




# Perceptions of doctoral students towards English as a medium of instruction

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**Citation:** Hamzaoui, C. (2025). Perceptions of doctoral students towards English as a medium of instruction. *Mediterranean Journal of Social & Behavioral Research*, 9(2), 29-37. <https://doi.org/10.29333/mjosbr/17061>

## ABSTRACT

The implementation of English as a medium of instruction (EMI) is a needed asset and an established practice at universities worldwide, and today, there is a burgeoning interest in how it is perceived. This paper explores the perceptions of science and technology doctoral students towards the use of EMI instead of French, the 'default' medium of instruction in Algerian higher education. The study at hand uses an online Likert scale questionnaire administered to 28 students in three alternative Algerian universities. The main results revealed that the students display strong positive perceptions towards adopting EMI instead of French. Some reasons behind this penchant embrace the fact that English is highly required to improve the quality of education and scientific research, the need to conduct research, write articles and use updated references, the desire to pursue postgraduate studies abroad, and the intention to have an edge in the job market. Another interesting result is that the students seemed unsatisfied with the way the initiative was implemented, because they were not qualified for such a sudden propensity. Subsequently, the paper ends with some conclusions and implications where there is a need to raise the students' awareness on the importance of EMI, and create a synergy involving subject matter instructors, English language teachers, policy makers and language planning experts to prepare a comprehensive plan that will help enhance it in higher education.

**Keywords:** Algerian higher education, doctoral students, English as a medium of instruction, perceptions

Received: 11 Jun. 2025 ♦ Accepted: 06 Sep. 2025

## INTRODUCTION

There has been an ongoing debate on the implementation of English as a medium of instruction (EMI) in the Middle East and North Africa, and notably in Algeria. Background increasingly, non-English speaking countries use EMI to teach academic subjects (Yang et.al, 2019). EMI is a term used to denote "the use of English to teach academic subjects other than English itself in countries or jurisdictions where the first language of the majority of the population is not English" (Macro, 2019, p. 19) as cited in Galloway and Rose (2021, p.4). At present, Algerian authorities have become aware of the supremacy of English in all fields of international life, particularly in the field of higher education and academic research due to its global status. Crystal (2003) supports this idea stating that "English has become the normal medium of instruction in higher education for many countries—and is increasingly used in several where the language has no official status" (p. 112).

As English has long become the first world's language, the approach to its learning and teaching has also witnessed a stellar progress. Crystal (2012) as cited in Tanjung et al. (2021) "has pointed out that today English is the leading international language" (p. 489-490). Today,

English has gained more importance than ever among Algerian university students. However, this language is used differently in higher educational institutions, and students and educators alike encounter serious learning and academic challenges due to the languages' rivalry, notably Arabic, French and English. In Algeria, where the dominant languages of instruction have historically been Arabic and French, the transition to EMI poses significant pedagogical and linguistic challenges. In a recent study conducted by Alanazi and Curle (2024) on the challenges experienced by students studying medicine through EMI, the results revealed that students encountered numerous challenges when studying medicine through EMI including reading medical materials, understanding lectures taught purely in English, delivering presentations and speaking fluently. Notably, these challenges were more salient in the students' first or second years of their university studies; yet they dissipated as students progressed in their studies. Similarly, "in Algeria, where the dominant languages of instruction have historically been Arabic and French, the transition to EMI poses significant pedagogical and linguistic challenges" (Sahki, 2025 p. 195). No one denies that the majority students receive their education in Arabic or French, and the introduction of EMI raises major concerns about their ability to succeed in courses taught exclusively in English (Senouci & Gacem, 2024). Another challenge lies in the lack of

preparedness of teachers and students to the sudden shift to English at tertiary level. In fact, the Algerian government has recently implemented a new policy for the sake of empowering the use of EMI instead of French in the Algerian higher education sector and more specifically in the field of medical sciences. Recent studies highlight that students in medical-related EMI programs frequently struggle with the high linguistic demands of medical terminology, which is often less familiar and more complex than general language use (Huang et al., 2024). These linguistic obstacles can lead to crucial misunderstandings in both learning and practical applications, affecting student outcomes negatively.

