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## Students' and Teachers' Attitudes towards the Implementation of English as a Medium of Instruction

### Case Study: First-Year Students in Science and Technology Department at Khenchela University

A dissertation submitted in partial fulfillment of the requirements for the  
degree of Master in Language and Culture

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## Dedication 1

*In the name of **Allah**, the most gracious, the most merciful May **Allah's** blessings and peace be upon his last messenger **Mouhamed**, the honorable Prophet.*

وَمَنْ أَبِي الدَّرْدَاءِ رَضِيَ اللَّهُ عَنْهُ، قَالَ: سَمِعْتُ رَسُولَ اللَّهِ ﷺ، يَقُولُ: ( مَنْ سَلَكَ طَرِيقًا يَبْتَغِي فِيهِ عِلْمًا سَمَّلَ اللَّهُ لَهُ طَرِيقًا إِلَى الْجَنَّةِ )  
رواهُ أَبُو داود والترمذيُّ

*For the dreams that fueled my nights, and the love that gave me flight, to those who cheered with all their might, this work is yours, a beacon of light.*

*To my family, a steadfast force, your love and care, my guiding course.*

*To my **father**, the pillar of my strength, your unwavering support, immeasurable in length. Through every challenge, you stood by me, the reason for my success and who I have come to be. Your sacrifices and love, beyond compare, in my health and achievements, you are always there.*

*To my **mother**, always by my side, my point of power, my constant guide.*

*To my **brothers**, each a source of pride, my lifelong companions, always by my side. **Salah**, for your wisdom and steady hand, **Baha**, for your courage, ever so grand. **Ahmed**, for your kindness and gentle way, **Ayoub**, for your laughter that brightens my day. **Siradj**, for your spirit, so strong and bright, you all are my strength, my guiding light.*

*To my late **grandfather**, watching from above, in your memory, I find strength and love.*

*To my uncle **Kamal** and his wife **Huda**, and their children, "**Hakim, Mouhamed, Lamia, and Dounia**", your unwavering support has been my guide, always by my side, with love and pride.*

*To Uncle **Hamid**, your wisdom and might, guiding me through every plight.*

*To my best friend **Rayane**, a song in my heart,  
In this thesis journey, you played a crucial part.  
Together we faced each rise and fall,  
your friendship, the rhythm that guided it all.  
This work, our duet, echoes our dreams,  
a testament to our united themes.*

*To my friends "**Ahlam, Yousra, Chaima, Rayane M, Fatima, Asma, Amani, Zaki, Hamza**," Your friendship, a symphony, resounding and bright, Guiding me through darkness, with your loving light.*

**Dhikra**

## Dedication 2

*In The Name of **Allah**, The Most Merciful The Most Gracious.*

" يَرْفَعُ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ " [المجادلة:11]

*First and foremost, I thank **Allah** for granting me the strength and power to complete my educational journey. I dedicate this humble work:*

*To the light of my life, my **parents, Mouhamed and Fatima**, whose unwavering love, care, and support have guided me throughout my life. You are the shining stars that illuminate my world.*

*To my brothers **Mourad and Djalal**, my pillars of strength, I am profoundly grateful to have you in my life.*

*To my beloved sister **Awatef**, her husband **Hamza**, and their precious daughter **Nour EL-Yakine**, thank you for your kind encouragement and support.*

*To my little sisters, **Hinda and Roudaina**, for being my source of energy and positivity.*

*To my soul mate **Khaled**, thank you for always standing by my side through both sorrow and joy.*

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## Abstract

English is recognized globally as the language of international communication and scientific discourse. Numerous countries have adopted it as a medium of instruction in higher education, including Algeria. This study aimed to investigate the attitudes of both students and teachers towards the implementation of English as a Medium of Instruction (EMI). Employing a mixed-method research design, data were gathered quantitatively and qualitatively through questionnaires administered to students, interviews conducted with teachers, and classroom observations. The samples were selected randomly: the questionnaire was administered to 60 students, and the interview was conducted with 08 teachers. Three classroom observations were conducted with three different teachers. The findings indicated favorable perceptions and positive attitudes towards the implementation of EMI among both teachers and students within the Department of Science and Technology at Khenchela University. The study indicated that implementing EMI in the Department of Science and Technology boosts students' academic performance and provides them with wider global opportunities. However, the study had several limitations: the questionnaire distribution coincided with Ramadan, resulting in high student absenteeism; teachers did not assist with conducting interviews; some teachers opted to respond to the interviews in written form rather than face-to-face; not all the teachers returned their written responses, with some not replying to recurrent emails; classroom observations were conducted with only three teachers during the final week of the study due to time constraints and various excuses from teachers; and one teacher publicly declined to let us observe his sessions.

**Key words:** Attitudes; Teachers; Students; English as a Medium of instruction (EMI); Higher education; Science and Technology.

## **List of Abbreviations**

<b>EMI</b>	English as a medium of instruction
<b>ESP</b>	English for specific purposes
<b>TOEFL</b>	Test of English as a Foreign Language
<b>ITLES</b>	International English Language Testing System
<b>L1</b>	First language
<b>Q</b>	Question
<b>TUM</b>	the Technical University of Munich
<b>UAE</b>	United Arab Emirates
<b>STEM</b>	Science, Technology, Engineering and Mathematics
<b>SNU</b>	Seoul National University
<b>MOOC</b>	Massive Open Online Courses

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المخلص

**GENERAL**

**INTRODUCTION**

# General Introduction

## 1. Background of the Study

Over the course of the recent decades, English has witnessed a remarkable journey from a globally prevalent to an indispensable medium of communication. It is the language opted for as a medium of communication between people over the world speaking different languages so it grew to be an international language. English has become prominent language in the scientific field, facilitating communication and cooperation in research and academia because of its flexibility and capacity to assimilate technical terms provide a conducive platform for expressing complex scientific concepts in a more comprehensible and easy manner.

As a consequence English has become a *lingua franca* of scientific publications, conferences, and collaborative projects enabling researchers from diverse linguistic backgrounds to communicate effectively and share knowledge to the creation of a more interconnected and collaborative scientific community. So as Crystal (2003) highlights, English plays a significant role in the academic sphere as it serves as the primary medium of instruction, communication, and documentation across diverse disciplines globally, contributing to academic success and facilitating access to an abundance of information. English may not have the highest number of native speakers worldwide. However, it is the official language of many countries, and millions of people around the globe speak it as their native or second language. This language transition has been observed in various countries, like Rwanda adopting English as a second language and medium of instruction in all school levels in 2008 (Jeremie Eyssette, June 23rd, 2022).

Recently, a similar transformative initiative has taken place in Algeria. Since its independence in 1962, Algeria utilized French as a second language, but recent years have witnessed strains in French-Algerian relations. According to Bougherira (2016), as a pivotal step in the comprehensive liberation process, aiming to sever old dependencies on France, particularly cultural ties, Algeria is undergoing a significant shift from French to English as a second language.

This transformative initiative spans from primary schools to universities, envisioning English as a more prominent virtual medium of instruction. Endorsed by President Abd ElMadjid Tabon and the Minister of Algerian Higher Education, this strategic move, set in motion from 2022, is not merely a linguistic transition; it is a manifestation of the nation's commitment to cultural independence.

According to Benrabah (2007), the decision aligns with the sentiments of the Algerian people, who now regard French as a "dead language" and advocate for the teaching of English, recognized as the language of science and global communication, to the younger generation. This shift reflects a broader trend in Algerian education policy aimed at integrating into the global academic and economic community. Many Algerians see English as a tool for scientific advancement and global connectivity, which is increasingly important in a globalized world (Bouhadiba, 2018).

This monumental shift towards English as a foreign language is a profound reflection of Algeria's evolving stance in the global landscape. The Algerian "Elnahare" Public Journal reported on January 7, 2024, that the Ministry of Higher Education and Scientific Research issued directives to university administrators, instructing them to enhance English language instruction for the academic year 2024/2023 (Ben Tahar, 2024). As reported by

Elnahare journal, marking the peak of this linguistic transformation, Algerian higher education has now officially instituted English as the medium of instruction. This transformative decision not only echoes the country's determination to break free from historical dependencies but also underscores its forward-looking vision in fostering educational advancement on the international stage. In light of this background, the study aims to shed light on exploring the attitudes of both students and teachers towards the implementation of English as a medium of instruction in Algerian higher education, with a particular focus on Khenchela University.

## **2. Statement of the Problem**

The aim of this study is to investigate and describe the attitudes, perspectives, and opinions of both students and teachers in Science and Technology department at Khenchela University regarding the implementation of English as a medium of instruction. The study aims to ascertain whether both perceive English as a medium of instruction positively and find it effective, or if they view it as something negative and difficult to achieve. Since very few studies were conducted in Algeria about the situation of EMI in the country, we decided to provide empirical evidence about the effectiveness and degree of success of the implementation of EMI in the view of students and teachers at Khenchela University, to help raise awareness about what is really going on in reality.

## **3. Aim of the Study**

This study aimed to investigate the attitudes of both students and teachers towards the implementation of English as a Medium of Instruction (EMI) in the department of Science and Technology in Abbas Laghrour Khenchela University.

#### **4. Research Questions**

The current study focuses on addressing the following guiding questions:

1. What are students' attitudes towards the implementation of English as a medium of instruction in Science and Technology Department at Khenchela University?
2. What are teachers' attitudes towards the implementation of English as a medium of instruction in Science and Technology Department at Khenchela University?

#### **5. Research Hypothesis:**

This research consists of one major hypothesis, which is:

We assume that both students and teachers in the Science and Technology Department at Khenchela University have a positive attitude towards the implementation of English as a Medium of Instruction (EMI).

#### **6. Rationale for the Study**

As English is recognized as the lingua franca of science and international communication, many countries have integrated it as the medium of instruction in higher education. Algeria is one such country. Despite existing research on this topic, there are very few studies conducted in Algeria about the situation in the country. So there are significant gaps in EMI to address in this context, particularly at Abbas Laghrour-Khenchla University's Department of Science and Technology. Consequently, it is crucial to ascertain the perspectives of both faculty and students on the implementation of EMI, given their direct engagement with this educational method.

