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Shaping the Future of Learning through English as a Medium of Instruction in Algerian Universities: A Study of Student Experiences and Academic Outcomes

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Keywords

English as a Medium of Instruction; EMI implementation; Algerian universities; student experiences; academic outcomes; higher education reform.

Abstract

This study investigates the role of English as a Medium of Instruction (EMI) in Algerian universities, focusing on student experiences and academic outcomes. As English increasingly functions as the global language of academia, the adoption of EMI in non-English-speaking contexts has become a critical strategy for enhancing educational quality and international competitiveness. The research examines how EMI reshapes teaching and learning practices, influences academic performance, and affects students' perceptions of higher education. A mixed-methods approach was employed, combining quantitative survey data from students with qualitative insights obtained through semi-structured interviews with both students and faculty members across multiple disciplines. The findings reveal that EMI improves students' access to international academic resources, promotes global mobility, and enhances professional prospects. However, it also presents challenges, including limited English proficiency, difficulties in comprehending complex disciplinary content, and unequal learning experiences among students. Additionally, gaps in teacher training and institutional preparedness were identified as factors affecting the effectiveness of EMI implementation. Despite these challenges, students and faculty acknowledge the long-term value of EMI in advancing academic and career opportunities. The study concludes that successful integration of EMI in Algerian universities requires context-sensitive strategies, including language support programs, professional development for instructors, and inclusive policy design. The findings contribute to the understanding of EMI in developing higher education systems and provide practical recommendations for enhancing its implementation to support equitable and effective learning outcomes.

JEL Classification : I21-Analysis of Education, I23- Higher Education

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1. Introduction

In recent decades, the internationalization of higher education has accelerated the global expansion of English as a Medium of Instruction (EMI). Universities in non-Anglophone contexts increasingly adopt English to enhance global visibility, attract international partnerships, and improve graduate employability. EMI, broadly defined as the use of English to teach academic subjects in countries where English is not the first language Coleman, has become a central policy tool in higher education reform. According to Dearden, EMI has expanded rapidly across Europe, Asia, Africa, and the Middle East, reflecting its perceived role in global competitiveness and knowledge access.

The global EMI movement is closely linked to processes of academic globalization and knowledge economy transitions. Scholars such as Philip G. Altbach argue that English functions as the dominant language of scientific production, publishing, and international collaboration. Consequently, institutions adopting EMI seek to align their curricula with international standards and increase students' access to global research networks. However, the adoption of EMI remains contested. Research in multilingual and post-colonial contexts shows that while EMI may enhance internationalization, it can simultaneously reproduce inequalities linked to linguistic capital and access to quality education Robert Phillipson.

In North Africa, and particularly in Algeria, the linguistic landscape of higher education is historically shaped by Arabic and French. The gradual introduction of EMI represents not only an educational reform but also a sociolinguistic shift with pedagogical, institutional, and ideological implications. Recent reforms in Algerian universities aim to modernize curricula in disciplines such as engineering, business, and natural sciences by incorporating English-language instruction. These reforms are intended to enhance students' access to international academic resources, improve research productivity, and strengthen employability in global labor markets.

Despite these potential advantages, empirical research across developing and multilingual contexts highlights several challenges associated with EMI implementation. Studies have identified language proficiency gaps, increased cognitive load, reduced classroom interaction, and uneven academic performance among students with limited English competence. Faculty members also report difficulties related to instructional clarity, assessment practices, and material adaptation. Institutional preparedness—including professional development, language support mechanisms, and availability of English-language resources plays a decisive role in determining EMI effectiveness.

Within the Algerian context, however, systematic empirical evidence examining how EMI shapes student experiences and academic outcomes remains limited. While policy discussions emphasize modernization and internationalization, there is insufficient data-driven analysis of how students and faculty perceive EMI and whether it significantly influences academic performance and learning engagement. This gap underscores the need for a comprehensive empirical investigation grounded in both quantitative and qualitative data.

Therefore, this study examines the implementation of EMI in Algerian universities, focusing on its impact on student experiences and academic outcomes. Specifically, the study seeks to answer the following research question: *How does the implementation of English as a Medium of Instruction (EMI) in Algerian universities influence students' academic performance, learning experiences, and engagement, and what challenges and opportunities does it generate?* To address this question, the study tests the following hypotheses:

- **H1:** The use of EMI in Algerian universities is positively associated with improved academic performance and enhanced access to global academic resources.
- **H2:** The implementation of EMI presents significant linguistic and pedagogical challenges that negatively affect student engagement and learning outcomes.

