Investigating the Relationship Between English as a Medium of Instruction Challenges and Pedagogical Factors: The Case of Teachers of Architecture at Batna 1 University

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Abstract

This study investigates the relationship between EMI challenges and pedagogical factors among teachers of architecture at Batna-1 University. Given the nature of this research, a descriptive-correlational design was adopted using a structured questionnaire. The descriptive phase identifies EMI challenges and pedagogical factors, whereas the correlational phase investigates the relationship between the defined variables using Pearson's correlation analysis. The findings of this study show that higher levels of EMI challenges are closely related to greater consideration of pedagogical factors. Henceforth, the implementation of EMI in higher education is a crucial issue that has been investigated from multiple perspectives.

Key words: English as a Medium of Instruction (EMI); challenges of EMI; pedagogical factors; architecture teachers; higher education.

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Introduction

Over the years, the Algerian educational system has focused on two languages. Humanities and social sciences disciplines use Standard Arabic in instruction, whereas scientific and technical disciplines adopt French in teaching and laboratory contexts. In this regard, policymakers, teachers, and students adopt the same language of instruction. Accordingly, all educational policies and guidelines, as well as teaching and learning processes, are restricted to either Arabic or French.

Recently, Algerian policymakers have reformed the higher education system. They have officially adopted English as the Medium of Instruction (EMI) across all disciplines at the University. This prompt governmental decision leads to a total change in most instructional practices. EMI is an educational policy that aims to internationalise academia and improve global competitiveness (Aouadi, 2025). Supporters of this shift claimed that using English as a medium of instruction provides students with better access to global scientific literature and research, promotes their international academic mobility, and increases the attractiveness of Algerian institutions to international students (Senouci & Gacem, 2024).

However, the shift to English as a language of instruction in Algerian higher education institutions has posed various challenges for both teachers and students. From the teachers' perspective, their limited English skills and lack of English pedagogical and technical terminology affect their teaching effectiveness. From the students' perspective, their low English proficiency negatively affects content comprehension, hindering their academic development. According to Kheliel and Saaidia (2025), this transition has

faced significant challenges: many students and teachers lack sufficient English proficiency, curricula and teaching materials. Some instructors find it challenging to deliver course content effectively in English.

Teaching practices are of paramount importance in education. Content delivery and student understanding are the key elements of teaching effectiveness. Changing the language of instruction affects not only the quality of subject content but also students' academic performance. Consequently, in practice, some courses are taught in a “mixed-language” format (using Arabic, French, and English). (Kheliel & Saaidia, 2025).

EMI is using English to teach subject content in non-English speaking regions. Nonetheless, EMI supports international academic exchange, benefiting teachers and students alike; however, its implementation in specific disciplinary contexts creates tremendous challenges. This study focuses on implementing EMI in architecture education. It seeks to answer the following questions:

Q1. What difficulties do teachers face when implementing EMI in the architectural context?

Q2. What pedagogical factors are employed by teachers in the EMI architectural courses?

Q3. What is the relationship between EMI challenges and pedagogical factors?

Review of Literature

1. What is English as a Medium of Instruction?

For many years, the Algerian educational system has adopted Arabic and French as national languages in higher education institutions. In this vein, teachers and students develop their skills in these two languages based on their disciplines and streams.

However, recently, the Higher Education Ministry of Algeria has recognised the significance of English worldwide, especially in education and research. Meanwhile, policymakers have demonstrated that this international language is the most effective means of advancing Algeria's academic and professional standing globally. The shift from Arabic and French to English as a Medium of Instruction (EMI) in Algeria, initiated in September 2023, reflects a strategic move to improve internationalisation in science. While French has historically dominated, the growing recognition of English as a language of innovation and technology has sparked frequent debates over the future of academia in Algeria (Miloudi, 2025).

Additionally, Amara (2025) highlighted that the shift to EMI in Algeria aims to enhance teachers' and students' English-language proficiency and ensure mastery of subject content in English. This transition is significant as it aligns with global academic standards. It also improves the international visibility of Algerian higher education institutions.