## **7. Significance of the Study**

The significance of the study lies in understanding and assessing the attitudes of scientific specialization students and teachers at Khenchela University toward EMI. This information can provide insights into the potential benefits or challenges associated with EMI in academic settings, aiding in informed decision-making and curriculum development. Additionally, the findings could serve as a valuable resource for future researchers interested in exploring the dynamics of EMI implementation, offering a foundation for comparative studies and contributing to the broader body of knowledge in the field of language education.

## **8. Methodology**

This study employed a mixed-methods research design, integrating both qualitative and quantitative approaches to comprehensively investigate the attitudes of both students and teachers towards EMI at Khenchela University. This study involved both students and teachers at Khenchela University who are directly impacted by the recent shift to English as a medium of instruction. A stratified random sampling approach was employed to ensure representation across various disciplines and academic levels.

### **8.1 Data Gathering Tools**

The data collection methods for this study included distributing a questionnaire to first-year students as well as conducting semi structured interviews with various teachers at the Science and Technology Department . Moreover, the collection of requisite data was supplemented by attendance in class for classroom observation.

## **8.2 Setting, Population, and Sampling**

The participants of this study are limited to first-year students and faculty teachers from the Science and Technology Department at Khenchela University. Due to the extensive time required to work with the entire population, we selected a sample size comprising 60 students and 8 teachers. These participants were randomly chosen to represent the larger group.

## **9. Structure of the Study**

The study is organized into two distinct chapters: one theoretical and the other practical. The first chapter addresses the concept of globalization in relation to the English language, emphasizing its significance and application within the academic sphere across various regions. Additionally, it explores the historical context of the English language in Algeria, with a particular focus on English Medium Instruction (EMI) in the country. The practical chapter, chapter two, is dedicated to the analysis and interpretation of data, culminating in a general conclusion that summarizes the main findings, offers recommendations, and outlines the study's limitations.

**CHAPTER ONE:**  
**LITERATURE REVIEW**

## **Introduction**

In contemporary educational landscapes, the integration of English as a Medium of Instruction (EMI) has become increasingly prevalent, reshaping traditional paradigms of teaching and learning. This chapter embarks on an exploration of the global significance of English and its adoption as a medium of instruction, specifically examining its historical evolution and its implementation within the context of Algerian universities.

### **I.1 Globalization and Importance of the English Language**

The English language holds unparalleled significance in the modern world, serving as a global lingua franca that facilitates communication, trade, diplomacy, and cultural exchange on a vast scale (Crystal, 2003). As Crystal notes, English has become the "dominant global language," permeating various domains of human interaction and exerting influence far beyond its historical roots (Crystal, 2003). One of the key reasons for the widespread adoption of English is its status as the primary language of science, technology, and academia. Research conducted in English reaches a global audience, enabling scholars from diverse linguistic backgrounds to collaborate, share knowledge, and contribute to the advancement of human understanding (Graddol, 2010). Moreover, the economic significance of English cannot be overstated.

In an increasingly interconnected world, proficiency in English is often viewed as a prerequisite for success in the global marketplace. Multinational corporations conduct business in English, international trade transactions are conducted in English, and English-language skills are highly valued in industries ranging from tourism to technology (Crystal, 2003). The cultural impact of the English language is equally profound. English-language literature, music, films, and television programs have achieved widespread popularity and influence, shaping global trends in entertainment, fashion, and popular culture (Pennycook, 2007). Globalization

has played a pivotal role in the diffusion of the English language, accelerating its spread and reinforcing its status as a global language.

As societies become increasingly interconnected through trade, travel, and technology, the need for a common means of communication becomes more pressing (Graddol, 2010). English has emerged as the de facto language of globalization, facilitating cross-cultural communication and collaboration in diverse fields such as business, education, science, and diplomacy (Graddol, 2010). Its widespread use as a medium of instruction in higher education reflects the desire of institutions to prepare students for success in a globalized world (Macaro et al., 2018).

In addition to its role in academia and commerce, English also plays a significant role in the digital realm. With the advent of the internet and digital technology, English has become the predominant language of cyberspace (Crystal, 2001). Websites, social media platforms, and online content are predominantly in English, making it essential for individuals worldwide to have at least basic proficiency in the language to fully participate in the digital age (Graddol, 2010). This digital dominance of English further reinforces its status as a global language, as it facilitates global connectivity and access to information.

Moreover, the spread of English is often intertwined with historical and geopolitical factors. The colonial expansion of the British Empire in the 18th and 19th centuries played a crucial role in disseminating the English language to various parts of the world (Kachru, 1992). As a result, English has become deeply embedded in the sociocultural fabric of many former colonies and continues to be used alongside indigenous languages in these regions. The legacy of colonialism has contributed to the global spread of English and its enduring influence in post-colonial societies.

Furthermore, English proficiency is increasingly viewed as a marker of social prestige and upward mobility in many parts of the world. In countries where English is not the native language, mastery of the language is often associated with educational and career opportunities (Crystal, 2003). Consequently, there is a growing demand for English language education and training programs, both in formal educational institutions and through private language schools and tutoring services. This pursuit of English proficiency reflects the perceived economic and social benefits associated with fluency in the language.

Additionally, the role of English as a language of innovation and creativity cannot be overlooked. Many of the world's leading scientific breakthroughs, technological innovations, and cultural achievements are disseminated in English (Crystal, 2003). The language serves as a platform for sharing ideas, collaborating on research projects, and accessing cutting-edge knowledge across various fields. As such, proficiency in English is not only essential for participating in global discourse but also for contributing to the advancement of human knowledge and creativity on a global scale.

## **I.2 Globalization and Importance of EMI**

### **I.2.1. Definitions of Globalization**

The term 'globalization' was established in the second half of the twentieth century, but it dates back much earlier than that period. The noun 'globe' appeared in the fifteenth century to denote a spherical representation of the earth (Robertson, 2001). The adjective 'global' was introduced in the late seventeenth century and its reference to the 'world scale' entered use only in the late nineteenth century. The verb 'globalise', however, appeared in the 1940s, along with the term 'globalism' (Reiser & Davies, 1944), and the word 'globalisation', as a process appeared in

the English language in 1959 and entered a dictionary two years later (Schreiter, 1997; Webster, 1961).

## **I.2.2. Definitions of EMI**

EMI has been defined according to Macaro et al. as “the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English” (Macaro et al, 2018, p. 37). This definition highlights the use of English in educational contexts where it is not the native language, emphasizing the distinction between teaching English as a subject and using it as the instructional medium for other academic disciplines.

Dearden (2014) provides a concise definition of EMI as "the use of the English language to teach academic subjects in countries where the first language of the majority of the population is not English" (p. 2). This definition underscores the global trend of utilizing English in non-native English-speaking contexts to deliver academic content, aiming to improve access to international knowledge and enhance educational outcomes.

Kirkpatrick (2011) describes EMI as "the use of English as the medium of instruction in contexts where English is not the first language of the students."(p. 1). Kirkpatrick's definition focuses on the linguistic context of the students, emphasizing that English is being used as a teaching tool in environments where students typically speak other languages at home and in daily life.

According to Coleman (2006), EMI is "the teaching of academic subjects through the medium of English in situations where the majority of the students' first language is not English." (p. 1). This definition highlights the instructional aspect of EMI, where English

serves as the language through which various academic subjects are taught, rather than being the subject of instruction itself.

The globalization of EMI in higher education is a significant trend that reflects broader patterns of globalization and internationalization. EMI involves using English to teach academic subjects in countries where the native language is not English. This approach is increasingly adopted by universities worldwide to enhance their global competitiveness, attract a diverse student body, and prepare students for success in the global job market.

### **I.2.3. EMI in Europe**

The adoption of EMI is widespread and strategic. The Nordic countries, such as Sweden and Denmark, have integrated EMI into their higher education systems to align with global educational trends and increase their appeal to international students. Hultgren, Jensen, and Dimova (2015) explain that universities in these countries see EMI as a way to enhance educational quality, facilitate international collaborations, and position their institutions as prominent players in the global academic landscape. For example, the University of Copenhagen offers numerous programs taught in English, which attract students from around the world and promote a multicultural academic environment. Similarly, Maastricht University in the Netherlands has extensively adopted EMI to cater to its international students and faculty. Wilkinson (2012) notes that this approach helps create an inclusive academic environment, supporting students from various cultural and linguistic backgrounds and fostering a globally engaged campus community.

In Germany, universities have also increasingly adopted EMI to attract international students and enhance their global standing. The Technical University of Munich (TUM) offers a variety of master's programs taught entirely in English, aimed at drawing students from

around the world and fostering an international academic environment (Wächter & Maiworm, 2014). Additionally, the University of Freiburg provides several English-taught programs, particularly in fields such as natural sciences and engineering, to appeal to the global student population (Wächter & Maiworm, 2014).

#### **I.2.4. EMI in Asia**

EMI is also gaining significant traction in Asia. The University of Hong Kong is a leading example, having adopted EMI as a strategic tool to improve its international standing and attract a diverse array of students. Evans and Morrison (2011) highlight that the implementation of EMI at the University of Hong Kong aims to meet the challenges of providing high-quality education to an international student body and fostering a multicultural academic environment. This strategy not only enhances the university's global reputation but also ensures that its graduates are well prepared for the international job market.

In China, many universities are increasingly offering programs in English to enhance their global reputation and appeal to international students. Fang (2011) discusses how the development of English and English education in China is driven by the need to connect with the global academic community and equip students with the language skills necessary for international communication and collaboration. This trend is evident in prestigious institutions like Tsinghua University and Peking University, which offer numerous courses and degree programs in English.

Japan has also embraced EMI as part of its higher education strategy. The University of Tokyo and Kyoto University, two of Japan's most prestigious institutions, have introduced several English-taught programs to attract international students and researchers. Brown (2014) points out that these initiatives are part of a broader effort to internationalize Japanese higher

education and increase its competitiveness on the global stage. The use of EMI helps Japanese universities overcome language barriers, thereby facilitating greater academic exchange and collaboration.

In South Korea, the adoption of EMI is a significant trend aimed at enhancing the international profile of its universities. Seoul National University (SNU) and Korea University offer a range of programs taught in English. Byun and Kim (2011) explain that the introduction of EMI in South Korean universities is intended to attract more international students and faculty, promote a multicultural academic environment, and prepare students for participation in the global economy.