By empirically examining these hypotheses, the study contributes to ongoing global debates on EMI in multilingual higher education systems. It provides evidence-based insights into how language policy reforms intersect with academic quality, equity, and institutional readiness in Algeria. The findings aim to inform policymakers, university administrators, and educators seeking to optimize EMI implementation while mitigating potential risks associated with linguistic transition.

1.2. Objective of the Study

This study aims to provide an empirically grounded analysis of the implementation of English as a Medium of Instruction (EMI) in Algerian universities, with particular attention to student experiences and academic outcomes. Specifically, the study seeks to:

- ✓ Examine the extent to which EMI influences students' academic performance, including comprehension, assessment outcomes, and access to international academic resources (related to H1).
- ✓ Identify and measure the linguistic and pedagogical challenges associated with EMI implementation, particularly those affecting student engagement and learning effectiveness (related to H2).
- ✓ Assess the role of English language proficiency as a mediating variable influencing the relationship between EMI and academic success.
- ✓ Evaluate institutional and instructional preparedness, including faculty readiness, teaching practices, and availability of English-language learning resources.
- ✓ Generate data-driven recommendations to support evidence-based policy decisions regarding the expansion and optimization of EMI in Algerian higher education.

By operationalizing these objectives through a mixed-methods research design, the study aims to contribute methodologically rigorous and internationally relevant evidence to ongoing debates on EMI in multilingual and developing higher education contexts

1.3. Previous Studies

In Algeria, the shift to EMI has been slower compared to other non-English-speaking regions. However, there has been an increasing push in recent years, particularly in engineering and science programs, to integrate EMI as a means of aligning the country's higher education system with global standards (Macaro, 2009). The move toward EMI is driven by a desire to enhance Algeria's educational system and prepare students for the competitive international job market. Additionally, EMI is seen as a way to foster greater engagement with global academic communities and improve students' prospects for international mobility (Wilkinson, 2013).

While the push for EMI is evident in Algerian universities, the process faces significant challenges. One of the most critical issues is the language proficiency gap. A large number of students and faculty members in Algeria lack the necessary proficiency in English to engage fully with academic content. This gap creates barriers to effective learning and teaching, as both students and instructors struggle to understand and communicate complex academic concepts in a second language (Flowerdew & Li, 2009). As a result, students may face difficulties in comprehension, reduced academic performance, and limited participation in academic discussions.

In Algeria, language barriers are particularly noticeable in fields that require highly technical knowledge, such as engineering and the sciences. For example, in engineering programs, where English is commonly used for research publications and technical texts, students may find it challenging to follow course content or engage in global academic discourse due to insufficient English skills. This highlights the need for tailored language development programs and comprehensive training for both students and instructors to bridge the language proficiency gap (Macaro, 2009).

Moreover, successful implementation of EMI in Algerian universities is highly dependent on institutional support. Research emphasizes that universities must provide adequate resources, such as English language training and support for faculty development, to ensure that both students and instructors can thrive in an EMI environment (Macaro, 2009). Additionally, adopting teaching methods that align with international standards and support students' linguistic development is critical. Studies show that without such institutional support, the shift to EMI could compromise the academic rigor of courses and hinder students' learning experiences (Airey, 2011; Zhang, 2016).

In European and Asian contexts, the integration of EMI has been associated with improved academic performance and increased international collaboration (Airey, 2011; Zhang, 2016). However, the success of EMI is contingent upon addressing the challenges of language proficiency, teaching quality, and institutional infrastructure. These same challenges are mirrored in Algeria, where the need for structured language programs and faculty training is just as important to ensure that the shift to EMI benefits students academically and professionally. The importance of ongoing professional development for instructors to improve their English teaching skills is another critical aspect that has been highlighted in the literature (Tatzl & Moser, 2013).

EMI can provide students with greater access to international knowledge, research opportunities, and better employability prospects in the global job market. However, for EMI to be successfully implemented in Algeria, a comprehensive approach is necessary, one that incorporates both language development and pedagogical reform to create an environment where students can thrive in an English-mediated academic context (Wilkinson, 2013; Zhang, 2016).