Henceforth, the adoption of English as the official language of instruction in university classes can be seen as a crucial step toward achieving globalisation. English is widely used in science, research, and international academia. This would give Algerian students a chance to connect with the global scientific community. Universities can also benefit from this shift by adopting global standards in education and research. EMI, as a teaching approach, has been defined in various ways by many scholars.

EMI is a widely used concept in global education, but its definitions and scope can vary across research contexts and focus. EMI is commonly defined as "the use of the English language to teach academic subjects in

countries or jurisdictions where the first language (L1) of the majority of the population is not English" (Dearden, 2015, p. 2). This is the most broadly cited definition in the literature. Similarly, Macaro (2018) defined it as the use of English to teach academic subjects in non-English-speaking regions. Besides, according to Cicillini (2023), EMI is characterised by three main features: English is the language used for instruction; It is not the subject being taught; language development is not the primary concern of using EMI. This definition highlights the non-language focus of EMI in academia.

Tsou and kao (2017) stated that EMI is perceived as "a strategic decision to improve quality of education, alumni employment, publications, international academic exchange, etc., all of which contributing to the institution's international profile" (p. 4). In addition, according to Jenkins (2014), EMI is the use of English as a medium of instruction in a context where it is the language of day-to-day communication. This definition indicates that, in the EMI context, English is adopted as the dominant language of communication and is used only in the classroom by teachers and students.

In sum, the above-mentioned definitions of EMI yield different perspectives on this instructional concept. They emphasised that EMI is the use of the English language as the primary medium of instruction in educational settings where students' first language is not English. Academic institutions seek to develop an international profile when teaching domain-specific subjects in English.

2. Implementing English as a Medium of Instruction in Higher Education

EMI has become a crucial component of internationalisation in education. The shift to English-based instruction has reformed teaching practices to meet the requirements of a specific-content environment.

EMI has been widely adopted globally, particularly in higher education, as a strategy for internationalisation to enhance educational quality. Its implementation varies from one country to another, shaping different educational policies. Many academic institutions worldwide have adopted EMI to attract international students and globalise their curricula. They use English for instruction in various academic subjects, especially those in scientific disciplines. This trend stems from the belief that internationalisation can be achieved through the world's primary language (Elkhayma, 2022).

In Europe, EMI implementation began in the 1990s at the tertiary level and has since grown considerably, especially in Northern Europe (Elkhayma, 2022). Germany was the first country to establish an English university degree in 1979. By 2006, 140 higher education institutions offered English-taught programs (Ammon and McConnell, 2002). Additionally, by 2007, France had over 490 EMI courses, primarily in Master's programs across business, science, and engineering, with over 160 institutions involved (France, 2019). These programs aim to attract international students, as seen at Lille University, where English instruction has been widely used.

Similarly, EMI is highly dominant in the Netherlands and Sweden. Swedish universities listed over 100 EMI courses in 2001, with 105 out of 170 Master's programs at Amsterdam University being in English by 2009,

and nearly half at Utrecht University (Elkhayma, 2022). In the Asian context, EMI is also significant, particularly in former British colonies such as Singapore, Malaysia, and Hong Kong, which have long histories of using English in education. In Singapore, English became the official language after independence, and since 1979, EMI has been the common educational trend in almost all universities (Bolton & Botha, 2017).

Moreover, since its independence, Malaysia has used English as the language of instruction, despite having over 80 local languages (Riget et al., 2018). Along the same lines, China has actively applied EMI across various university subjects (e.g., Biology, International Trade, and Information Technology) to reinforce its global influence and attract international students, making it a prominent destination in Asia (Zhao & Dixon, 2017).

In the Middle East, EMI programs have increased significantly since the 1980s (Galloway, 2020), especially in the United Arab Emirates, Oman, and Qatar.

In many Arab educational institutions, there has been a significant shift from Arabic Medium Instruction (AMI) to English Medium Instruction (EMI) in tertiary education, particularly in science majors. This educational reform often occurs without an effective English training program, which presents considerable difficulties. This instructional shift poses several challenges for teachers, students, and institutions across content delivery, assessment, communication, teaching strategies, and overall learning outcomes (Al Zumor, 2019).