### **I.2.5. EMI in the Middle East**

The Middle East is also experiencing a rise in EMI adoption. In the United Arab Emirates (UAE), many universities have incorporated EMI into their programs as part of efforts to become regional education hubs and attract students from across the Middle East, Africa, and beyond. Clarke (2007) notes that the strategic adoption of EMI in the UAE helps these institutions build their reputations and expand their influence on a global scale. By offering English-taught programs, universities in the UAE aim to draw a diverse student population and foster an international academic community. Institutions like the American University of Sharjah and the United Arab Emirates University offer extensive EMI programs that attract students from various countries, enhancing the cultural diversity and academic dynamism of their campuses.

In Saudi Arabia, EMI is increasingly adopted in higher education institutions as the government views English proficiency as essential for global competitiveness and has implemented policies to promote the use of English in universities. The emphasis on EMI is

part of broader educational reforms aimed at diversifying the economy and reducing reliance on oil (Smith & Abouammoh, 2013).

Similarly, Jordan has embraced EMI in its higher education sector to enhance the quality of education and increase international collaboration. Universities in Jordan offer many programs in English, especially in scientific and technical fields, to attract international students and provide local students with better job prospects in the global market (Al-Issa & Dahan, 2011).

### **I.2.6. EMI in Africa**

EMI is being used to bridge linguistic divides and improve access to global knowledge in Africa .Rwanda provides a notable example of this trend. The Rwandan government mandated the use of English as the medium of instruction in schools and universities to facilitate integration into the East African Community and the global economy. Samuelson and Freedman (2010) discuss how this policy shift aims to position Rwanda as a competitive player in the global marketplace by equipping its students with English language proficiency, thereby enhancing their prospects for international employment and collaboration. This strategic move is part of Rwanda's broader vision to transform its education system and boost economic development.

Similarly, universities in South Africa have adopted EMI to attract international students and foster academic collaborations. For instance, the University of Cape Town offers many programs in English, drawing students from across the continent and beyond. de Kadt (2005) explains that the use of EMI in South African universities is part of a strategy to enhance their international profile and academic reputation, while also ensuring that graduates are well-prepared for global career opportunities.

In Nigeria, EMI is also prevalent in higher education institutions. Universities such as the University of Lagos and Obafemi Awolowo University offer numerous programs in English to cater to both local and international students. Otagburuagu and Eze (2014) note that the adoption of EMI in Nigerian universities is driven by the need to participate in the global academic community and improve the quality of education by providing access to a wider range of academic resources and research publications.

Kenya has also seen a significant rise in the use of EMI in its universities. Institutions like the University of Nairobi and Kenyatta University offer a variety of programs in English, which not only attract students from neighboring countries but also facilitate international academic partnerships. Bunyi (2005) highlights that EMI in Kenyan higher education is aimed at enhancing the global competitiveness of its graduates and aligning the country's educational standards with international benchmarks.

Finally, Algeria is gradually adopting EMI to improve the quality of higher education and integrate its academic institutions into the global knowledge economy. According to Benrabah (2007), the use of English in Algerian universities is part of a broader effort to modernize the education system and make it more accessible to international students and researchers. This transition is seen as a critical step in enhancing Algeria's academic and economic prospects on the international stage.

### **I.3 History of English in Algeria**

The history of English in Algeria is deeply intertwined with the country's colonial past and post-independence language policies. During the French colonial period, which lasted from 1830 to 1962, French was established as the dominant language in education, administration, and public life. As a result, French became the primary language of instruction in Algerian schools and universities, overshadowing both Arabic and Berber languages (Benrabah, 2007).

After gaining independence in 1962, Algeria sought to assert its national identity and reduce the influence of the former colonial language. This led to the Arabization policy, which aimed to replace French with Arabic in all spheres of public life, including education (Grandguillaume, 2004). The Arabization policy was implemented gradually, with varying degrees of success, and French remained widely used, particularly in higher education and scientific fields (Benrabah, 2013). In this context, English began to emerge as a significant foreign language in Algeria during the latter half of the 20th century. The global rise of English as a lingua franca for international communication, science, technology, and business motivated Algeria to introduce English in its education system. By the 1990s, English was being taught as a foreign language in secondary schools and was gaining importance in universities, especially in scientific and technical disciplines (Benrabah, 2007).

The increasing importance of English in Algeria reflects broader global trends and the recognition of the language's role in facilitating international collaboration and access to global knowledge. In recent years, the Algerian government has made concerted efforts to enhance the teaching and learning of English to better integrate the country into the global economy. English is now seen as a crucial skill for Algerian students and professionals, enabling them to

compete in international markets and participate in global academic and professional communities (Bouhadiba, 2015).

The adoption of English as a medium of instruction in some Algerian universities is part of this broader strategy to improve educational quality and internationalize higher education. Universities such as the University of Algiers and the University of Oran have introduced English-taught programs to attract international students and foster academic exchanges with institutions worldwide (Bouhadiba, 2015). These initiatives are intended to elevate the global standing of Algerian universities and ensure that graduates are well-equipped for global opportunities.

#### **I.4 Implementation of EMI in Algerian Higher Education**

In contemporary educational landscapes, the integration of English as a Medium of Instruction (EMI) has become increasingly prevalent, reshaping traditional paradigms of teaching and learning.

The implementation of EMI in Algerian higher education is part of a broader strategy to modernize the educational system and enhance the country's global integration (Benrabah, 2014; Bouhadiba, 2015). The move towards EMI reflects Algeria's recognition of the importance of English in the global academic and economic landscape (Crystal, 2003).

In response to increasing globalization and the dominance of English in international academia and business, the Algerian government has initiated several policy measures to incorporate English into the higher education system. This includes encouraging universities to offer more courses and programs in English, particularly in fields like science, technology, engineering, and mathematics (STEM), where English is the primary language of research and

publication (Benrabah, 2014). In 2019, Algeria's Ministry of Higher Education and Scientific Research announced plans to expand the use of English in universities. This policy shift aims to improve the quality of education, foster international collaborations, and ensure that Algerian graduates are competitive in the global job market. The ministry has also focused on improving the English proficiency of university faculty through training programs and professional development initiatives (Bouhadiba, 2015).

Several universities in Algeria have taken significant steps to implement EMI. For example, the University of Algiers has introduced numerous postgraduate programs taught in English, particularly in scientific and technical disciplines. These programs are designed to attract international students and foster a multicultural academic environment, which enhances the university's global standing and academic reputation (Benrabah, 2014). Similarly, the University of Oran has adopted EMI in various departments. This includes partnerships with foreign universities to develop joint degree programs and research projects conducted in English. Such collaborations are aimed at providing students with exposure to international academic standards and practices (Bouhadiba, 2015). At the University of Constantine, EMI is being progressively integrated into the curriculum, especially in technical and engineering courses. This initiative is part of a broader strategy to enhance the employability of graduates by equipping them with the language skills required in the global job market (Benrabah, 2014).

President Abdelmadjid Tebboune has been a significant proponent of expanding the role of English in Algerian education. In several public statements, Tebboune emphasized the importance of English as a global language and its role in enhancing the international competitiveness of Algerian graduates. He highlighted that proficiency in English is crucial for students to access global knowledge and engage in international scientific and academic communities. Tebboune's endorsement of EMI aligns with Algeria's broader educational

reforms aimed at increasing the country's participation in the global economy. By advocating for the integration of English in higher education, Tebboune seeks to prepare students for the demands of the global job market and to foster a more internationally connected academic environment (Middle East Monitor, 2022).

On the other hand, the adoption of EMI offers numerous opportunities for Algerian higher education. It can lead to increased collaboration with international universities, attract more international students, and provide local students with better access to global research and knowledge. Furthermore, it positions Algerian graduates to be more competitive in the international job market, where English is often a prerequisite for many careers (Benrabah, 2014).

In conclusion, the literature review illuminates the pervasive influence of English as a Medium of Instruction (EMI) on higher education, both globally and within the Algerian context. By examining the historical evolution, definitions, and implementation of EMI, it becomes evident that English proficiency is increasingly intertwined with educational and economic advancement worldwide. In Algeria specifically, the adoption of EMI represents a strategic response to global trends, aimed at enhancing educational quality, fostering international collaboration, and preparing graduates for success in an interconnected world. Through initiatives to expand English-taught programs and improve faculty proficiency, Algerian universities are positioned to play a pivotal role in the country's journey towards educational excellence and global competitiveness.

**CHAPTER TWO:**

**RESEARCH**

**METHODOLOGY,**

**RESULTS ANALYSIS AND**

**DISCUSSION**

## **Introduction**

Following the theoretical examination of various theme-pertinent elements, this chapter delves into the practical aspect of the research. It entails the investigation and analysis of the students' questionnaire and the teachers' interview, as well as the classroom observation. The primary objective of the students' questionnaire was to ascertain their attitudes towards the implementation of English as a medium of instruction in the science and technology faculty at Khenchela University, particularly focusing on their opinions on this matter. Conversely, the teachers' interview aimed to gather essential data that can assist students in effectively studying using English as a medium of instruction.

## **II.1 Research Methodology and Design**

### **II.1.1. Choice of the Method**

This study employed a mixed-methods research design, integrating both qualitative and quantitative approaches. Using a mixed-method approach for searching the use of EMI at Khenchela University offered a well-rounded perspective. Quantitative methods provided statistical data on student proficiency levels and academic performance, while the qualitative methods captured insights from interviews with teachers about their experiences, attitudes, and challenges related to EMI. This combination allowed for a deeper understanding of the issue from multiple angles.

### **II.1.2. Data Gathering Tools**

To answer the research questions, we adopted a triangulation of methods to collect quantitative and qualitative data. Quantitative data were gathered from students' questionnaires and qualitative data were mainly collected from the teachers' interviews as well as classroom observations the data from all three research tools were then assembled together for analysis and interpretation.

Anonymous questionnaires were distributed to students, as the first research tool used to collect data. The questionnaire included close-ended and open-ended, questions designed to assess student' attitudes towards the implementation of English, as well as its perceived challenges, and anticipated benefits. This letter were utilized to capture both quantitative and qualitative data.