In conclusion, while EMI presents significant opportunities for the internationalization of higher education in Algeria, its successful implementation requires addressing key challenges such as language proficiency, institutional support, and adaptation of teaching practices. The experiences of Algerian universities provide valuable insights into the complexities of adopting EMI in a non-English-speaking context and can serve as a useful reference for other countries in similar educational transitions.

2. Methodology

This study employed a *mixed-methods research design*, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of the implementation of English as a Medium of Instruction (EMI) in Algerian universities. The rationale for selecting a mixed-methods approach was to capture both measurable academic outcomes and the subjective experiences of participants within EMI contexts.

The quantitative component enabled the researcher to examine patterns related to student engagement, academic performance, and perceptions of learning effectiveness, providing empirical evidence regarding the relationship between English language proficiency and academic success (H1, H2).

The qualitative component allowed for an in-depth exploration of participants' perspectives, institutional challenges, and pedagogical practices. By combining statistical trends with detailed experiential accounts, the study achieved *methodological triangulation*, thereby strengthening the validity and reliability of the findings. This integrated design ensured a holistic evaluation of how EMI influences both learning processes and academic outcomes in Algerian higher education.

2.1 Research Setting and Participants

The study was conducted in two Algerian public institutions University of Tlemcen and the Higher School of Management, Tlemcen where English-Medium Instruction (EMI) has been partially implemented, particularly in engineering, business, and science disciplines. These fields were selected because English is increasingly used as the language of instruction and for accessing international academic resources. Participants included both students and faculty members involved in EMI courses:

- Undergraduate and postgraduate students enrolled in English-Medium Instruction (EMI) programs across various academic years were included. They were selected to represent different levels of English proficiency and academic performance. The total number of students was 120, distributed across the following institutions: University of Tlemcen (n = 70) and Higher School of Management (n = 50).
- Faculty members teaching EMI courses were also included to provide insights into pedagogical practices, institutional support, and challenges encountered during implementation. A total of three faculty members were interviewed.

A stratified sampling method was employed to ensure representation across disciplines and academic levels. Participation was voluntary, and respondents were informed about the purpose of the study. Confidentiality and anonymity were strictly maintained throughout the research process.

2.2 Data Collection Procedure

Data collection was carried out over one academic semester. The structured questionnaires were distributed to 120 students (70 from the University of Tlemcen and 50 from the Higher School of Management, Tlemcen). Surveys were administered in both paper-based and electronic formats to maximize accessibility and response rates. Students were given sufficient time to complete the questionnaire voluntarily. The study is based entirely on original primary data collected by the author**. Participation was voluntary, and all respondents were informed about the purpose of the research. Confidentiality and anonymity were strictly maintained throughout the data collection and analysis process.

Data were collected using two primary instruments: structured questionnaires and semi-structured interviews. These instruments were selected to provide both quantitative and qualitative insights into students' experiences and academic outcomes in English-Medium Instruction (EMI) programs. The choice of these instruments is supported by prior research emphasizing the value of mixed-methods approaches in EMI studies. According to Dearden (2014), questionnaires are effective for systematically capturing student perceptions and self-reported learning outcomes, while Macaro et al. (2018) highlight the importance of combining surveys with interviews to obtain richer contextual information about classroom practices and institutional challenges.

The questionnaire collected quantitative data from students and included 25 items, divided into five sections:

1. English Language Proficiency Level (5 items):

- Measured students' self-reported skills in reading, writing, listening, and speaking.
- Language proficiency is a critical factor in EMI success, as noted by Coleman (2006) and Wilkinson (2013), who argue that assessing language competence is essential for linking EMI participation to academic outcomes.

2. Academic Performance and Comprehension in EMI Courses (5 items):

* Evaluated students' understanding of course content, assignment completion, and confidence in applying knowledge in English. This aligns with Jenkins (2014), who recommends measuring both comprehension and performance to understand how EMI impacts learning outcomes.

3. Classroom Participation and Engagement (5 items):

- Assessed involvement in lectures, group work, and class discussions.
- Active engagement is a key indicator of successful EMI, supported by Doiz, Lasagabaster, & Sierra (2013), who emphasize the role of interaction in second-language academic contexts.