EMI implementation has been investigated in different educational contexts. As indicated above, many universities worldwide have supported English-language instruction across various courses and programs. However, the EMI literature has shown that non-English-speaking countries face

numerous challenges. Many studies reported five significant challenges facing teachers in EMI classrooms, namely (1) *teachers' language abilities*, (2) *students' low English proficiency,* (3) *engaging the class discussion,* (4) *preparation time for lectures,* and (5) *teaching resources*.

(1) First and foremost, teachers have experienced language ability difficulties related to conducting EMI courses. In other words, they face challenges in using English effectively in their domain-specific contexts. These challenges involve pronunciation, accent, fluency, intonation, grammar, and even non-verbal behavior (Klaassen & De Graaff, 2001). As noted by Wilkinson (2005), teachers encounter difficulties communicating in English, including using humor, telling anecdotes, and giving real-life examples. Additionally, Tamtam et al. (2012) found that teachers struggle to explain technical terminology and abstract concepts in English. This refers to another language factor affecting EMI classes. It can be shown that teachers' low English proficiency influences the effectiveness of EMI instructional practices.

(2) Students' low English proficiency is considered the most common challenge. Teachers noted that this linguistic factor affects learners' understanding of lectures, vocabulary, and technical concepts in English. Likewise, as Dearden (2015) argued, students often have difficulty in understanding lectures and reading English textbooks, leading them to rely on summaries and notes rather than comprehensive reading. In other words, they focus on memorisation rather than understanding key elements of content (Macaro et al., 2018). Therefore, students' low English proficiency poses a significant linguistic challenge for EMI courses.

Furthermore, (3) engaging class discussion is another important EMI challenge for teachers. They struggle to engage students in English class discussions (Yahaya et al., 2009). Students are reluctant to speak because of their low English skills. This leads them to avoid speaking, even when they know the answer. Thus, engaging students in class discussions is a significant challenge in the EMI context, which prevents them from expressing their ideas in English.

(4) Preparation time for lectures is a common EMI difficulty. As reported by Vinke (1995), EMI lectures require significantly more time than those in, for instance, French and Arabic to ensure students' comprehension. Since they use a new language of instruction, they require extra time to adjust their lessons in terms of terminology, vocabulary, assessment, and teaching strategies. When teaching for the first time, even highly proficient English speakers require more time to prepare EMI courses (Airey, 2011).

Finally, (5) limited teaching resources are considered a major instructional challenge in EMI classes (Manh, 2012). In an attempt to examine some Asian countries' educational policies, Baldauf et al. (2011) found that "funding for normal programs, the training of teachers and money for textbooks are all inadequate" (p.318).

In Algeria, the implementation of EMI encounters some challenges, as stated by teachers:

• Lack of Proficiency: A major obstacle is the low proficiency in English among both teachers and students. Many teachers adopt French-medium instruction; the shift to English instruction is considered difficult (Belhiah & Elhami, 2015)

• Curriculum Changes: Implementing EMI requires significant changes to curricula and instructional methods (Kheliel & Saaidia, 2025).

• Government Support: EMI lacks adequate government support, including the provision of necessary teaching materials, institutional resources, and financial investment for effective implementation (Kheliel & Saaidia, 2025). Due to higher education reforms, teachers require government-led EMI training to achieve effective implementation.

Another study investigated EMI implementation at the Department of Mathematics and Computer Science, University of Ain Temouchent. It found that while teachers and students generally have positive attitudes towards EMI, substantial challenges remain. These encompass limited English proficiency among students, difficulties with terminology and comprehension issues. Teachers also faced obstacles in effectively teaching in English and addressing student comprehension. Classroom observations indicated a prevalent use of translanguaging practices (mixing English, French, and Arabic), low student engagement, and limited integration of technology to support EMI (Guenaoui, 2024).

3. Pedagogical Factors in the EMI Context

Pedagogical factors are teaching-related aspects that affect the effectiveness of teaching and learning practices. They include instructional methods, classroom practices, assessment strategies, use of teaching materials, interaction patterns, and the ability to differentiate instruction to meet learners' needs.