Nowadays, the visibility of the policies and practices makes us question the future of English in Algeria and its perception among students of science and technology. This situation has indeed created contradicting perceptions as some students and educators favor English supremacy while others oppose it. The *Englishization* of higher education and scientific research often results in contradicting attitudes and perceptions among students and researchers, towards the use and learning through EMI. This article explores the perceptions of science and technology doctoral students regarding the use of EMI instead of French, the 'default' medium of instruction at Algerian universities. The higher educational sector is considered one of the central sectors for a country's growth and development since it permits students to contribute to economic, social and cultural development. This study uses an online Likert scale questionnaire administered to 28 students in three discrepant Algerian universities and attempts to answer the following research questions:

What are students' perceptions on the implementation of EMI instead of French at higher education?

1. How do students perceive the sudden adoption of EMI policy by the government and which challenges do they encounter?
2. What reasons stand behind students' perception of English as an important language for studying and conducting research at higher education?
3. The results of the present study will provide answers to the aforementioned research questions and supply decision makers with useful recommendations regarding the use of EMI in the field of science and technology.

## THEORETICAL BACKGROUND

### English and EMI in Algeria

The language landscape in Algeria has often been characterized by the rivalry among Arabic, Berber, French, and English. Talking about the competition between foreign languages (French and English), French still enjoys the place of second foreign language in Algeria because of political, historical and economic reasons, and despite the deep-rootedness of French, there seems to be a serious competition between this language and English. This latter is gaining ground in the education sector and the debates about the language policy orientations of the country. The Algerian Ministry of Education proclaimed educational reform in 2001, and since then, many changes have occurred in the teaching of English. It is actually taught as a second foreign language in Algeria, alongside French.

The provision of English starts from the third grade of basic education in public schools, then four years in middle schools followed

by three years in high schools. Pupils study English in secondary education until they are awarded the Baccalaureate diploma. "In the British Council's 1984 report, a comprehensive sociolinguistic profile of English in Algeria described English as a third language" (Belmioub, 2017, p. 4).

According to Benrabah (1999), the Algerian government tried in the mid-1990s to substitute French with English in fourth grade in some schools by proffering English as an option alongside French. However, this experimental program collapsed as most parents selected French over English. Benrabah (1999) vindicated that one reason for parents' repudiation of English was their discernment that French was easier to acquire and was more useful for the socioeconomic prosperity of Algeria.

In present times, while considering the crucial position that English enjoys in the world and its central role as a language of science, one may feel the scale of the recovery the Algerian higher education will endure because of the massive presence of this language, especially in 'science and technology' streams. "English is believed to be the language of science and technology; it helps increase the quality of education and promotes social and technological progress" (Hamzaoui, 2021, p. 185).

It seems that English will finally gain a foothold in the Algerian higher education sector and play a key role in improving it. Moreover, to attain internationalization, western universities like German, French, British, Hungarian, and Polish adopt English as a means of instruction. These institutions also look for partnership with institutions in the target countries, such as Algeria through *Erasmus project* (Murata, 2019). There seems to be an unyielding credence that internationalization can only occur through the first world's language education or through what Galloway et al. (2017) call 'education through English'. Abdeljaoued (2023) continues acknowledging, "Over the years, EMI has become more prevalent in higher education institutions worldwide. It is no longer a vogue but a necessary currency to join the wagon of unrestrained internationalization" (p. 1).

In a more recent study conducted by Messeded (2023) where he explored lecturers' attitudes towards learning English in Blida 2 University, the results showed that the "participants have a very positive attitude towards their learning experience" (p. 35). In another study conducted by Maraf (2024) entitled "English language policy in Algeria: Perspectives of university teachers and students", and in accordance with the Algerian government's opinion of the significance of English in education and in doing business, the university students shared the same opinion with the government; 128 participants out of 200 strongly agreed that English should be the first foreign language in Algeria, and 87 participants wanted to have more presence of the English language in Algeria in the domain of education.

However, the major challenges students encounter when receiving their education through English have to do with their incapacity to access scientific references in this language and continue their studies abroad in universities that adopt EMI. Ennaji (1991) claims that "A good number of university students and researchers must learn English to be able to read the English references relevant to their specialty" (p. 21).

Interestingly enough, a new tendency in Algerian higher education known as EMI has been gaining traction in recent years. EMI refers to the use of the English language as the primary medium of instruction in educational settings where students' mother tongue is not English. To be more explicit, it is a context where learners are taught academic

content in a language that is not their mother tongue, and that language is used as the primary medium of instruction (Macaro, 2018).

EMI has emerged as an irresistible force in the Algerian higher education system. There has been many trials from the government to substitute French with English. Therefore, the idea of swapping to English is not new. Harraoubia (2010, as cited in Maarouf, 2022, p. 69) revealed that "his department was working seriously on the possibility of introducing English instead of French in universities, especially in scientific and technological branches". The ex-minister Tayeb Bouzid took an official step by publishing his proposal on his Facebook page on August 20, 2019. He stressed the importance of English in universities and in scientific research (Maarouf, 2022).