The second research tool used to gather data was the interview. Semi-structured interviews were conducted with teachers Comprising open-ended questions, the teachers' interview helped as regards the implementation of EMI in their respective fields of specialization. The qualitative data gathered from these semi-structured interviews were used to support the qualitative data obtained from the questionnaires. gain deeper insights into their experiences and perceptions.

Besides the questionnaire and interview, a third research tool was employed for data collection: classroom observation. An number of Classroom observations were conducted with especially with first year students of Science and Technology. The observation was conducted with this level of students (first year) mainly because of the fact that the Ministry of Higher Education put a lot of emphasis for teachers to shift towards the implementation of EMI with the fresh bachelors of the current academic year. This emphasis is further supported with the

MOOC platform designed by the ministry for the new bachelors to subscribe in and engage in a learning process to boost their English proficiency levels.

### **II.1.3. Setting, Population and Sampling**

The students' questionnaire study population consisted of 612 first-year students at the Department of Science and Technology at Khenchela University. A stratified random sampling technique was employed. The sample size used was 60 students. The questionnaires forms were personally delivered to all the participant student. The reason for selecting first-year students was that they constituted the initial cohort for implementing English as the language of instruction. Analyzing the answers will help determine if the hypothesis is correct or not.

In order to enhance the validity of the study, semi structured interviews were conducted with eight teachers, responsible for instructing first-year students of Science and Technology at the University of Khenchela. The purpose of these interviews was to gain insights into the teachers' attitudes towards the utilization of English as the medium of instruction. The interviews consisted of a set of 15 questions, which allowed the teachers to provide their perspectives, opinions, suggestions, and recommendations on this matter. By structuring the interviews in this way, a comprehensive understanding of the teachers' viewpoints was obtained, thereby adding credibility to the study.

The data obtained from the questionnaires and interviews were furthered supported with evidence data from a third research tool: Classroom observation. Three different classroom observations took place in the Science and technology department with three teachers teaching first year students.

## **II.2 Description of the Data Collection Tools**

### **II.2.1. Students' Questionnaire**

The questionnaire utilized in this study comprised four sections aimed at gathering comprehensive insights into participants' perceptions and experiences regarding EMI in their academic contexts. The first section (demographic information) encompassed two items to capture essential demographic details and the extent of English language integration within the participants' field of study.

The first item inquired about the gender distribution of the respondents, providing foundational demographic data. The second item sought to ascertain whether English Language was integrated into the educational content across all subjects within the participants' field of study. In cases where English Language integration was not universal, respondents were prompted to specify the number of modules conducted in English. The second section of the questionnaire focused on exploring participants' attitudes towards EMI.

Questions from three to seven delved into various aspects of participants' perceptions, such as their comfort level with EMI, perceived benefits, challenges, and overall satisfaction with the instructional approach. The third section, spanning questions eight to twelve, aimed to assess participants' self-reported language proficiency in conveying complex scientific ideas in written English. These questions provided insights into participants' perceived abilities to communicate effectively in English within the academic context.

The final section of the questionnaire, encompassing questions thirteen to seventeen, solicited participants' overall feedback and reflections on their EMI experiences. Questions in this section explored participants' suggestions for improvement, challenges encountered, and

general impressions of EMI within their academic pursuits. Each section of the questionnaire was meticulously designed to elicit detailed responses, allowing for a comprehensive analysis of participants' perceptions and experiences with EMI. The questionnaire underwent rigorous validation procedures to ensure its reliability and validity in capturing the intended constructs effectively.

### **II.2.2. Teachers' Interview**

The teachers' interview is structured to gather valuable insights from teachers regarding their views on using EMI. Being semi-structured, it consisted mainly of 15 questions divided into 7 sections. In the Background Information section, teachers were asked to provide details about their teaching experience at University and how long they have been teaching in English. The Attitudes and Perceptions section was meant to explore their opinions on the benefits and challenges of using EMI, as well as their response to its implementation in terms of students' academic performance and engagement.

The Teaching Strategies section focused on effective approaches for teaching complex scientific concepts in English and methods to support students facing language-related challenges. The Professional Development section was aimed to investigate whether the teachers received training related to EMI and its impact on their teaching practices. The Student-Teacher Interaction section sought to explore the level of interaction in EMI courses compared to non-EMI courses and any observed changes in students' participation and communication. Lastly, the Future Perspectives section was designed to elicit teachers' views on the long-term benefits of EMI for students pursuing scientific specializations, and recommendations to improve its effectiveness at University.

### II.2.3. Classroom Observation

Because the observation was conducted after collecting the questionnaire and interview data in order to back up the results obtained from those two research tools, we were restraint as to the number of classes available to attend. The situation was further limited due to the recurrent absences of students, and the reluctance of some teachers to allow us to attend their classes, The observations were made while attending two classes of Science and Technology and one class of Computer Sciences . The observation was centered on the classroom management and atmosphere, behaviors and attitudes, interaction and engagement, conduct, etc. concerning the implementation of English as the primary instructional language. As mentioned above, the observations were conducted with three different male teachers' and they are different teachers from those with which the interview was conducted. classes: two Tutorial sessions of first year students studying Science and Technology, and addition to one course of first year students of Computer Sciences. The table below is summary of the observation details.

**Table 01:**

*Schedule of classroom observation*

<b>Teachers</b>	<b>Gender</b>	<b>Classes</b>	<b>Observation sessions</b>
<b>Teacher A</b>	Male	1 <sup>st</sup> year Science and Technology	Tutorial session
<b>Teacher B</b>	Male	1 <sup>st</sup> year Science and Technology	Tutorial session
<b>Teacher C</b>	Male	1 <sup>st</sup> year Computer Sciences	Course session

## II.3 Analysis of the Questionnaire

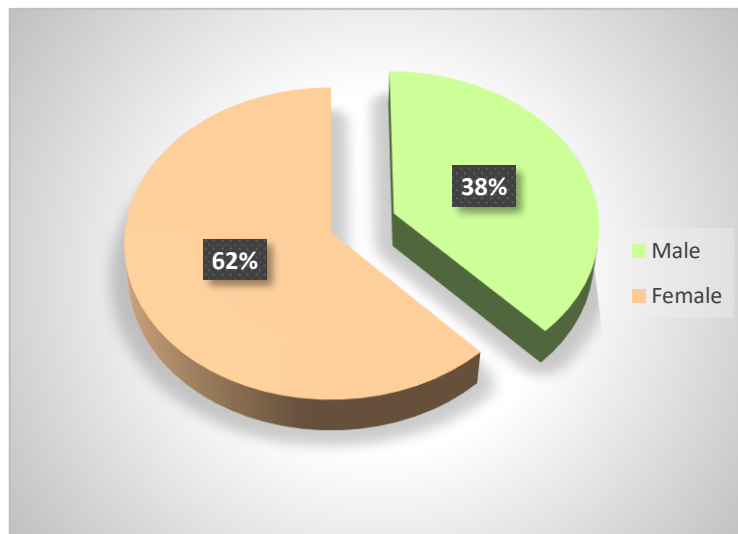
### Section One: Background Information

#### Q1: Gender Distribution

**Table 02:**

*Student's Gender Distribution*

Options	Male	Female	Total
Students' Number	23	37	60
Percentage	38%	62%	100%



**Figure 01:** *Student's Gender Distribution*

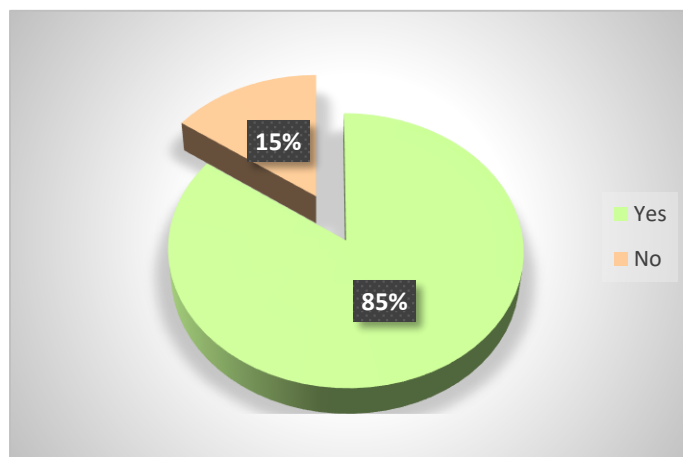
The results reveal a predominance of female participants, with 37 females representing 62% of the entire sample. Conversely, male participants comprised the remainder, with 23 individuals constituting 38% of the total student population.

**Q 2: Is the English Language integrated into the educational content within all subjects of your field of study?**

**Table 03:**

*The integration of English language in the academic content*

<b>Options</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
Students' Number	51	9	60
Percentage	85%	15%	100%



**Figure 02:** *The integration of English language in the academic content*

The objective of this inquiry was to ascertain the extent to which the English language is integrated into the educational content across all subjects within the participants' field of study. The analysis of the obtained results reveals that a significant majority of participants, comprising 51 students or 85% of the total sample, affirmed the presence of English language integration. Conversely, nine students, representing 15% of the sample, indicated the absence of such integration.

**If NO, specify the number of modules that are conducted in English?**

After indicating the integration of the English language into the educational content across all subjects within their field of study, participants who responded negatively were prompted to specify the number of modules conducted in English. Seven students provided responses, indicating that eight modules are conducted in English, which represents the majority of the modules (10 modules in total). Conversely, 2 students did not provide a response to the question.

