to start using EMI, but I had very little training or support before stepping into the classroom. There aren't enough opportunities for us to work with colleagues, observe classes, or receive feedback, so I often feel isolated in figuring out what works best for my students."*

Another instructor discussed balancing institutional expectations with limited resources: *"EMI policies were handed down from above, but they don't really fit the context of my classes. It would make*

a huge difference if we had more practical help, like mentoring, study clubs, or even just chances to share experiences with other teachers, rather than focusing only on basic language skills."

Concerns about the inadequacy of language-focused training were widespread: *"Language training alone isn't enough for us to teach effectively in English. We need real pedagogical training, how to deliver our subject matter in English, use appropriate strategies, and adapt our methods to help students understand complex content."*

Others highlighted the challenge of integrating EMI into teaching without ongoing support: *"Without ongoing professional development, it feels impossible to meet curriculum goals or be truly accountable for what our students learn in EMI classes. The lack of targeted support makes it really hard to integrate English into our teaching in a meaningful and competent way."*

STEM teachers and those with less EMI experience described low confidence and uncertainty: *"As an educator, I haven't received much formal training on how to teach at the university level, let alone how to do it effectively in English. Without proper support and resources, I often feel unsure and less confident when explaining my subject in EMI classes."*

"We're expected to deliver complex material in English, but the institution hasn't provided enough guidance or classroom resources. This lack of support makes it difficult to teach well, and sometimes I doubt whether I'm meeting my students' needs."

A lack of collaborative opportunities was a recurring theme: *"Teaching my subject in English is challenging, and I often doubt my abilities because there's no real support system or development plan for EMI instructors. Without colleagues to collaborate with or structured training, it's hard to build confidence in my teaching."*

"As someone who teaches a scientific discipline, I find it especially difficult to explain complex material in English, which is not my native language. The lack of EMI-focused training leaves me feeling less effective and unsure of myself in the classroom."

Several instructors described the intersection of limited institutional and linguistic support: *"As teachers, many of us aren't fully proficient in English, and the problem is made worse because there just aren't enough language support programs provided by the university. We're expected to teach in English, but there are no English language courses or workshops to help us improve."*

"My students and I both need more support with English, especially when it comes to using the language in our academic fields. Without discipline-specific EAP classes or communication skills training, the language barrier becomes even more difficult to overcome."

5. Discussion of Findings

The combined analysis of survey measures and interview feedback demonstrates that Algerian faculty widely perceive EMI as essential for internationalization, employability, and academic competitiveness, echoing findings in Europe, Asia, and North Africa (Costa, 2024; Cots & Mancho-Bars, 2024; Rahman & Hu, 2025; Huang, 2024; Abdeljaoued, 2023). Quantitative data revealed that 85.7% of instructors see EMI as vital to these outcomes, and qualitative evidence confirms these ambitions through repeated references to global standards and career opportunities.

However, both strands of evidence reveal persistent gaps between positive attitudes and readiness for EMI teaching. The quantitative results echo earlier findings, as these results corroborate Abdeljaoued (2023) and McKinley (2024): only 3.5% of faculty have advanced English proficiency (C1), and many instructors feel unprepared to present complex academic content in English. Open-ended responses further reinforce these findings, highlighting ongoing uncertainty and the need for stronger linguistic and pedagogical support.

Moreover, quantitative results showed that 55.7% of respondents prioritized language improvement as fundamental, and both datasets identified the lack of structured, practical support as a barrier to effective EMI (Dimova, 2017; Liao et al., 2025). Institutional support was the strongest

statistical predictor of teaching confidence ($r = .47$, $p < .001$), and interviewees often expressed their frustrations about insufficient professional development, mentorship, and peer support.

Findings from both the quantitative and qualitative results challenge claims that teaching experience alone increases EMI confidence: several STEM instructors with substantial experience still reported feeling “less effective and unsure” due to language and pedagogical difficulties (Mansouri, 2025; Mekheimer, 2025; Outemzabet & Sarnou, 2023).