Pedagogical factors are among the most prominent challenges affecting EMI implementation in higher education. Both teachers and students face many difficulties when adjusting teaching and learning

processes to the EMI context. The common pedagogical factors are presented as follows:

3.1. Teacher Training and Preparedness

EMI teachers often encounter challenges due to insufficient training in both language and assessment methodologies. Many are dissatisfied with English as the language of instruction because they have not received adequate training, which leads to a lack of confidence (Dearden, 2015). While some teachers have engaged in self-training or general English workshops, sufficient formal training specifically on EMI assessment still lacks (Macaro et al., 2018). This training gap affects the balance between English language and content knowledge, as well as the management of professional identities within the EMI context (Dafouz & Smit, 2016). The sudden integration of EMI into the academic institutions without enough preparation for both teachers and students is also a substantial pedagogical challenge (Airey, 2012).

3.2. Assessment Methods and Practices

Assessment is an indispensable instructional strategy in education that provides accurate information on student learning and, if necessary, teachers' instructional practices. In the EMI context, it is a crucial element for evaluating teaching programs and measuring students' current knowledge levels (Brown & Abeywickrama, 2019). However, teachers struggle with *what* and *how* to assess students, especially when assessment is based on the language of their learning (Airey & Linder, 2009).

Research indicates that most EMI teachers rely primarily on written exams, followed by oral presentations and classroom observations (Dafouz et al., 2007). Despite the significance of formative assessment in EMI classes, summative assessment (e.g., exams and final tests) is also adopted to

achieve students' final academic achievement (Macaro et al., 2018). Therefore, EMI teachers should pay close attention to how they assess student learning, taking into account their English proficiency levels.

3.3. Curriculum Design and Language Needs

EMI programs are mainly focused on delivering content knowledge rather than developing English skills (Airey, 2012). However, students' low English proficiency significantly influences their ability to understand classroom tasks and subject content, as well as to structure their answers effectively (Airey & Linder, 2009; Macaro et al., 2018). In this regard, curriculum designers should consult English for Specific Purposes (ESP) teachers to identify and address students' specific language needs in EMI courses (Dafouz & Smit, 2016). Consequently, EMI courses require adapting instructional programs to students' varied needs and skills so that they can easily understand the information.

3.4. Student Perceptions and Learning Aids

In the EMI context, students consider low language proficiency as a significant factor affecting their academic performance (Macaro et al., 2018). They also struggle with understanding assessment instructions in English (Airey & Linder, 2009) and often struggle with technical vocabulary and speaking skills (Dafouz & Smit, 2016). In this regard, a significant majority of students use learning aids such as dictionaries, grammar checkers, and spell checkers (Guenaoui, 2024). Furthermore, most students report that attending English workshops benefits their performance (Dearden, 2015). Teachers' feedback is seen as a helpful

strategy for students to identify their weaknesses in EMI assessment contexts (Hattie & Timperley, 2007).

In summary, EMI is a multifaceted educational approach widely used in academic institutions to promote globalisation in education and research. This study focuses on the implementation of EMI in Algeria and the challenges teachers face when adjusting their courses. This section provided insights into the effectiveness and limitations of using EMI in higher education. It also highlighted the challenges facing EMI teachers, particularly related to pedagogical practices. Overall, this literature review served as a foundation for examining the relationship between EMI challenges and pedagogical factors in the Algerian context.

Methodology

1. Research Design

Given the nature of this study, a descriptive–correlational research design was employed to yield accurate and trustworthy conclusions. A descriptive design identifies how teachers apply EMI teaching practices, including instructional strategies, content delivery, classroom interaction, assessment strategies, use of materials, and feedback practices. It aims to understand the pedagogical decisions teachers make and how these practices influence the overall effectiveness of EMI instruction.

On the other hand, EMI challenges reveal the difficulties teachers encounter when they use English as the language of instruction to deliver their subject content. These challenges are related to language proficiency, classroom communication, availability of teaching materials, student participation, and affective factors such as anxiety and low confidence. A descriptive design also aims to identify the barriers that make EMI implementation difficult.

The correlational design is of paramount importance in this research, as it examines the strength and direction of the relationship between pedagogical factors and EMI challenges without establishing causal relationships.

2. Participants

In this study, the population consists of ninety (90) teachers in the Institute of Architecture and Urbanism, University of Batna-1. Accordingly, a census technique was adopted. Out of the whole number of the participants, only sixty (60) teachers were interested in taking part in this research, yielding a response rate of 66.7%. They have been informed about the topic and their task, and they have provided their approval.