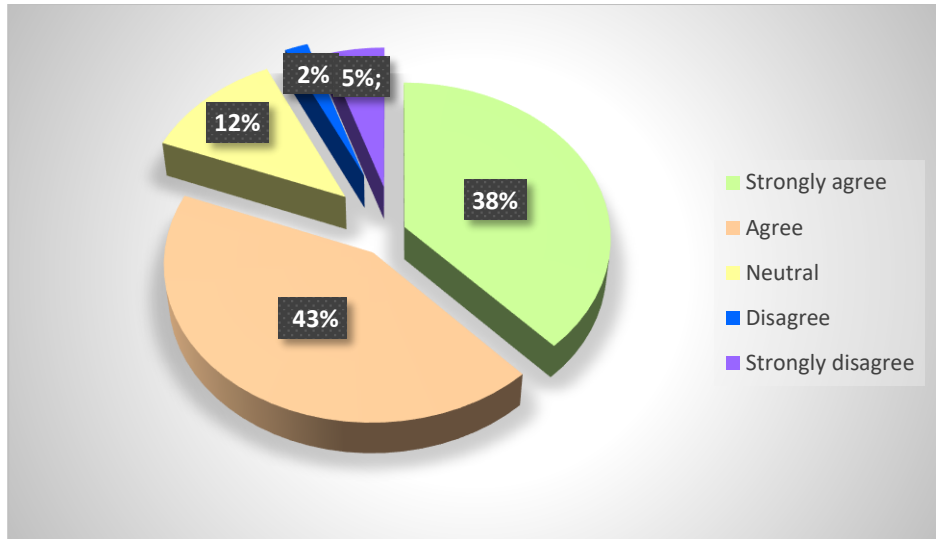
**Section 2: Attitudes towards EMI**

**Q 3: To what extent do you believe that implementing EMI enhances your overall academic experience?**

**Table 04:**

*Perceived Enhancement of Academic Experience through EMI Implementation*

<b>Options</b>	<b>Students' Number</b>	<b>Percentage</b>
Strongly agree	23	38%
Agree	26	43%
Neutral	07	12%
Disagree	01	2%
Strongly disagree	03	5%
Total	60	100%



**Figure 03:** *Perceived Enhancement of Academic Experience through EMI Implementation*

As depicted in Figure 3, we can see that out of the total number of 60 participants, 23 students 38% expressed strong agreement with the notion that EMI enhances their academic experience, while 26 students 43% agreed with this statement. Additionally, the questionnaire promoted responses from 7 students 12% who chose to remain neutral on the matter. Conversely, 3 students 5% strongly disagreed, and one student 2% disagreed with the statement.

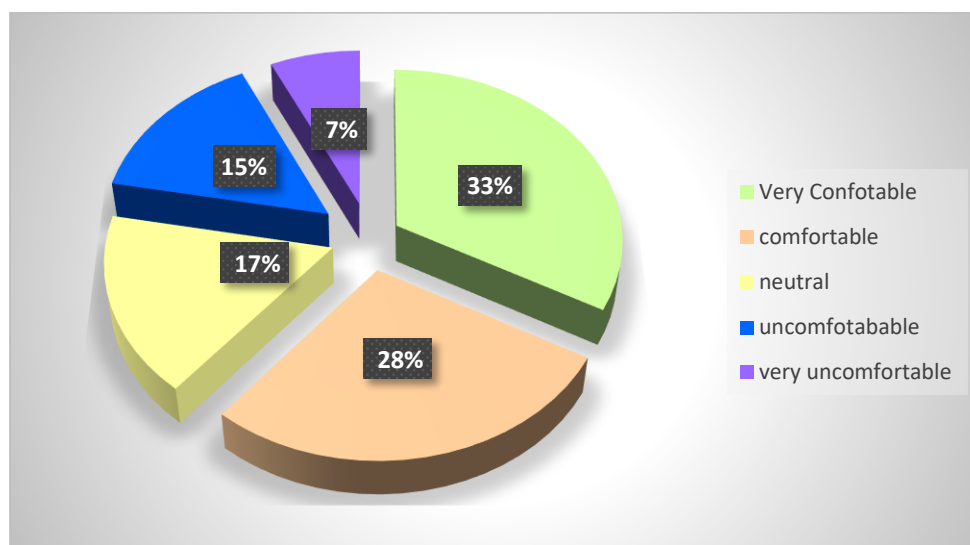
**Q 4: How comfortable are you when it comes to studying scientific subjects in English?**

**Table 05:**

*Comfort Level in Studying Scientific Subjects in English*

Options	Students' Number	Percentage
Very comfortable	20	33%

Comfortable	17	28%
Neutral	10	17%
Unconformable	09	15%
Very uncomfortable	04	7%
Total	60	100%



**Figure 04:** *Comfort Level in Studying Scientific Subjects in English*

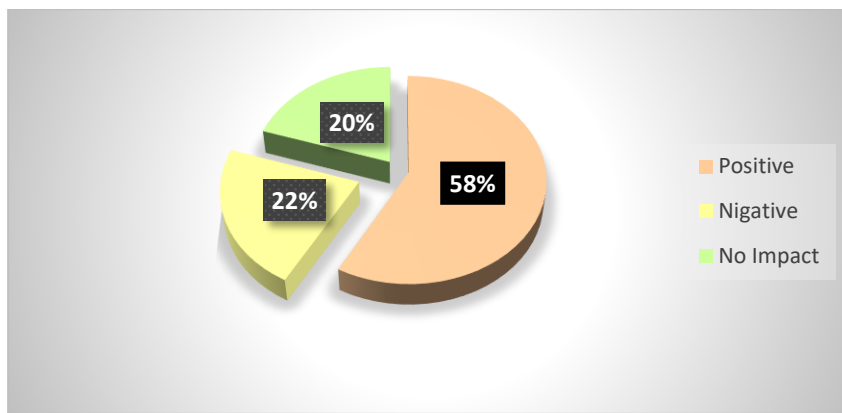
The obtained results indicate that out of the total number of participants 33% declared feeling very comfortable studying scientific subjects in English. While 28% reported feeling comfortable. Conversely, 7% of the students expressed feeling very uncomfortable, while 15% indicated discomfort. The remaining 17% of the participants chose to remain neutral.

**Q5: Do you think EMI positively or negatively influences your understanding of complex scientific concepts?**

**Table 06:**

*Influence of EMI on Understanding Complex Scientific Context*

Options	Students' Number	Percentage
Positive	35	58%
Negative	13	22%
No impact	12	20%
Total	60	100%



**Figure 05:** *Influence of EMI on Understanding Complex Scientific Context*

Concerning student’s opinions about whether EMI has a positive or negative effect on their understandings of complex scientific context, the majority 58% said that it has a positive effect. However, 22% said that it has a negative impact; the rest 20% said that it has no impact.

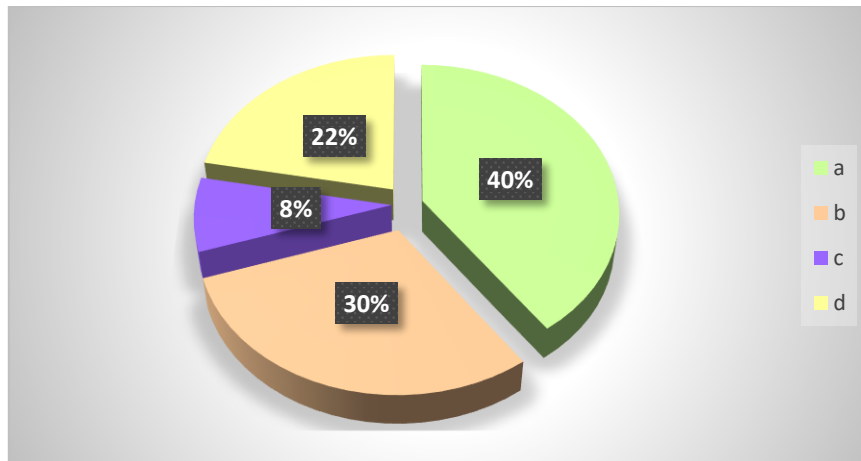
**Q 6: What challenges have you faced / do you face when adapting to EMI?**

**Table 07:**

*Challenges Faced in Adapting to EMI*

Options	Students' number	Percentage
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a).Limited English Language Proficiency among students	24	40%
b).Difficulty in conveying complex scientific concepts in English	18	30%
c).Lack of motivation towards learning in English	5	8%
d).Communication barriers between students and teachers due to language differences	13	22%
Total	60	100%



**Figure 06:** *Challenges Faced in Adapting to EMI*

In this question, the participant students were asked about the challenges that they have been facing when adapting to EMI and they provided different answers. 40% of them answered that the limited English language proficiency among students is the challenge they have been

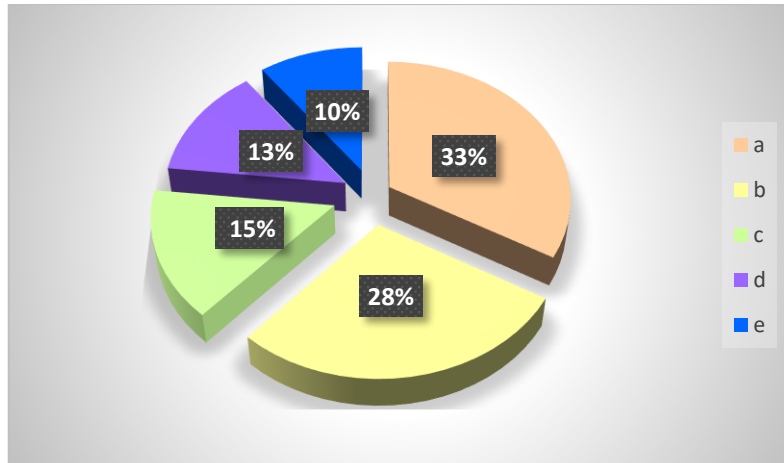
facing. 30% indicated that their challenge lies with the difficulty in conveying complex scientific Concepts in English. 8% said that the challenge for them is lack of motivation towards learning English. The remaining 22% of the participants attributed the main challenge to the communication barriers between students and teachers due to language differences.

**Q 7: What are the strategies or support mechanisms that you think it might help you to improve your EMI in scientific courses?**

**Table 08:**

*Strategies /mechanisms helping to Improve EMI in Scientific Courses*

<b>Options</b>	<b>Students' Number</b>	<b>Percentage</b>
a).Language courses	20	33%
b).Scientific reading and writing shops	17	28%
c).Language labs to enhance language proficiency	09	15%
d).Feedback from the instructors	08	13%
d).Language assessment (TOEFL , IETLS)	06	10%
Total	60	100%



**Figure 07:** *Strategies/mechanisms helping to Improve EMI in Scientific Courses*

This question shows the different strategies or support mechanisms that according to participants can help students improve their EMI in scientific courses. The participant students and they were provided with 5 choices to select from. 33% said that language courses could help them develop their EMI in scientific courses. 28% of the whole sample selected the scientific reading and writing workshops as a support mechanism. 15% thought that language labs would help enhance their language proficiency. 13% stated that feedback from instructors as support mechanism would help achieve the purpose. The rest of participants 10% opted for language assessment (TOEFL, IETLS) as a helping strategy for that.