Algerian policy makers, in their efforts to internationalize and modernize the nation's education system, have admitted the value of English language competency and the advantages of receiving education in English. In this context, the use of EMI is considered as a way to increase the quality of education, improve the competitiveness of graduates in the global job market, and enhance the interest of Algerian universities to international students and scholars (Ouarniki, 2023).

### English and EMI Among University Students

Borni (2017, as cited in Belmihoub, 2017) explored the ability of Algerian students to report on their daily activities; the results revealed that 76% have the capacity to do so well. Another worthwhile result is 96% of the participants communicated the hegemony of French because of colonization, and 86% agreed and strongly agreed that if English were to gain the status of first foreign language, Algerians would use it more than French (Belmihoub, 2017). In relation to Algerian students who study in countries like Canada (2%), France (84%), United States, and Malaysia (14%), Belmihoub (2017) points out the following:

These students are usually proficient in English for the purposes of their education. For instance, I know of three Algerian students in the United States and they come from Algiers and Constantine, two of Algeria's largest cities. It is usually urban youth as is the case with these three students who are most proficient in English and study abroad in non-French or MSA speaking countries (p. 8).

The central role English plays in the Algerian context illustrates its massive demand and diffusion among university students since most of them want to study abroad and have better job opportunities. According to Hamzaoui (2021), students are supposed to submit at least a summary in English to get their final diplomas. Nevertheless, there is a need to learn English efficiently since most of them face language flaws when trying to publish articles in English (Hamzaoui, 2021).

A notably increasing number of universities around the globe have been in a hurry to deliver undergraduate and graduate degrees through EMI (Earls, 2016; Lasagabaster et al., 2014). The most covered theme of research on EMI is the focus on the perception of students and teachers alike (Lei & Hu, 2022). A worthwhile focus of research on learners' perception entailed the motivations, and satisfaction with the provision of content using EMI, and the attitudes towards EMI.

Denman and Al-Mahrooqi (2019) reflected upon the perception of students at Omani universities and emphasized on the experience of translanguaging and the possible impact of EMI on Arabic identity. Respondents pinpointed various benefits of EMI, encompassing

enhancing career prospects and promoting communication in education and workforce contexts. Likewise, Spanish students in Lasagabaster's (2022) study favored EMI. They also accounted for the new horizons and employment opportunities that EMI opens for them. Ellili-Cherif and Alkhateeb (2015) deduced that universities have implemented EMI to aid their students find a better employment right after their graduation.

Orfan and Seraj (2022) reported that the Afghan students had a positive attitude towards EMI. Over 70% of the respondents related English to high status. They also claimed that Afghani country generally praises people who study in EMI programs. Additionally, more than 80% of the respondents felt English and EMI more prestigious. Another key result was that 72% of the respondents aptly stated that taking courses in EMI was essential even if they obtained low grades. In Badwan's (2019) study, Tunisian students admitted their ability to bring their English to the requested level needed for EMI courses if their teachers shift to English. Over 85 students reported that EMI would make their university diplomas more acknowledged worldwide (Badwan, 2019).

At tertiary level, there are driving forces that push Algerian universities to adopt EMI policies. EMI has gained popularity in Algeria recently. The government has developed an explicit policy to regulate the status of English at universities particularly in science, technology, engineering and mathematics fields. However, the effects of EMI at higher levels of education are less well-documented, particularly when it comes to learning outcomes in non-language subjects" (Airey, 2016, p. 76), and the shift from French-medium of instruction to EMI should be progressive. Badwan (2019) requested a smooth transition by proposing partial EMI programs while suggesting a transition period of intensive English classes at the onset of the academic program. This seems a reasonable course of action since Algerian students already have this linguistic surge where the teaching of subjects like physics and mathematics precipitously swaps from Arabic at secondary school to French and more recently English at tertiary level without any predispositions.

Kadri (2023) scrutinized medical Algerian university students' attitudes towards the use of EMI. The students were positively inclined towards using EMI at university and felt motivated to study their subjects' content in English. However, she concluded that the students possessed a limited proficiency in English and required language-training courses in English to improve their proficiency in English before switching to EMI. Algerian engineering students in Saidani and Afkir's (2023) study displayed positive attitudes towards content comprehension. Nevertheless, these students expressed negative attitudes towards trilingual practices in EMI classrooms (Arabic, French, and English). Another key result is that the students revealed improvement in their English skills and content knowledge.