3. Data Collection Methods

To achieve the overall aim of this study, a structured questionnaire was administered to the target participants. The teacher questionnaire includes three sections. The first section introduces some demographic information about the participants. The second section identifies EMI challenges. It describes the difficulties teachers face in the EMI context. The third one addresses the pedagogical factors. It shows how teachers apply adaptive instructional strategies to deliver their subject content in English. Nearly all the items in this questionnaire are closed-ended questions. However, only the first and second sections include one open-ended question each.

4. Data Analysis Procedures

The data collected from the questionnaire were analysed using quantitative and qualitative procedures. Closed-ended items were described

and interpreted using descriptive statistics (frequencies and percentages), whereas open-ended items were thematically analysed to yield additional insights about the topic investigated.

To examine the relationship between pedagogical factors and EMI-related challenges, Pearson's product–moment correlation coefficient was calculated. This analytical method was used to determine the strength and direction of the relationship between the defined variables. The level of statistical significance was set at $p < .05$. The results of the correlation analysis were presented and interpreted according to standard criteria for the strength of correlation.

Results and Discussion

1. Data Analysis and Interpretation

Section One: Demographic Information

Table 1. Background Information

Background Information				
Gender	***Male***		***Female***	
	15		***45***	
Age	***25-35***	***35-45***	***45-55***	***55+***
	5	***30***	***20***	***5***
Academic rank	***Assistant professor (Level A)***	***Associate professor (Level B)***	***Associate professor (Level A)***	***Professor***
	25	***20***	***10***	***5***
Teaching experience	***1-5***	***6-10***	***11-15***	***16+***
	10	***8***	***20***	***22***

Table 1 presents the participants' background information. Most of the teachers are female. Based on the results, the study includes teachers aged 35-45 years, representing mid-career professionals. Most of them are assistant professors (level A) with more than 16 years of teaching experience at the Institute of Architecture and Urbanism, Batna-1 University.

Table 2. Levels of teaching

Levels	First year	Second year	Third year	Master one	Master two	More than one level
Number of teachers	10	8	0	5	5	32

The table above shows the different teaching levels. Most of the respondents selected more than one level. This demonstrates that teachers prefer teaching a variety of subjects, especially those who have experience in their specialty.

Table 3. English proficiency levels

English proficiency levels	Beginner (A1-A2)	Intermediate (B1)	Upper-intermediate (B2)	Advanced (C1)	Proficient (C2)
Number of teachers	10	35	15	0	0

Table 3 displays teachers' levels of English proficiency. A large majority of participants have B1 and B2 levels, whereas some of them have A1-A2 levels. The results reveal that architecture teachers have a certain level of English language proficiency.

Table 4. Identifying teachers' mediums of instruction

Mediums of instruction	French	English	Arabic	Mixed languages

Number of teachers	15	5	0	40

Table 4 presents the different media of instruction used by teachers to deliver architectural content. According to the results, a majority of respondents use mixed languages, while some adopt French as the medium of instruction. However, only few teachers reported using English as the medium of instruction. Thus, most teachers code-switch between English, French and Arabic, if necessary, to ensure students' understanding.

Table 5. EMI teaching experience

Years of EMI teaching experience	***Less than 1 year***	***1 year***	***2 years***	***3 + years***
Number of teachers	15	3	12	9

This item targeted only teachers with prior EMI teaching experience. As shown in the table above, nearly half (15) of the participants have used EMI for less than 1 year, and some (12) have adopted it for 2 years. Only 3 respondents have applied for 1 year. However, 9 teachers have been implementing EMI for more than 3 years. Therefore, it can be seen that only a few teachers have experience in using EMI in their classes.

Table 6. Training in EMI teaching

Training in EMI teaching	***Yes***	***No***

Number of teachers	15	24

As indicated in the table above, a majority of participants did not receive any EMI teaching training programmes. However, few said they have received.

Those who said 'yes' were asked to specify the type and length of the training. The results show that only a few teachers participated in a one-year hybrid EMI training program that combined online modules with in-person workshops. It emphasises pedagogical approaches for teaching academic content in English.