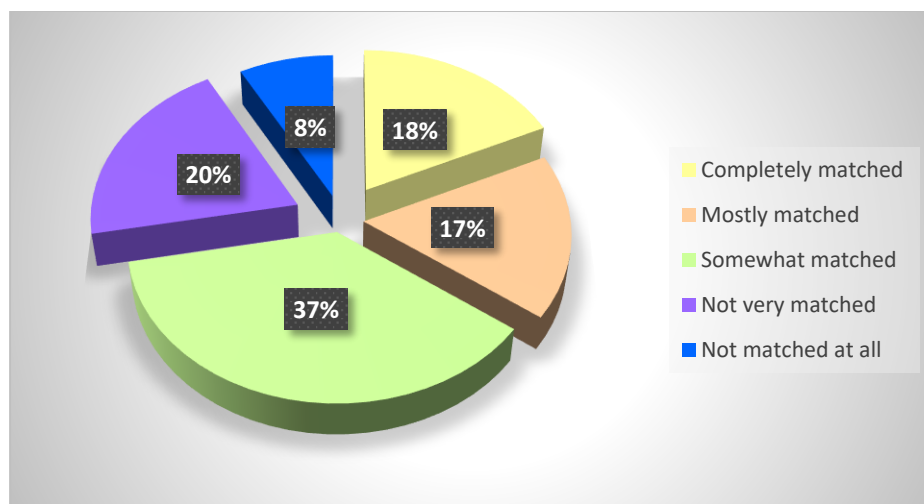
### **Section 3: Language proficiency**

**Q8: To what extent Do you feel that your current English language proficiency matches the demands of your scientific specialization courses?**

**Table 09:**

*Students' English Language Proficiency match with Course Demands*

Options	Students' Number	Percentage
Completely	11	18%
Mostly	10	17%
Somewhat	22	37%
Not match	12	20%
<i>Not at all</i>	05	8%
<i>Total</i>	60	100%



**Figure 08:** *Students' English Language Proficiency match with Course Demands*

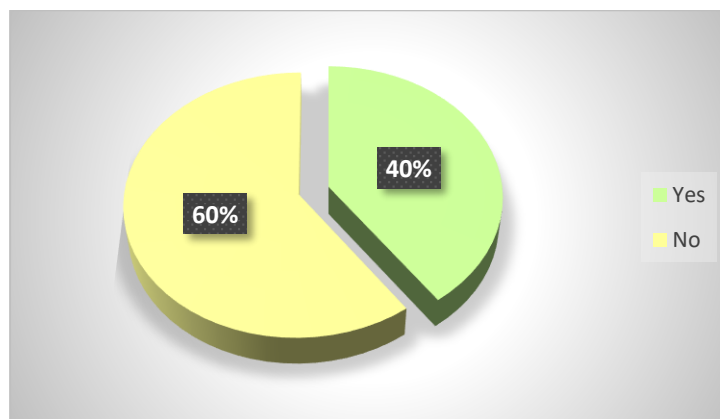
In this question, participants were asked about their English language proficiency when it comes to the demands of their scientific specialization. From Figure 8, we observe that 37% of the sample said that their present English language proficiency level somewhat matches with the demands of their courses while 20% said that their level does not really match.. Furthermore, while 18% responded that their proficiency completely matches, 17% said that theirs mostly matches their scientific study field demands. The remaining 08% denied any match between their level of proficiency in English and the demands of their study field.

**Q9: Did you get any additional support or resources to manage the language demands in your scientific specialization courses?**

**Table 10:**

*Availability of Additional Support for Language Demands*

Options	Yes	No	Total
Students' number	24	36	60
Percentage	40%	60%	100%



**Figure 9:** *Availability of Additional Support for Language demands.*

The content of the table provides an overview regarding whether students have received any additional support or resources to manage the language demands in their scientific specialization courses. Of the whole number of respondents, a majority of 60% received no additional support or resources to manage the language demands in their scientific specialization courses while 40% choose 'yes' as an answer, indicating that they received such support.

### **If yes, please specify**

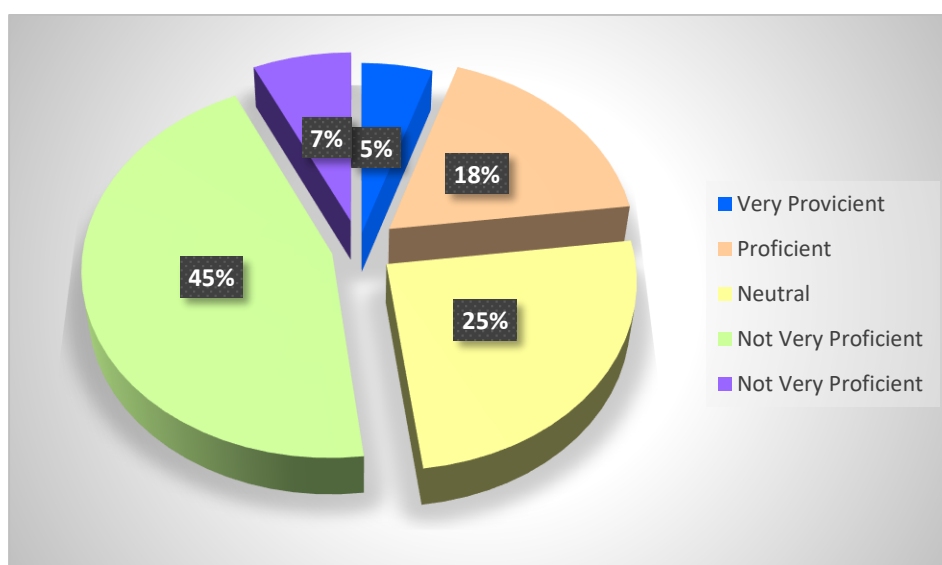
The purpose of this sub-question is to determine the additional support or different resources the students used to manage the language demands in their scientific specialization courses if they answered "yes" to the question. Based on the data presented in the previous table, out of the total number of participants (60 students), 24 students responded positively. Among these students, three indicated their preference for using the Duolingo application as an additional resource for learning the English language. Additionally, eight students highlighted the use of YouTube by subscribing to various educational channels that specialize in teaching the language. They also mentioned watching videos that explain their scientific courses in English and listening to podcasts. Furthermore, two students stated that they rely on reading books to enhance their language skills. Additionally, five students mentioned that they enrolled in language-intensive institutes and scientific courses to improve their proficiency in English. Interestingly, two participants mentioned that the TikTok application helped them learn the English language. Moreover, three students mentioned that watching movies serves as their primary source of learning English. However, two students chose not to provide an answer to this question.

**Q10: How proficient do you consider yourself in conveying intricate scientific ideas in written English, such as in research papers or assignments?**

**Table11:**

*Self-Perceived Proficiency in Conveying Scientific Ideas in Written English*

Options	Very proficient	Proficient	Neutral	Not very proficient	Not very proficient	Total
Students' Number	03	11	15	27	04	60
Percentage	05%	18%	25%	45%	7%	100%



**Figure10:** *Self-Perceived Proficiency in Conveying Scientific Ideas in Written English.*

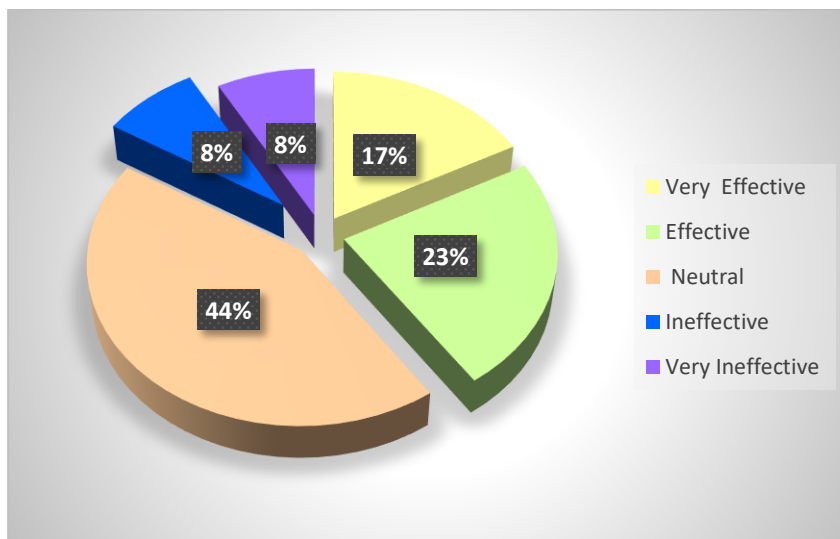
Based on the responses to the question regarding proficiency in conveying intricate scientific ideas in written English, only a small minority of respondents, comprising 5% of the total sample size, indicated being ‘very proficient’, while a slightly larger proportion, constituting 18% of the respondents, considered themselves ‘proficient’. In contrast, a quarter of the sample 25% remained neutral to declare their perceived level of proficiency. However, 45% of the sample expressed that they are not ‘very proficient’. The remaining small percentage of respondents, representing 7% of the total, stated that they are ‘not proficient at all’.