It is worth noting that English language proficiency differs from one country to another. To illustrate, Korean engineering students in Kim et al.'s (2017) study felt weak, even vulnerable, about their English capacity, with a striking proclivity for Korean-medium instruction over EMI. They also did not feel the analogy between their English capacity and EMI. The present study draws on Algerian students' perception regarding the use of EMI.

**Table 1.** Personal information of the participants

Number and percentage of respondents				Total
Age	< 25	25-30	30-40	> 40
	6 (21.43%)	14 (50.00%)	5 (17.85%)	3 (10.72%)
Gender	Male		Female	
	10 (35.72%)		18 (64.28%)	
University	University of Ain-Temouchent		University of Oran	
			University of Tlemcen	

**Table 2.** Students' EMI perception instead of French

Statement	Strongly agree	Agree	Strongly disagree	Disagree	Neutral
1. English should be adopted as a language of instruction in HE.	18 (64.30%)	6 (21.42%)	2 (7.14%)	0 (0.00%)	2 (7.14%)
2. The use of English will improve the quality of education and scientific research.	15 (53.60%)	7 (25.00%)	3 (10.71%)	1 (3.57%)	2 (7.14%)
3. EMI programs help improve students' English proficiency.	17 (60.71%)	6 (21.42%)	1 (3.60%)	1 (3.60%)	3 (10.71%)
4. EMI is an authentic way to learn English.	14 (50.00%)	6 (21.42%)	2 (7.14%)	3 (10.71%)	3 (10.71%)
5. I prefer to be taught all subjects in French.	5 (17.85%)	2 (7.14%)	15 (53.60%)	6 (21.42%)	0 (0.00%)
6. I prefer to be taught all subjects in English.	14 (50.00%)	10 (35.71%)	1 (3.60%)	2 (7.14%)	1 (3.60%)
7. I think EMI is important and offers more job opportunities in the future.	16 (57.14%)	8 (28.57%)	0 (0.00%)	2 (7.14%)	1 (3.60%)
8. English is highly needed in my future career.	16 (57.14%)	8 (28.57%)	1 (3.60%)	1 (3.60%)	2 (7.14%)
9. French is no more useful in the field of science and technology.	17 (60.71%)	9 (32.14%)	1 (3.60%)	0 (0.00%)	1 (3.60%)
10. English is actually a threat to French, the language of the ex-colonizer.	15 (53.60%)	8 (28.57%)	2 (7.14%)	2 (7.14%)	1 (3.60%)

## Participants and Methodology

The aim of this study is to scrutinize science and technology doctoral students' perceptions regarding the use of English- medium of instruction in Algerian universities. The study relied on a five-point online Likert scale questionnaire to detect the students' perceptions regarding the use of EMI. 28 students who were selected on purpose participated in this study: 18 females (64.28%) and 10 males (35.72%). The reason behind choosing a purposive sampling is that the researcher decides what needs to be known and sets out to find participants who can and are willing to provide the information by virtue of knowledge or experience (Bernard, 2002).

The selected subjects were pursuing their doctoral studies at the University of Ain-Temouchent, Belhadj Bouchaib, the University of Tlemcen, Abou Bekr Belkaid, and the University of Oran, Esenia. The rationale behind selecting these three universities is the easy access to them since they are not very far from one another and all three are situated in the Northwest of Algeria. Moreover, the first institution is the researcher's place of work; the second institution is located in the researcher's hometown and she has already studied there, and the last one is not very far from them and this has facilitated the task for the researcher to get in touch with the participants and gather data from them in due time.

The questionnaire is divided into four sections. Section A asks for demographic information about the students (e.g., gender, age, and university). Section B asks students about their perceptions on the current implementation of EMI in their studies and research instead of French as a medium instruction. Section C delves into how students perceive the sudden adoption of an EMI policy in Algerian higher education and the different challenges encountered after its implementation. Section D explores the reasons behind students' perception of English as an important language for studying and conducting research at higher education. Students were also provided with an open-ended question at the end of the questionnaire asking them to write down any further comments that they might have about the EMI policy. The data gathered were analyzed using a mixed-methods approach involving quantitative and qualitative approaches.

## DATA ANALYSIS AND DISCUSSION

For the online questionnaire, students' replies were analyzed through descriptive statistics. Replies in a Likert scale were uploaded to Google Form to analyze them and obtain descriptive statistics. The data were analyzed through a mixed-methods approach. The quantitative data were reported in tables. Descriptive statistics measured respondents' perceptions of EMI, its implementation, its importance and the different challenges encountered. The qualitative data were also reported after each table.