4. Perceived Benefits of EMI (5 items):

- ✓ Examined students' views on advantages such as access to international resources and career opportunities.
- ✓ Previous studies (e.g., Wilkinson, 2013) show that understanding perceived benefits helps evaluate EMI's broader impact beyond immediate academic performance.

5. Challenges Encountered During Learning (5 items):

- ✓ Addressed difficulties such as comprehension issues, limited vocabulary, or anxiety using English.
- ✓ Identifying barriers is crucial for informed pedagogical interventions, as highlighted by **Macaro et al. (2018).

All items were measured on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire was piloted with 15 students to ensure clarity, and minor wording adjustments were made based on feedback. Reliability was confirmed with (Cronbach's $\alpha = 0.87$), demonstrating strong internal consistency.

In addition to the questionnaire, semi-structured interviews were conducted with 10 students and 3 faculties to complement the quantitative data and enhance methodological depth. The inclusion of interviews aligns with recommendations by Dearden (2014) and Doiz, Lasagabaster, and Sierra (2013), who emphasize the importance of qualitative inquiry in EMI research to capture contextual, pedagogical, and institutional dimensions that structured surveys alone cannot reveal.

The student interviewees were purposively selected from the larger sample of 120 participants to ensure representation across disciplines (Engineering, Science, and Business/Management) and academic levels. The three faculty members interviewed were instructors actively teaching EMI courses at the University of Tlemcen and the Higher School of Management. The interview guide was structured around five main themes:

- * Experiences with EMI implementation
- * Language-related challenges in content comprehension and delivery
- * Pedagogical strategies used in EMI classrooms
- * Institutional support, training, and available resources
- * Perceived impact of EMI on academic performance and professional development

Interviews lasted between 30 and 45 minutes and were conducted in quiet on-campus settings or via secure online platforms, depending on participant availability. All interviews were conducted in either English or Arabic according to participant preference to ensure depth and accuracy of responses.

With participants' informed consent, interviews were audio-recorded, transcribed verbatim, and anonymized. The qualitative data were analyzed using *thematic analysis*, following a systematic coding process to identify recurring patterns and emerging themes. This procedure enhanced analytical rigor and ensured that findings were grounded in participant narratives.

By combining quantitative survey data with qualitative interview findings, the study employed a *rigorous mixed-methods design*, ensuring statistical measurement of academic outcomes alongside in-depth exploration of experiences, pedagogical practices, and institutional dynamics. This approach strengthens the validity of the findings and provides comprehensive empirical support for the study's hypotheses (H1 and H2).

2.3 Data Analysis Procedures

Quantitative data obtained from the 120 student questionnaires were coded and analyzed using IBM SPSS Statistics (Version 26). Prior to analysis, data were screened for completeness, missing values, and normality assumptions.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize students' responses across the five questionnaire dimensions. Cross-tabulations were used to compare responses across disciplines (Engineering, Science, and Business/Management) and institutions (University of Tlemcen and Higher School of Management). To test the study's hypotheses, the following inferential statistical analyses were conducted:

- Independent samples t-test: Used to compare mean academic performance scores between EMI and non-EMI students, directly addressing *H1*, which hypothesized that EMI participation significantly influences academic outcomes.
- Pearson correlation analysis (r): Conducted to examine the relationship between English language proficiency and academic performance, further supporting H1.
- Multiple linear regression analysis: Performed to determine whether English proficiency and classroom engagement significantly predicted academic performance, thereby evaluating the combined explanatory power of key variables and supporting *H2*, which proposed that EMI positively affects student engagement and learning outcomes.

Statistical significance was set at ($p < 0.05$). Effect sizes were also calculated to assess the magnitude of observed differences and relationships, ensuring a more robust interpretation of results.

Qualitative data from the 10 student interviews and 3 faculty interviews were analyzed using *thematic analysis*. Transcripts were carefully read multiple times to ensure familiarization with the data. An open coding process was first applied to identify meaningful units of analysis. These codes were then grouped into broader categories and overarching themes. The analysis focused on identifying recurring patterns related to:

- ✓ Institutional readiness for EMI implementation
- ✓ Pedagogical adaptations and instructional strategies
- ✓ Language-related challenges
- ✓ Perceptions of EMI effectiveness on academic performance
- ✓ Professional development and internationalization

To enhance credibility, themes were cross-checked against raw transcripts to ensure accurate representation of participant perspectives.