**Q11: In your opinion, how effective are instructors in facilitating understanding during EMI courses?**

**Table12:**

*Effectiveness of Instructors in EMI Course Facilitation*

Options	Very	Effective	Neutral	Ineffective	Very	Total
	Effective				Ineffective	
Students' number	10	14	26	05	05	60
Percentage	17%	23%	43%	8%	8%	100%



**Figure11:** *Effectiveness of Instructors in EMI Course Facilitation*

From the results displayed in the above table and pie chart regarding the perceived effectiveness of instructors in facilitating understanding during EMI courses, it is observed that a notable portion of respondents, constituting 17% of the total sample, regarded instructors as ‘very

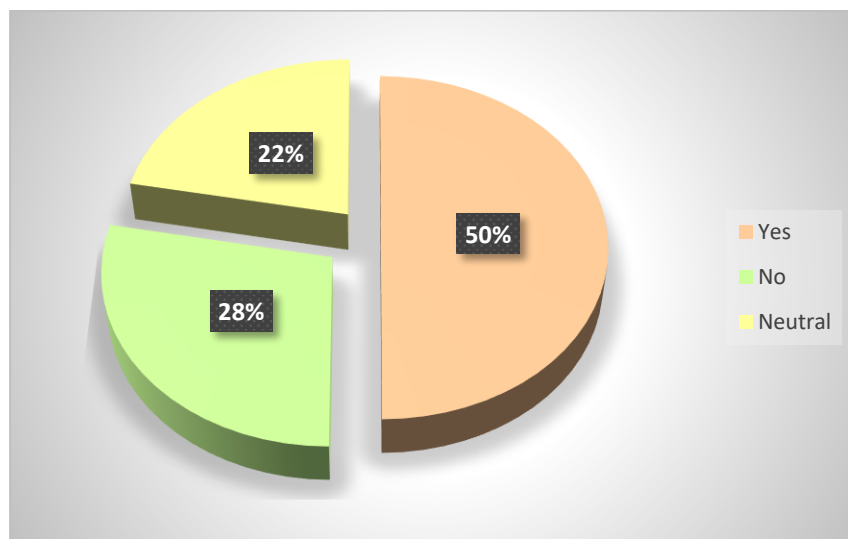
effective’, while a slightly larger proportion, comprising 23% of the respondents, considered their instructors to be ‘effective’. A significant number of participants, accounting for 43%, remained ‘neutral’. However, a smaller percentage of respondents, representing 8% of the total, rated instructors as ‘ineffective, and an equal proportion of participants, also constituting 8% of the sample, deemed instructors as ‘very ineffective.

**Q12: Do you feel encouraged to actively participate in class discussions and ask questions during EMI courses?**

**Table13:**

*Engagement in Class Discussions and Questions during EMI Courses*

Options	Yes	No	Neutral	Total
Students’ number	30	17	13	60
Percentage	50%	28%	22%	100%



**Figure 12:** Engagement in Class Discussions and Questions during EMI Courses

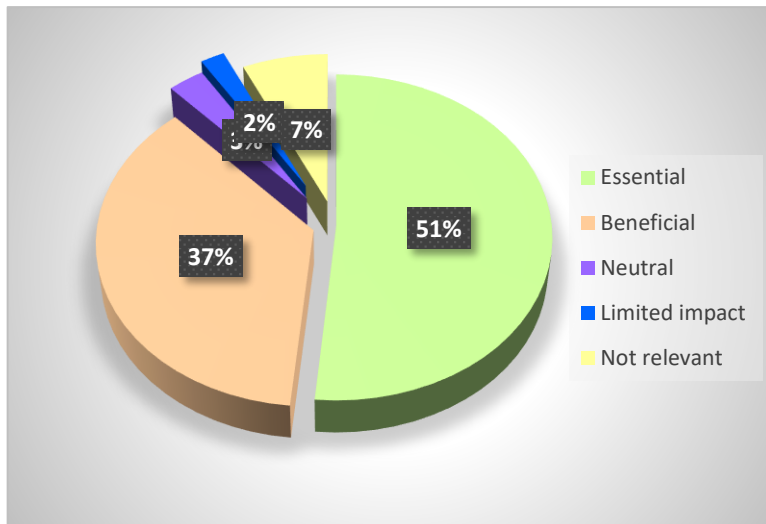
The answers provided for this question come to describe the encouragement of the students to actively participate in class discussions and ask questions during EMI Courses. Half of the respondents (i.e. 50%) chose "Yes" to indicate feeling encouraged to actively engage in class discourse and pose questions. In addition, 28% of the sample selected "No" to express a lack of encouragement in doing so. Additionally, 22% of the participants chose to be Neutral.

**Q13: How do you foresee the role of EMI in your future career within the scientific field?**

**Table14:**

*Role of EMI in the Students' Foreseen Future Scientific Career*

<b>Options</b>	<b>Students' number</b>	<b>Percentage</b>
Essential	31	52%
Beneficial	22	37%
Neutral	02	3%
Limited impact	01	2%
Not relevant	04	7%
Total	60	100%



**Figure13:** *Role of EMI in the Students' Foreseen Future Scientific Career*

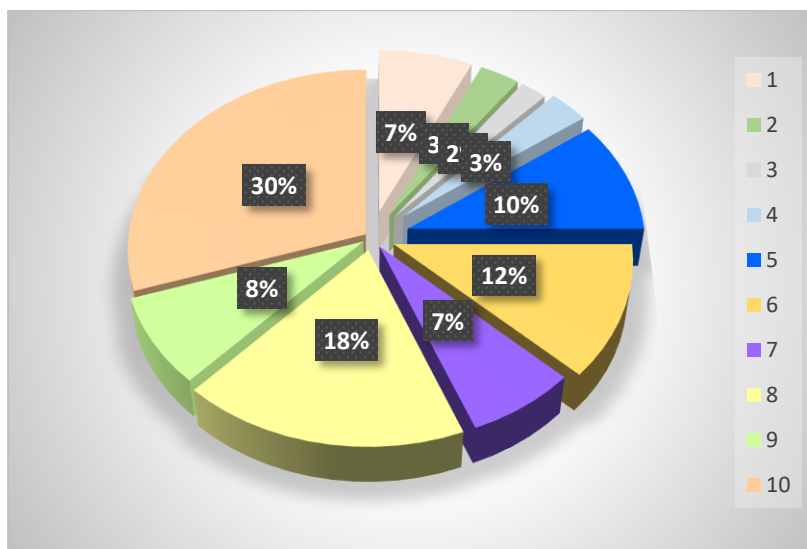
The results suggest diverse outlooks among students regarding the anticipated role of EMI in their future careers within the scientific field. A majority, representing 52% of the total sample, viewed EMI as essential for their future career. Additionally, 37% of the respondents perceived EMI as beneficial to their professional advancement. However, a tiny minority, constituting 3% of the sample, remained neutral regarding the potential impact of EMI on their future careers. Furthermore, only a minimal number of respondents, accounting for 2% of the total anticipated limited impact of EMI on their future career. Moreover, 7% of the participants deemed EMI as not relevant to their future careers in the scientific field.

**Q14: On a scale of 1 to 10, how satisfied are you with the current implementation of EMI in your scientific specialization courses?**

**Table15:**

*Degree of Satisfaction with EMI Implementation*

Options	1	2	3	4	5	6	7	8	9	10	Total
Students' number	04	02	01	02	06	07	04	11	05	18	60
Percentage	07%	03%	02%	3%	10%	12%	7%	18%	8%	30%	100%



**Figure14:** *degree of Satisfaction with EMI Implementation*

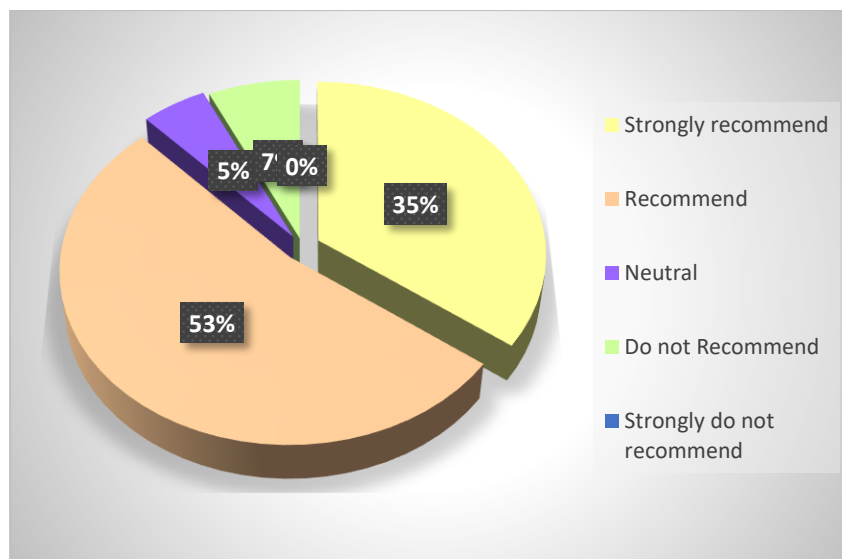
According to the survey, we observed varying opinions among students regarding their satisfaction with the current implementation of (EMI) in their scientific specialization courses. When asked to rate their satisfaction on a scale of 1 to 10, 30% chose the highest rating of 10, 8% selected a rating of 09, 18% opted for 08, 7% chose a rating of 07, and 12% settled on 06, and 10% marked 05. On the lower end of the scale, 3% selected a rating of 02, while 2% opted for a rating of 03. The remaining 7% chose the lowest rating of 01 .and just 2 students choose to rate 4.

**Q15: Would you recommend the implementation of EMI to future students in scientific specializations at Khenchela University?**

**Table 16:**

*Recommendation of EMI Implementation for Future Students*

Options	Students' Number	Percentage
Strongly recommend	21	35%
Recommend	32	53%
Neutral	03	05%
Do not Recommend	04	07%
Strongly Do not Recommend	00	00%
Total	60	100%



**Figure15:** *Recommendation of EMI Implementation for Future Students*

In this particular inquiry, we sought the opinions of students regarding the potential introduction of EMI for scientific specialization at Khenchela University, with the intention of benefiting future students. The results indicate that 35% of the students strongly recommended

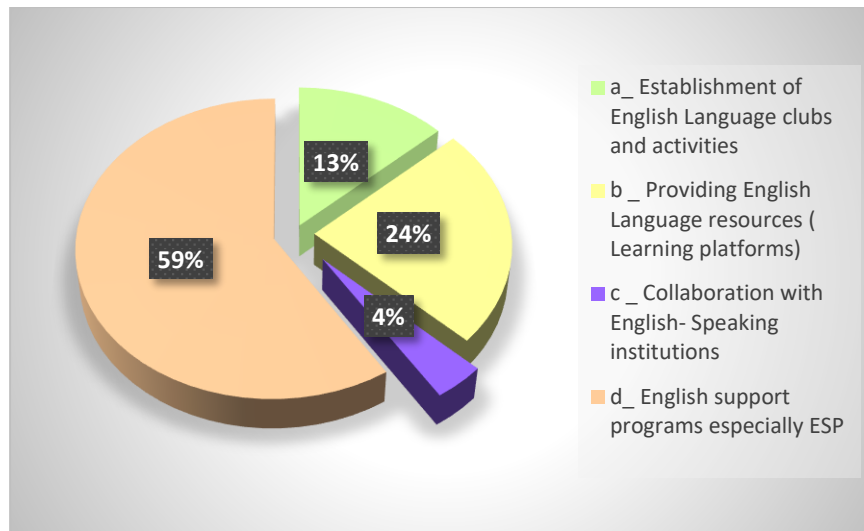
the utilization of EMI while the majority of students, representing 53% recommended its implementation. Only a small percentage of students 5% chose to remain neutral on the matter. Conversely, 7% of the surveyed students did not recommend the application of EMI. Notably, none of the students expressed strong opposition or a complete lack of recommendation towards this approach.