**Section A.** Any research needs to begin with the participants' profiles since demography can account for the orientation of the participants' replies. This section is devoted to personal information about the participants.

**Table 1** provides demographic information about the respondents (e.g., gender, age, and university). The sample consists of 28 doctoral students studying science and technology and more particularly in civil engineering and biology streams. The number of females (18) exceeds that of males (10). The age variable ranges between less than 25 and more than 40 years old. The respondents were from different universities situated in the west of Algeria, namely the university of Ain-Temouchent, the university of Tlemcen, and the university of Oran. They were selected on purpose as these respondents showed great interest in the issue raised by the researcher.

**Section B.** This section is devoted to the students' perception on the current implementation of English as a medium instruction in their studies and research instead of French, the *default* medium of instruction in scientific and technical streams in Algerian universities.

This section answers the first research question pertaining to the students' perception of adopting EMI instead of French. **Table 2** delineates the number of participants in each perception statement along with corresponding Likert scale option responses. There is a high level of agreement about the utility and the adoption of EMI in higher education in the future. The statement 'the use of English will improve the quality of education and scientific research' received a great value with 15 respondents rating (53.6%) who strongly agree and seven participants rating (25%) who agree. However, the minority



**Table 3.** Students' reported perception on EMI implementation and the challenges faced

Statement	Strongly agree	Agree	Strongly disagree	Disagree	Neutral
1. The swap from French to English should be progressive.	26 (92.85%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (7.14%)
2. The success of EMI adoption in higher education requires time and resources.	25 (89.28%)	2 (7.14%)	0 (0.00%)	0 (0.00%)	1 (3.60%)
3. The sudden adoption of EMI has triggered various challenges to both teachers and students.	18 (64.30%)	5 (17.85%)	1 (3.60%)	2 (7.14%)	2 (7.14%)
4. Students and teachers have difficulty with study content due to their lack of proficiency in English.	17 (60.71%)	5 (17.85%)	1 (3.60%)	3 (10.71%)	2 (7.14%)
5. EMI should be introduced starting from primary school.	16 (57.14%)	8 (28.57%)	1 (3.60%)	2 (7.14%)	1 (3.60%)
6. Teachers tend to always switch to either Arabic or French because they do not master English.	10 (35.71%)	15 (53.57%)	0 (0.00%)	2 (7.14%)	1 (3.60%)
7. Teachers lack the necessary pedagogical skills to effectively teach in English.	18 (64.30%)	7 (25.00%)	0 (0.00%)	1 (3.60%)	4 (14.28%)
8. Students lack the language skills needed to understand the courses in English.	12 (42.85%)	15 (53.57%)	0 (0.00%)	2 (7.14%)	1 (3.60%)
9. References in English are not sufficient.	11 (39.28%)	16 (57.14%)	1 (3.60%)	1 (3.60%)	1 (3.60%)

participants rating 10.71% and 3.57%, respectively, strongly disagree or disagree and only two participants rating (7.14%) remained neutral. This shows the students' awareness of the importance of English in their studies and research. 10 students reported the following "we are highly optimistic and quite sure that English will improve the quality of education since most of us show low standards in French".

Statement 3 also receives importance since most respondents rating (60.71%) strongly agree that EMI programs help improve students' English proficiency while only a small scale of students rating (3.6%) strongly disagree and disagree and three respondents rating (10.71%) remained neutral. The statement 'EMI is an authentic way to learn English' gains strong agreement from half of the respondents rating (50%). Six respondents rating (21.42%) agree on this statement and a few rating (7.14%) and (10.71%) respectively either strongly disagree or disagree while a similar rate (10.71%) as those who agree stayed neutral.

Statement 5 seeks to see whether students prefer to be taught all subjects in French. To my surprise, here again the majority of students rating (53.6%) strongly agree on this statement while a minority rating 17.85% and 7.14% strongly disagree and disagree while no one remains neutral. This shows the students' inclination towards English rather than the language of the ex-colonizer. As opposed to statement 5, statement 6 seeks to know whether students prefer to be taught all subjects in English, and here again, there was a strong desire to study in English as 14 participants rating (50%) strongly agree and 10 participants rating (35.71%) agree. Following these results, students favor EMI instead of French and hold strong positive attitudes towards it (Kadri, 2023; Lasagabaster's, 2022; Saidani & Afkir, 2023). Most students revealed that "French is not the needed language in our studies as it doesn't fit our objectives".