Section Two: EMI Challenges

Table 7. Challenges in explaining architectural content in English

Response category	***Not at all***	***Slightly***	***Moderately***	***Significantly***	***Extremely***
Percentage (%)	*0%*	*3.1%*	*61.5%*	*15.4%*	*0%*

Table 7 shows that over half of the respondents (61.1%) face moderate difficulty in explaining architectural content in English. The results reveal that teachers struggle with this linguistic factor in EMI classes.

Table 8. Students' challenges in understanding content delivered in English

Response category	***N ever***	***R arely***	***Som etimes***	***Ofte n***	***Al ways***

Percentage (%)	*0 %*	*7 .7%*	*30.8 %*	*46.2 %*	*15. 4%*

As shown in Table 8, a large majority of participants (92.4%) reported that students most of the time struggle to understand subject content delivered in English. However, (7.7%) stated that they rarely face this difficulty in EMI classes. Thus, it is evident that students find it challenging to understand their lessons in English.

Table 9. Effect of EMI on students' willingness to participate in class discussions

Response category	***N ot at all***	***S lightly***	***Mod erately***	***Signif icantly***	***Ext remely***
Percentage (%)	*1 5.4%*	*2 3.1%*	*15.4 %*	*38.5%*	*7.7 %*

Table 9 indicates that a considerable proportion of participants (38.5%) reported that EMI significantly affects students' willingness to participate in class discussions. The results demonstrate that EMI considerably affects students' classroom interaction.

Table 10. Effect of students' low English proficiency on teachers' instructional practices

Response category	***N ot at all***	***S lightly***	***Mod erately***	***Signif icantly***	***Ext remely***

Percentage (%)	*0 %*	*7 .7%*	*38.5 %*	*46.2%*	*7.7 %*

Table 10 displays that nearly half of the participants (46.2%) showed that students' low English proficiency significantly influences teachers' instructional practices. This suggests that students' low English proficiency has a substantial effect on EMI teaching practices.

Table 11. Students' challenges in understanding architectural terminology

Response category	***N ever***	***R arely***	***Som etimes***	***Ofte n***	***Al ways***
Percentage (%)	*0 %*	*1 5.4%*	*46.2 %*	*23.1 %*	*15. 4%*

Table 11 shows that almost half of the respondents (46.2%) stated that students sometimes struggle to understand architectural terminology, whereas none reported that students never struggle. The results demonstrate that students find it difficult to comprehend architectural concepts.

Table 12. Effect of students' anxiety or lack of confidence on their learning in EMI classes

Response category	***N ot at all***	***S lightly***	***Mod erately***	***Signif icantly***	***Ext remely***
Percentage (%)	*8 .3%*	*1 6.7%*	*33.3 %*	*41.7%*	*0%*

As shown in Table 12, a considerable number of respondents (41.7%) reported that students' anxiety or lack of confidence significantly affects their learning in EMI classes. This means that anxiety and lack of confidence are the psychological factors affecting students' learning in the EMI class.

Table 13. Effect of the lack of English teaching materials on EMI instructional practices

Response category	***Not at all***	***Slightly***	***Moderately***	***Significantly***	***Extremely***
Percentage (%)	*0%*	*3.1%*	*30.8%*	*30.8%*	*15.4%*

As shown in Table 13, a large proportion of respondents (77%) reported positive views regarding the 'effect of the lack of English teaching materials on EMI instructional practices'. The results suggest that the lack of English teaching materials significantly affects EMI instructional practices.

Table 14. Assessment challenges in EMI classes

Response category	***Not at all***	***Slightly***	***Moderately***	***Significantly***	***Extremely***
Percentage (%)	*15.4%*	*3.1%*	*46.2%*	*15.4%*	*0%*

Table 14 shows that a large proportion of participants (46.2%) have challenges in assessing students' learning in EMI classes. Thus, the findings

demonstrate substantial instructional difficulties in the EMI classroom assessment.

In the next item, the participants were asked to add some EMI-related challenges; they mentioned the following:

- Students master English, but they do not use it in their domain-specific learning contexts.
- Motivation-related problems.
- When the teacher uses code-switching, they get tired. This would affect the efficiency of the English language.
- Lack of student willingness during EMI classes.
- Balancing scientific precision with linguistic accessibility.
- Limited English-language textbooks for architecture/urban planning in the Algerian context.
- Covering less content due to variations in students' English proficiency levels.
- Lack of communication.