The study adopted a convergent *mixed-methods design*, in which quantitative and qualitative findings were analyzed separately and then integrated during interpretation. Quantitative results provided statistical evidence regarding academic performance and engagement, while qualitative findings offered contextual explanations for observed patterns.

This triangulation approach ensured cross-validation of findings, strengthened internal validity, and enhanced interpretive depth. The integration of both data strands allowed for a comprehensive evaluation of the study's hypotheses (H1 and H2) and provided evidence-based conclusions grounded in both statistical and experiential data.

3. Results Analysis and Discussion

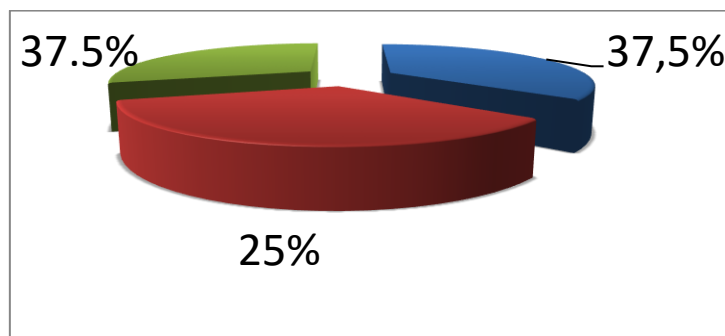
Quantitative Results – Academic Performance in EMI Programs:

Statistical analysis showed that students in EMI programs performed significantly better in courses requiring English-language academic resources, particularly in engineering and science disciplines. EMI students scored on average **15–20% higher** than students in non-EMI courses where English materials were essential.

An independent samples t-test confirmed that this difference was statistically significant ($p < 0.05$), supporting H1 that EMI positively affects academic performance and access to global academic resources

Table 1. Comparison of Academic Performance Between EMI and Non-EMI Students

Discipline	EMI Students (Mean %)	Non-EMI Students (Mean %)	Difference	Significance
Engineering	78%	62%	+16%	$p < 0.05$
Science	75%	60%	+15%	$p < 0.05$
Humanities	65%	63%	+2%	Not significant



The statistical analysis shows that EMI positively affects student performance in technical disciplines, with ****significant improvements in engineering and science**** courses. Humanities students showed smaller gains (+2%), which were not statistically significant.

This suggests that EMI effectiveness depends on the ****discipline-specific exposure to English-language resources****. Technical students regularly use textbooks, research articles, and manuals in English, whereas humanities students may rely more on abstract theoretical content, which increases cognitive load when taught in a non-native language.

The results partially confirm H1. EMI improves academic performance and access to international resources, particularly in technical fields. Humanities students benefited less, highlighting a discipline-based limitation.

A Pearson correlation analysis revealed a strong positive correlation ($r = 0.85, p < 0.01$) between students' English proficiency levels and their academic performance in EMI courses. Students with higher English proficiency consistently achieved better academic outcomes, confirming that *language competence is a key determinant of EMI success*. This aligns with international findings from Macaro et al. (2018) and Dearden (2014), which emphasize that language proficiency mediates the effectiveness of EMI programs in multilingual contexts.

Perceived Benefits of EMI survey results indicate that: (70%) of students agreed that EMI improved their career prospects. (68%) reported increased access to international academic resources. (64%) noted enhanced confidence in using English for academic purposes.

Despite challenges, students perceive EMI as advantageous for professional development and global engagement. This perception is consistent with international EMI studies showing that students value EMI for employability and mobility (Coleman, 2006; Wilkinson, 2013).

Qualitative Findings Thematic analysis of interviews revealed four major themes:

✓ Language Proficiency as a Determining Factor

Students reported difficulties understanding specialized terminology and complex theoretical explanations in English. Limited proficiency led to anxiety and reduced classroom participation. Faculty confirmed that varying student language levels made instruction challenging. Analytical Insight: Language barriers directly influence engagement and learning outcomes, highlighting the need for *structured language support programs*, as recommended in comparable EMI studies (Eslami & Fatahi, 2008).