The statement 'I think EMI is important and offers more job opportunities in the future' receives strong agreement with 16 participants rating (57.14%) who strongly agree, 8 participants rating (28.57%) who agree and no one strongly disagrees. This clearly shows the importance of English in students' future professional career and improves the competitiveness of graduates in the global job market (Cherif & Al Khateeb, 2015; Ouarniki, 2023). The respondents focused the importance of EMI stating, "EMI is very important since English is the language of wider communication and technology progress, and we really need it in the future".

As for statement 8, which stipulates 'English is highly needed in my future career', nearly similar results as statement 7 were obtained. Here again, 16 participants rating (57.14%) strongly agree and eight participants rating (28.57%) agree while the rate (3.6%) is attributed to

those who strongly disagree or disagree and only two participants rating (7.14%) did not manifest themselves. The majority students revealed that "without English proficiency, we'll stagnate, and we will remain unemployed".

There was also a strong agreement regarding the practicality of French in the field of science and technology. Statement 9 received strong agreement from the part of 17 participants rating (60.71%) who found French inappropriate in their studies. Proof of this is that most of them opined the following "we do not want to carry on our studies in French; we cannot carry on our studies abroad through this language and it does not open the door to the job market an opposed to English which is used worldwide". Nine participants rating (32.04%) also agree with this statement where only one participant rating (3.6%) strongly disagree and no one showed disagreement with the reported statement. The last statement in this section seeks to check whether English represents a threat to French and here again, most students rating (53.6%) strongly agree and eight respondents rating (28.57%) agree while (7.14%) either strongly disagree or disagree, and only one student rating (3.6%) remained neutral. We must not forget that this new generation of students are Internet residents; they grew up with video games and social media in English rather than French.

**Section C.** This section tackles the students' perceptions on the sudden adoption of an EMI policy in the Algerian higher education sector and the different challenges encountered.

This section addresses the second research question, which explores how students perceive the abrupt adoption of EMI policy by the government alongside the miscellaneous challenges they encounter while adopting this policy. The results obtained are clearly reported in **Table 3**. Statement 1 depicts the swap from English to French. The highest rate (92.85%) is attributed to those who found that this swap should be progressive. Badwan (2019) requested a smooth transition and believed that a sudden swap to English would be a linguistic flaw for the students to tackle.

Similarly, statement 2 receives approximately the same rate as statement 1 since an overwhelming majority of students rating (89.28%) strongly agree that the success of EMI adoption in higher education requires time and resources. "We need a smooth transition from French to English since this requires time and preparation" as most participants revealed. No one disagreed with this statement and only one participant remains neutral. Albeit the students held English in high esteem, the foci were on the various challenges EMI triggered to both teachers and students. 18 participants rating (64.3%) were against the abrupt implementation of EMI; five participants agreed; only one participant

**Table 4.** Reasons behind the importance of studying and conducting research in English

Statement	Strongly agree	Agree	Strongly disagree	Disagree	Neutral
1. English improves students' language proficiency to be able to communicate with the external world.	9 (32.14%)	15 (53.57%)	1 (3.60%)	3 (10.71%)	2 (7.14%)
2. English is the language of science and technology, and it is central for conducting research, writing articles and using updated references.	16 (57.14%)	8 (28.57%)	0 (0.00%)	1 (3.60%)	3 (10.71%)
3. English enhances students' critical thinking alongside their cognitive and intercultural skills.	12 (42.85%)	12 (42.85%)	1 (3.60%)	2 (7.14%)	1 (3.60%)
4. English opens the door for future job opportunities.	18 (64.30%)	8 (28.57%)	0 (0.00%)	1 (3.60%)	1 (3.60%)
5. English helps continue studies abroad.	16 (57.14%)	10 (35.71%)	0 (0.00%)	1 (3.60%)	1 (3.60%)
6. English improves the quality of student education and his future career.	11 (39.28%)	14 (50.00%)	0 (0.00%)	2 (7.14%)	1 (3.60%)

(3.6%) strongly disagreed with the proposed statement and two others disagreed while two others were disinterested.

Statement 4 reports on one of the challenges students and teachers face; they have difficulty with study content due to their lack of proficiency in English. Here, the majority students rating (60.71%) strongly agreed and 17.85% agreed while (3.6%) strongly disagreed and (10.71%) disagreed. (7.14%) felt uninvolved with this statement. Even if this implementation is of top-down nature, it requires intensive training for both students and teachers to effectively cope with it.