Section Three: Pedagogical Factors

Table 15. Descriptive analysis of pedagogical factors

Statement	Percentage %				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I prepare my lessons with attention to students' English proficiency levels.	0%	1 5.4%	2 3.1%	3 0.8%	3 0.8%

I employ diverse teaching strategies to explain my subject content in English	%	7.7	1	0	3	3
		5.4%	%	8.5%	8.5%	
I integrate visual aids to facilitate the content for all students	%	7.7	0	1	3	4
		%	5.4%	0.8%	6.2%	
I encourage active interaction and communication with students during class	%	7.7	7.	1	1	5
		7%	5.4%	5.4%	3.8%	
I use group work or pair work to encourage student interaction.		0%	4	1	1	2
		6.2%	5.4%	5.4%	3.1%	
I consider students' English proficiency levels when evaluating their performance.		0%	7.	3	2	3
		7%	8.5%	3.1%	0.8%	
I provide feedback that helps students improve their English proficiency and subject comprehension.	%	7.7	7.	1	3	3
		7%	5.4%	0.8%	8.5%	
I use strategies that help students develop both content	%	7.7	1	2	2	3
		5.4%	3.1%	3.1%	0.8%	

knowledge and English skills.					
EMI increases workload and stress levels.	0%	1 5.4%	3 0.8%	4 6.2%	7. 7%

As shown in the table above, a majority of respondents (62%) have a positive tendency towards statement 1, indicating that teachers consider students' varied English skills when preparing subject content.

Statement 2 also shows the same trend, with 77% of participants agreeing with it. The results demonstrate that EMI teachers differentiate their teaching strategies to facilitate the delivery of content to all students.

The same table presents responses to statement 3; the results indicate that a large majority of participants (77%) reported strong agreement with integrating visual aids to facilitate the content for all students. It can be seen that teachers use instructional techniques, such as visual aids, in the EMI classes.

Similarly, statement 4 shows a higher level of agreement (69%), suggesting that teachers support EMI classroom interaction.

In contrast, statement 5 demonstrates that there is no clear tendency regarding the use of group or pair work to encourage student interaction. The table indicates that nearly half of the participants disagreed (46.2%) with this statement, while a considerable proportion (38.5%) agreed. However, very few (15.4%) remained neutral. Overall, the results reveal that teachers hold different views on the use of the grouping strategy in the EMI context.

Statement 6 shows that half of the respondents (54%) expressed positive views toward considering students' English proficiency levels when evaluating their performance, while some (38.5%) maintained a neutral

stance. The results suggest that teachers tailor performance evaluations to students' varied English skills.

As indicated in the table above, most participants (69.3%) strongly agreed that providing feedback helps students improve their English proficiency and subject comprehension (statement 7). This demonstrates that a considerable number of teachers support the use of feedback as an effective strategy in the EMI context.

Concerning statement 8, half of the respondents (54%) supported using strategies that help students develop both content knowledge and English skills. The results suggest that teachers tend to adopt significant teaching strategies addressing the EMI context.

Finally, statement 9 indicates that half of the respondents (54%) agreed that EMI increases workload and stress levels. This reveals that teachers face some challenges in EMI use.

1.1. Results of the Pearson Correlation Analysis

Table 16. Pearson Correlation Between EMI Challenges and Pedagogical Factors

Variable	M	SD	EMI challenges	Pedagogical factors
			Pearson correlation coefficient (r)	
EMI challenges	7 5.3	8 .4	1.00	.43**
Pedagogical factors	6 8.7	1 0.2	.43**	1.00

Note. M = mean; SD = standard deviation; r = Pearson correlation coefficient.

* Correlation is significant at the 0.05 level (two-tailed).

Table 17. Classification of Correlation Strength Based on Absolute r Values

Class	Range _ absolute values
Not correlated	< 0.1
Weak	0.1 to 0.2
Moderate	0.2 to 0.5
Strong	> 0.5

(Cohen, 1988)

Descriptive statistics for the two variables indicated that the mean score for EMI Challenges is 75.3 (SD = 8.4) and for Pedagogical Factors is 68.7 (SD = 10.2), as presented in Table 16. Pearson's correlation analysis showed a moderate positive relationship between EMI challenges and pedagogical factors ($r = .43$, $p < .05$). The results indicate that higher levels of EMI challenges are associated with greater consideration of pedagogical factors.