The study Findings confirm the ongoing challenge of insufficient teacher training and limited pedagogical readiness among faculty, especially those accustomed to French-medium instruction and lacking advanced English skills (Abdeljaoued, 2023). Teachers called for curriculum adaptation and context-sensitive EMI policy: “*We need real pedagogical training, how to deliver our subject matter in English*”, highlighting the necessity of flexible, responsive institutional frameworks (Benabdelkader, 2025; Lo & Othman, 2023). Addressing these gaps requires targeted professional development, including EAP, ESP, and integrated CLIL approaches, alongside greater emphasis on student-centered and intercultural competence strategies (Alhamami, 2023; Cui et al., 2024; Lee et al., 2025; Zhou, 2025). These steps are essential to build teacher capacity and improve learning outcomes in Algeria’s increasingly diverse EMI context

Finally, misalignments in policy and practice, such as administrative reliance on French terminology, reinforce the systemic implementation barriers described by respondents and documented in research (Boulkroun, 2025).

6. Conclusion and Recommendations for Improving EMI in STEM Education in Algerian Universities

The findings of this study underscore that the implementation of EMI in Algeria is hindered by two primary challenges: linguistic limitations and gaps in institutional support. While instructors acknowledge the benefits of EMI, their readiness to effectively engage with this approach is significantly compromised by insufficient English proficiency and inadequate backing from their institutions. This situation aligns with Social Cognitive Theory, which highlights the critical interplay between self-efficacy, referring to individual skills, and environmental factors, such as organizational support.

To effectively address the persistent challenges in EMI across STEM disciplines in Algerian universities, several recommendations emerge. First, the establishment of mandatory language programs for both instructors and students is essential to enhance English proficiency across the board.

Additionally, implementing EMI-specific pedagogical training, such as Content and Language Integrated Learning (CLIL) workshops, can equip educators with the necessary skills to navigate the complexities of teaching in English. Institutions should prioritize comprehensive teacher training that strengthens both linguistic competence and discipline-specific pedagogical strategies. Equally important is the designation of English for Academic Purposes (EAP) programs to address the unique linguistic and disciplinary demands of STEM fields rather than offering generic support.

Furthermore, institutional reforms are essential; creating dedicated EMI support units and ensuring appropriate resource allocation will provide the necessary infrastructure for successful implementation. Lastly, a phased approach to policy implementation, with an initial focus on graduate programs, can facilitate a smoother transition to EMI.

Looking ahead, future research should investigate the longitudinal impacts of these interventions on educational outcomes. By bridging the existing linguistic and institutional gaps, Algerian universities can fully harness the potential of EMI to enhance global academic engagement, ultimately fostering a more robust educational environment that benefits both instructors and students alike.

7. Limitations and Delimitations of the Study

Several limitations, beyond the researcher’s control, must be acknowledged. Chief among these is the reliance on self-reported survey and interview data, which introduces potential for bias,

particularly regarding questions of confidence and competence in EMI, since ultimate accuracy depended on participants' honesty and self-awareness rather than direct researcher intervention. Although efforts were made to minimize response bias, such as using a mix of negative and positive items, this reliance remains an inherent constraint. Additionally, as the results were predominantly drawn from scientific and technical faculties, the findings may not be fully generalizable to disciplines like the humanities or social sciences. The study also captured participants' perspectives at a single moment in time, rather than tracking how attitudes or practices shifted over an extended period. Furthermore, direct measurement of student learning outcomes was not included, as the research intentionally focused on teachers' views and experiences.

This study also established several purposeful delimitations to clarify its analytical focus. Specifically, the research was restricted to Algerian universities actively implementing government-mandated EMI reforms during the 2023–2025 period, intentionally excluding faculties using English to allow a more precise analysis of policy impact. In terms of research design, the study addressed pedagogical readiness, faculty attitudes, and institutional support mechanisms, while deliberately omitting aspects such as student achievement outcomes or longitudinal effectiveness to concentrate on current barriers to EMI integration. Additionally, a mixed methods approach combining quantitative questionnaires and qualitative interviews was employed to support triangulation and yield a more comprehensive understanding of faculty perspectives and challenges, whereas other methodologies like classroom observation were excluded to preserve focus on self-reported experience and institutional context. To further ensure inclusivity and capture authentic faculty voices, participants were permitted to submit survey and interview responses in Arabic and French, alongside English, thereby allowing contributions from instructors whose English proficiency might otherwise have limited their participation and reflecting the multilingual reality of Algerian higher education.

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