In the same vein with the progressive adoption of EMI, statement 5 seeks to report on 'EMI should be introduced starting from primary school'. Following this statement, most students rating (57.14%) strongly agreed and (28.57%) agreed. They felt that if EMI is introduced starting from primary school, its adoption will bring fruitful outcomes. It is worth noting here that the Algerian government has implemented this policy starting from the school year (2022-2023). The statement 'teachers tend to always switch to either Arabic or French because they do not master English' obtained great agreement since 15 participants rating (53.57%) agree and 10 participants rating (35.71%) strongly agree and only two participants rating (7.14%) disagree while one participant rating (3.6%) remained neutral. In Badwan's (2019) study, Tunisian students admitted their ability to bring their English to the requested level needed for EMI courses if their teachers shift to English. This seems to be true with Algerian students as well.

Statement 7 clarifies that teachers lack the necessary pedagogical skills to effectively teach in English as a challenge. This seems to be true as 18 participants rating (64.3%) strongly agree and (25%) agree with the reported statement while (3.6%) disagree and (14.28%) felt unconcerned with the statement. Despite the Ministry of Higher Education has imposed teachers' training through 'CEIL', 'summer university', 'winter university', and others, there seems to be an increase demand of teachers training in English since most of them lack the adequate linguistic skills to be able to teach scientific and technical subjects in this language.

Another challenge lies in students lack the language skills needed to understand the courses in English as (42.85%) strongly agree with the disclosed statement and (53.57%) agree while only (7.14%) disagree and one participant rating (3.6%) felt disinterested. The last statement, in this section, statement 9 reported on the lack of references in English. Most participants agreed (57.14%) and strongly agree (39.28%) while (3.6%) either strongly disagree or disagree and the same rate is attributed to those who were neutral. "Our libraries need to be equipped with references in English rather than French as this will facilitate us to do our research in English". These results align with Huang et al.'s (2024) study where most students struggled with understanding

lectures taught exclusively in English, giving presentations and speaking fluently.

**Section D.** This section is interested in highlighting the reasons behind students' perception of English as an important language for studying and conducting research at higher education.

The last section of the five-point online Likert scale questionnaire tries to answer the third research question and find out the reasons that stand behind students' perception of English as an important language for studying and conducting research at higher education (Table 4). Several statements were proposed and students yielded either agreement or disagreement vis à vis the reported items. The first statement is about whether English is the language of science and technology and improves students' language proficiency to be able to communicate with the external world. A considerable number of students rating (53.57%) and (32.14%) respectively strongly agree or agree with this statement. A minority rating (10.71%) and (3.6%) strongly disagree or agree while (7.14%) of the total number of participants remained neutral. "English is the only language which opens the door to the external world" as stated by the majority participants. The results go hand in hand with Hamzaoui (2021) who correctly said that "English is believed to be the language of science and technology; it helps increase the quality of education and promotes social and technological progress" (p. 185).

The second statement draws on the importance of English in conducting research, writing articles and using recent references. Here again, most students rating (57.14%) and (28.57%) strongly agree and agree with this statement. However, no one strongly disagree and only 3.6% disagree while (10.71%) remained neutral. The statement 'English enhances students' critical thinking alongside their cognitive and intercultural skills' received similar rates (42.85%) for the options strongly agree and agree, whereas (7.14%) disagree and (3.6%) strongly disagree. The same rate is addressed to those who showed disinterest. Here is a statement provided by some doctoral students from three universities: "As doctoral students, we prefer to conduct research in English rather than French; it is also a requirement to publish articles in English actually and we are almost sure that English will develop our critical thinking and communication skills". These results are in accordance with Maraf's (2024) view where a great number of participants (87) wanted to have more presence of the English language in Algeria in the domain of education.

To check whether English opens the door for future employment opportunities, statement 4 received high value since 18 participants rating (64.3%) strongly agree and (28.57%) agree; yet (3.6%) either agree or remain neutral and no body strongly agree. A considerable number of students seemed interested with statement 5 since (57.14%) strongly

agree that English helps continue studies abroad and 35.71% agree while 3.6% either disagreed or remained silent and no one strongly agreed.

The sixth and last statement reports that English improves the quality of student education and his future career. Half of the total number (50%) of respondents agreed and (39.28%) strongly agreed while only (7.14%) disagreed and no one strongly disagreed. The results obtained in this study's section highlight the central position that English enjoys as a world language and its relevance in studying and conducting research at higher education.