2. Discussion of the Results

This study examined the relationship between pedagogical factors and EMI challenges. The data were presented and interpreted using descriptive statistics to identify EMI challenges and pedagogical factors, as perceived by architecture teachers at Batna-1 University. The results indicate that although teachers have a certain level of English, they code-switch between English, French, and Arabic, and only a few have received training.

This study presented the challenges affecting teachers' EMI implementation. They refer to difficulties in explaining architectural content, understanding English-language content, and participating in class discussions. Students' low English proficiency significantly affects teachers' instructional practices, and they also struggle to understand architectural terminology. The psychological factors, such as anxiety and lack of confidence, considerably affect students' learning in EMI classes. Besides, EMI assessment and the lack of teaching materials are other factors affecting EMI implementation in the architectural context.

The findings of this study are consistent with previous investigations that have revealed the importance of pedagogical preparedness for the successful implementation of EMI. Many studies have reported that insufficient pedagogical training and limited experience with EMI often increase the instructional challenges. Dearden (2015) reports that a significant proportion of EMI teachers worldwide lack sufficient instructional preparation through continuous professional development, and this pedagogical gap impedes the effective implementation of EMI and increases teaching difficulties. This is due to the fact that teachers struggle to deliver the content effectively in English without pedagogical and language support. Besides, Al Zumor's (2019) study examined the challenges of using EMI in teaching and learning scientific disciplines. The findings reveal that using English as the primary language of instruction for science content significantly reduces students' comprehension.

Additionally, according to him, students stressed that the main reason for failure on assessment tasks is the use of English as the language of

testing; therefore, they cannot perform well in academic examinations (Al Zumor, 2019). Along the same lines, Khenioui and Boulkroun (2023) find that low levels of English proficiency, the lack of appropriate teaching materials, and the rapid shift to English are significant challenges in the EMI context. All the above-mentioned findings are compatible with those identified in the present study.

Based on the descriptive statistics, Pearson's product–moment correlation coefficient was calculated to investigate the relationship between the defined variables. The findings demonstrated a statistically significant relationship between the two variables, indicating that pedagogical practices are closely related to the challenges teachers face when using EMI.

The significant positive correlation reveals that as pedagogical factors increase, EMI challenges also escalate. The findings show that limitations in teaching strategies, classroom interaction, and assessment practices can exacerbate challenges related to functional language, content delivery, and student comprehension in EMI classes.

Conclusion

English-medium instruction is widely used in academic institutions worldwide. It refers to teaching academic subjects in non-English-speaking regions. This approach is increasingly considered vital in higher education, particularly in scientific and technical fields, for internationalising research, enhancing teachers' professional skills, and advancing students' academic careers. In addition, implementing EMI in higher education poses tremendous challenges for teachers and students alike.

This paper has introduced a worthwhile topic in EMI research. It aimed to examine the relationship between pedagogical factors and EMI challenges among architecture teachers at Batna-1 University. The findings

demonstrate that the pedagogical practices are closely related to the difficulties encountered in EMI contexts. This means that when teachers adapt their lessons to EMI contexts, they face many challenges that impede the effectiveness of this teaching approach, including low English proficiency, difficulties in explaining architectural content, in engaging students in class discussions, and in using appropriate teaching strategies. Classroom assessment is another crucial factor in the EMI environment.

To overcome these hurdles, certain guidelines should be considered when using English in discipline-specific contexts. First and foremost, both teachers and students should have a certain level of English proficiency to engage effectively in an EMI environment. Academic institutions should plan EMI training programs. Trainers have to provide them with linguistic support and pedagogical guidance, focusing on EMI teaching strategies, classroom interaction techniques, academic English use, and classroom assessment strategies. Henceforth, such training would enhance teachers' confidence in delivering content in English and in adapting their lessons to students' needs. By addressing both language proficiency and pedagogical preparedness, institutions can reduce EMI-related challenges and promote more effective instructional practices.

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