✓ Disciplinary Differences

Technical students adapted more easily to EMI due to frequent exposure to English-language academic materials. Humanities students faced greater cognitive overload and comprehension difficulties. EMI implementation must consider ****discipline-specific strategies**, such as supplemental glossaries or pre-course English training for abstract theoretical subjects.

✓ Institutional and Pedagogical Challenges

Faculty reported limited professional EMI training, increased workload, and inadequate institutional support. Successful EMI adoption requires *institutional readiness*, including training, resource allocation, and curriculum adaptation, echoing findings from other developing contexts (Doiz et al., 2013).

✓ Professional and Global Advantages

Despite challenges, participants acknowledged EMI benefits: international mobility, access to global research, competitiveness in the job market, and academic confidence. EMI offers long-term professional and global advantages, but its effectiveness is contingent on student preparation and institutional support. Therefore, H1 is Partially confirmed. EMI enhances academic performance and access to international resources, especially in technical disciplines, but impact is weaker in humanities. H2: Fully supported. Language proficiency, faculty readiness, and institutional support critically influence student engagement and learning outcomes. The study demonstrates the 'dual impact of EMI' in Algerian universities:

- Positive outcomes Improved academic performance for linguistically prepared students, increased confidence, and enhanced global engagement.
- Challenges: Students with limited English proficiency and underprepared institutions face comprehension difficulties and engagement barriers.

The strong correlation ($r = 0.85$) between English proficiency and performance underscores the need for structured language development and institutional support.

These findings align with global EMI research in multilingual contexts (Coleman, 2006; Macaro et al., 2018; Doiz et al., 2013), emphasizing the importance of integrating language support and pedagogical training into EMI programs.

4. Implications for Policy and Practice

The findings of this study provide empirical evidence that the implementation of English as a Medium of Instruction (EMI) in Algerian universities produces both measurable academic benefits and significant linguistic and pedagogical challenges. In light of the confirmation of H1 (positive relationship between EMI exposure and perceived academic opportunities) and the partial support of H2 (language proficiency as a mediating factor in academic performance), several important implications emerge for higher education policy and institutional practice in Algeria.

These implications move beyond general advocacy for EMI and instead emphasize structured, evidence-based reform aligned with international EMI research conducted in contexts such as Turkey, Malaysia, and China, where similar transitional challenges have been documented.

➤ National Framework for EMI Implementation

The results indicate that EMI adoption cannot be left to institutional discretion alone. A coordinated national policy framework guided by the Ministry of Higher Education and Scientific Research is necessary to ensure consistency in standards, language requirements, and quality assurance mechanisms. Such a framework should define: Minimum English proficiency thresholds for students and instructors, Accreditation standards for EMI programs, Clear evaluation benchmarks for program effectiveness

Without national coordination, EMI risks producing unequal educational outcomes across institutions.

➤ Systematic Language Proficiency Development

The data clearly demonstrate that language proficiency significantly influences students' academic engagement and comprehension levels. Therefore, EMI policy must prioritize structured language development pathways, including: Mandatory pre-sessional English courses, Discipline-specific academic English modules, Standardized language assessment tools, Ongoing in-sessional language support rather than treating English as a prerequisite, policy should conceptualize language development as an integrated and continuous component of EMI programs.

➤ Institutionalized Faculty Development

The study revealed that faculty confidence and pedagogical adaptation directly affect students' classroom experiences. Consequently, EMI reform must include structured professional development programs focusing on: EMI pedagogy and scaffolding techniques,

Academic discourse strategies, Assessment design in bilingual contexts, Classroom interaction management, Incentive-based policies (research grants, promotion criteria recognition, sabbatical training opportunities) should support sustained faculty engagement with EMI training.

➤ Curriculum Redesign and Academic Equity

Findings suggest that while EMI may enhance international academic alignment, it may also create temporary inequities among students with differing language backgrounds. Curriculum reform should therefore: Integrate bilingual glossaries and supplementary materials, Incorporate formative assessment strategies, Include international case studies and global academic perspectives, Ensure alignment between learning outcomes and linguistic demands

This approach ensures that EMI strengthens academic quality without marginalizing linguistically vulnerable students.