When asked to provide comments on the EMI policy in the Algerian higher educational sector, all the participants claimed that this decision requires time and a smooth implementation; otherwise, policy makers should be alarmed by adverse consequences, which may have a negative effect on students' academic success. More than 50% revealed that "English is the ideal language to pursue our studies either here in Algeria or abroad, but this initiative should not be adopted in a rush way since it requires time and a smooth transition from French to English".

### Limitations

To address the limitations of this study, we first acknowledge the 'generalization limitation' as the data were gathered from participants studying in only three different universities situated in the northwest of Algeria. It would be more interesting to expand this investigation through different universities situated in the four poles across Algeria. This, indeed, restricted our scope of research especially in generalizing the results. Third, the number of participants (28) was also a handicap since it affected the expected results. We wished to conduct this study with a higher number of participants especially that EMI is actually a hot topic of debate, and every researcher is thirsty to know more about the progress of this recent initiative adopted by the Algerian government. Another limitation lies in the restricted amount of time to collect the necessary data because of the limited or sometimes the non-availability of the respondents since some of them live far from their study institution.

## CONCLUSIONS AND IMPLICATIONS

This study has investigated the students' perception of EMI in three Algerian higher education institutions. Overall, the results have revealed that the students display a strong positive attitude towards the adoption of EMI and its spread in Algerian universities. The majority proclaimed the need of EMI in the field of science and technology in general and civil engineering and biology streams in particular. They also professed the need to use English in their future career. Some reasons, behind this proclivity, entail the need to conduct research, write articles, use recent references, the desire to pursue studies abroad and have better job opportunities.

The results have been yielded through different sections in the present study. When scrutinizing the students' perception on the current implementation of English as a medium instruction in their studies and research instead of French, there has been a high level of agreement about the utility and the adoption of EMI in higher education in the future and that English actually represents a threat to the language of the ex-colonizer.

When dealing with the students' perceptions on the sudden adoption of an EMI policy in the Algerian higher education sector and

the different challenges encountered, the results have shown that the students and teachers alike have difficulty with study content due to their lack of proficiency in English. Teachers lack the necessary pedagogical skills to, effectively, teach in English. Other interesting results lie in the fact that most students lack the language skills needed to understand the courses in English, references in English are not sufficient and EMI should be introduced starting from primary school to reach the required outcomes years later.

The last section has been interested in stressing the reasons behind students' perception of English as an important language for studying and conducting research at higher education. The main results have highlighted that English is the language of science and technology, and it is central for conducting research, writing articles and using updated references. More importantly, English opens the door for future job opportunities.

Other interesting results have entailed the students' discontent with the way the initiative has been adopted and the various challenges they encounter, because they were not qualified for such a sudden propensity. Moreover, a progressive swap from French to English is considered as the best language-in-education policy for higher education because students and educators are not qualified enough and lack proficiency in English. It seems that French has become a real strain on the Algerian higher education sector and viewed as ineffective for these students albeit it is the first foreign language in the country and the language instruction in the field of science and technology.

In order to counter the educational inadequacies which arise from the challenges reported in this study, some implications encompass raising doctoral science and technology students' awareness on about the importance of EMI -which is, actually, a needed asset not only in Algerian universities, but in universities worldwide-, and creating a synergy involving subject matter instructors, English language teachers, policy makers and language planning experts to prepare a comprehensive plan that will help enhance the EMI in higher education. Additionally, university teachers should create a motivating environment for students where the medium of instruction is in English. This can also help students hold a fairly positive attitude towards EMI at tertiary level.

However, this requires, above all, an effective training of teachers towards an effective use of the English language. Finally, given the urgency to shift to EMI, authorities should accelerate the transition to English by revamping the teaching of English at all levels of education and providing universities with the necessary tools to conduct research in English. To have a comprehensive understanding of EMI in Algeria, further research can undertake a needs analysis study that addresses the pedagogical needs of content teachers. Topics involving pedagogical differences between EMI and French medium instruction, alongside the transition from French to EMI and the teachers' perception of EMI policy can also yield interesting results.

**Funding:** No conflict of interest is declared by the author.

**Acknowledgments:** The author would like to thank all Master students who assisted in data gathering. The author would also like to thank the reviewers for their valuable comments.

**Ethical statement:** The author stated that the study does not require any ethical approval. All participants were informed about the study, and their consents were obtained prior to participation

**AI statement:** The author declared non-use of any AI tool in this study.

**Declaration of interest:** No conflict of interest is declared by the author.



**Data availability:** Data supporting the findings and conclusions are available upon request from the author.

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