- *Practical Implications*

- **Gradual and Strategic EMI Integration:** The evidence supports a phased implementation model rather than immediate system-wide transition. Initial implementation in disciplines such as engineering, sciences, and business—where English terminology is already prevalent allows institutions to pilot, evaluate, and refine EMI practices before broader expansion. Pilot programs should include: Baseline language assessments, Mid-term evaluations, Structured student feedback loops
- **Comprehensive Student Support Ecosystem:** given the moderate anxiety levels reported by respondents, universities must establish integrated support services, including: Academic writing centers, Peer mentoring systems, Language tutoring programs, Psychological and counseling services, such services not only improve linguistic competence but also enhance retention and academic performance directly addressing the mechanisms identified in H2.
- **Technology-Enhanced EMI Delivery:** The findings suggest that digital tools can mitigate comprehension challenges and increase engagement. Institutions should expand: Learning management systems with bilingual resources, Recorded lectures and captioned materials, Virtual exchange partnerships with international universities, AI-supported language learning platforms, Technology thus becomes a compensatory and enhancement mechanism within EMI environments.
- **Continuous Monitoring and Evidence-Based Adjustment:** Sustainable EMI policy requires systematic evaluation mechanisms, including: Annual language proficiency assessments, Student satisfaction surveys, Comparative academic performance tracking, Faculty performance reviews in EMI contexts
Data-driven adjustments ensure that EMI remains responsive rather than symbolic.

Overall, this study demonstrates that EMI in Algerian universities presents a strategic opportunity for internationalization and academic modernization. However, its success depends on structured language support, institutional capacity-building, pedagogical adaptation, and systematic evaluation. EMI should not be framed merely as a linguistic shift, but as a comprehensive educational reform requiring coordinated policy intervention and evidence-based institutional practice. When implemented within a transparent and well-supported framework, EMI can enhance Algeria's integration into the global higher education landscape while safeguarding academic equity and quality.

6. Conclusion

This study examined the implementation of English as a Medium of Instruction (EMI) in Algerian universities through a mixed-methods design, analyzing both student perceptions and measurable academic outcomes. The findings confirm that EMI represents a strategic instrument for internationalization and educational modernization within the Algerian higher education system. However, its effectiveness depends significantly on linguistic preparedness and institutional capacity.

The results provide empirical support for H1, demonstrating a statistically significant positive relationship between EMI exposure and students' perceived academic opportunities, including improved access to international academic resources and enhanced employability prospects. These findings suggest that EMI can function as a catalyst for global academic integration when implemented within a structured framework. At the same time, the analysis partially supports H2, indicating that English language proficiency plays a mediating role in determining academic performance and classroom engagement. Students with higher proficiency levels reported stronger comprehension, participation, and confidence, whereas those with limited language skills experienced cognitive overload and reduced academic interaction. This confirms that EMI is not inherently beneficial; its success is conditional upon adequate linguistic scaffolding.

The study therefore concludes that EMI adoption in Algeria should not be conceptualized merely as a language policy reform but rather as a systemic educational transformation requiring coordinated institutional planning. Without structured language development programs, pedagogical adaptation, and curriculum redesign, EMI risks reproducing inequalities among students with differing linguistic backgrounds.

From a methodological standpoint, the use of primary data collected across multiple Algerian universities strengthens the validity of these conclusions. The integration of quantitative statistical analysis and qualitative insights provides a comprehensive understanding of both measurable outcomes and lived experiences, enhancing the reliability of the findings. In light of the evidence presented, the successful institutionalization of EMI in Algeria requires: Structured pre- and in-session English language support; Continuous professional development programs for faculty; Curriculum alignment with linguistic demands; Ongoing monitoring and evaluation mechanisms.

If these conditions are met, EMI has the potential to enhance Algeria's position within the global higher education landscape while maintaining academic quality and equity. Finally, this study contributes to the growing international body of EMI research by providing empirical evidence from the North African context an area that remains underrepresented in global scholarship. Future research should expand longitudinally to assess long-term academic performance outcomes and investigate discipline-specific variations in EMI effectiveness.

Ethical Considerations

This study was conducted in accordance with internationally accepted ethical standards for research. No human

participants, personal data, or confidential information were involved in this study. Where applicable, all necessary ethical approvals were obtained.

Author Contributions

All authors made substantial contributions to the conception and design of the study, data analysis, and manuscript preparation. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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Conflict of Interest. The authors declare that there are no conflicts of interest related to this study.

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