**Q16: In what ways do you think Khenchela University can better support English language use within your scientific specializations?**

**Table17:**

*Ways to Enhance English Language Support at Khenchela University*

<b>Options</b>	<b>Students' Number</b>	<b>Percentage</b>
Establishment of English Language clubs and activities	16	27%
Providing English Language resources(Learning platforms)	29	48%
Collaboration with English Speaking institutions	05	08%
English support programs especially ESP	10	17%
<b>Total</b>	<b>60</b>	<b>100%</b>



**Figure16:** *Ways to Enhance English Language Support at Khenchela University*

In the survey conducted, students were queried about their perspectives on how Khenchela University can enhance support for English language usage within their scientific specializations. The results revealed that 27% of the sample suggested the establishment of English labs and activities as a viable approach. A portion nearing half of the participant students, accounting for 48%, advocated for the provision of English language resources, such as learning platforms. While 8% viewed collaboration with speaking institutions as a means to support the use of EMI, 17% of the participants favored English support programs, particularly ESP, as a means of facilitating the incorporation of EMI. These insights shed light on the various strategies that students believe can be implemented to enhance English language support within their scientific university specializations.

**Q17: Please provide any additional comments or suggestions regarding the implementation of EMI in your academic experience**

In this question, students were tasked with providing any additional comments or suggestions regarding the implementation of English as the medium of instruction in their academic

experience. The students provided different recommendations and suggestions here. The following are their answers:

- Establishing language support centers
- Gradually integrating English,
- Conducting specialized training programs for professors
- Offering regular language courses
- Creating university clubs for English language education.
- Six students preferred utilizing Arabic due to difficulties in comprehending and memorizing scientific terms in both English and French. However, If they forced to choose between French and English, they indicated a preference for English.
- Four students did not provide a response to the question.

## **II.4 Analysis of Teachers' Interview**

### **Section One: Background Information**

#### **Q1: Can you provide a brief overview of your experience in teaching scientific specialization courses at Khenchela University?**

In response to the inquiry about their teaching experience in scientific specialization courses at Khenchela University, the teachers provided the following overview: Teacher 1 declared a teaching experience of 9 years, while Teacher 2 stated 4 years of teaching. Teacher 3 reported 2 years of teaching experience, whereas Teacher 4 claimed 10 years. Teacher 5 declared 5 years of teaching experience, followed by Teacher 6 who also reported 5 years. Teacher 7 claimed 7 years of experience teaching scientific specialization courses at the university. Finally, Teacher 8 asserted the most extensive experience within the group, stating 8 years of teaching.

Throughout these academic years, most teachers utilized the French language as the medium of instruction. Notably, one teacher mentioned teaching in English for the past two years.

**Q2: How long have you been teaching courses with English as a Medium of Instruction (EMI?)**

The results show that seven teachers, which means almost all of them, have started teaching their courses in English from the beginning of the current academic year. While only one teacher claimed that he / she has been teaching in English for the past two years: “I taught two years here at Khenchela University and it was an amusing experience” (Teacher 03).

**Section 2: Attitudes and Perceptions**

**Q3: What are your overall perceptions of the positive aspects of implementing EMI in scientific specialization courses?**

This question is concerned with the teacher overall perceptions of the positive aspects of implementing EMI in scientific specialization. All teachers agreed that there are positive aspects to implementing the English language as a medium of instruction, considering it as the language of research and science and its alignment with global scientific and technological advancements. Additionally, it opens doors for students and provides them with numerous opportunities to comfortably pursue their future studies.

**Q4: Have you observed any challenges or concerns among students regarding the use of English as the medium of instruction?**

**Table 18:**

*Challenges and concerns among students regarding the use of English as the medium of instruction.*

options	Yes	No
Teachers' Responds	87,5%	12,5%

Indeed, the greatest majority of the interviewed teachers (87.5%) stated that they have observed challenges and concerns among students regarding the use of English as a medium of instruction, while only a minority (12.5%) said that they did not observed any challenges.

**Q5: In your opinion, how have students responded to EMI in terms of their academic performance and Engagement?**

In this question, the teachers were asked about their opinions on how students have responded to EMI in terms of their academic performance and engagement. Teacher 01 claimed that they are excited. Teacher 02 and teacher 6 said that their responses are positive. Teacher O3 (N3) said the students seemed motivated. Teacher04 and teacher 08 stated that the responses were below average. Teacher 05 said that the responses were very weak, while Teacher 07 claimed that the students' responses were acceptable.

**Section 3: Teaching Strategies**

**Q6: What teaching strategies or approaches do you find effective in conveying complex scientific concepts in an EMI setting?**

The results show that teachers use different strategies to convey complex scientific concepts. Teacher 01 asserted that he or she utilizes proximal practical examples in cooperation with audiovisual aids, in addition to written exercises “Utilization of proximal practical examples,

incorporation of audio-visual aids to train students in effective listening and pronunciations well as written exercises to enhance students' writing skills” (teacher 01). Teacher 02 said that the use of dictionaries like the Longman Dictionary helps. Teacher 03 mentioned memorizing and simplifying as strategies. Teacher 04 said that including explanations of difficult scientific terms, in addition to using the mother tongue language is effective. Teacher 05 stated the use of videos, applications, and exercises as strategies. Teacher 06 sees that the use of humorous methods and simplifying the language are effective strategies. Teacher 07 used translation from English into Arabic to facilitate comprehension of difficult scientific terms for the students, while teacher 08 did not specify any strategy and said that it differs depending on the student.

**Q7: Have you employed any specific methods to support students who may face language-related challenges in understanding scientific terminology in English?**

**Table 19:**

*Supporting Students with Language-Related Challenges in Understanding Scientific Terminology in English*

<b>Options</b>	<b>YES</b>	<b>NO</b>
<b>Teachers’ Responds</b>	62.5%	37.5%

In this question, the teachers were asked if they have employed any specific methods to support students who may face language-related challenges in understanding scientific terminology in English. 62.5% said yes, and 37.5% said that they did not employ any specific methods.

## Section 4: Professional Development

**Q8: Have you received any training or professional development opportunities specifically related to EMI?**

**Table 20:**

*Comparative Analysis of EMI Training and Professional Development Opportunities*

<b>Options</b>	Yes	No
<b>Teachers' Responds</b>	75%	25%

In response to this inquiry, regarding their participation in educational training or professional development initiatives pertinent to EMI, (75%) of the interviewed teachers affirmed their engagement, while the remaining (25%) indicated no involvement.

### **\_ How have they influenced your teaching practices?**

Among those who acknowledged receiving such training, a spectrum of perspectives emerged concerning its impact on pedagogical methodologies. Teacher 02 conveyed a perception that the training exerted negligible influence on instructional approaches, citing a predominant focus on language utilization in a broad context rather than on specific instructional facets. In a similar vein, Teacher 03 asserted the absence of discernible effects resultant from the training. Conversely, Teacher 04 articulated a positive correlation between the training experience and an enhanced deployment of language within their pedagogical framework. Teacher 05 underscored the utility of the training, attributing its efficacy to a mitigation of challenges encountered in language application and instructional delivery. Further endorsing the efficacy of the training, Teacher 06 remarked upon its capacity to augment communicative competencies. In contrast, Teacher 08 articulated a perception of limited efficacy,

characterizing the training as lacking significant impact on instructional practices and intensity.

As for teacher 07, he did not provide any answer.

**Q9: Do you believe that ongoing professional development is essential for instructors involved in EMI courses?**

**Table 21:**

*Perceptions on the Importance of Ongoing Professional Development for EMI Instructors*

<b>Options</b>	Yes	No
<b>Teachers' Responds</b>	100%	00%

The primary objective of this inquiry was to ascertain the perspective of educators regarding the perceived importance of ongoing professional development for instructors involved in EMI courses. A unanimous consensus of 100% among respondents affirmed the indispensability of such continuous professional growth.

**\_ Why / why not?**

The consensus among all educators regarding the necessity of ongoing professional development is underpinned by several key rationales. Firstly, such continuous growth is perceived as integral to sustaining scholarly productivity within the academic domain. Secondly, it is deemed imperative to remain abreast of scientific advancements, ensuring alignment with the evolving landscape of scientific inquiry. Thirdly, ongoing professional development is viewed as instrumental in expanding employment opportunities and fostering professional development, thereby facilitating enhanced language proficiency and effective communication skills. Furthermore, it is posited that such initiatives serve to promote the

personal and professional growth of educators. Additionally, the recognition of English as the predominant language of scientific discourse underscores the importance of aligning with ongoing professional development to remain proficient in language usage and attuned to scientific evaluations.

## **Section 5: Student-Teacher Interaction**

### **Q10: How would you describe the level of interaction between students and teachers in EMI courses?**

Regarding the level of interaction between students and teachers in EMI courses, diverse perspectives emerged among the interviewed educators. While three teachers deemed the level of interaction acceptable, one teacher expressed a positive appraisal. Conversely, the remaining four instructors characterized the level of interaction as below average and

### **Do you think it differs from non-EMI courses?**

**Table 22:**

*Comparison of Professional Development Needs: EMI vs. Non-EMI Courses*

<b>Options</b>	Yes	No
<b>Teachers' Responds</b>	50%	50%

In this question, 4 teachers said no, while the remaining 4 teachers said yes, indicating that it differs from non-EMI courses.

### **Q11: Have you noticed any changes in the dynamics of student participation and communication since the implementation of EMI?**

**Table 23:**

*Student Participation and Communication Dynamics: Pre and Post Implementation of EMI*

<b>Options</b>	Yes	No
<b>Teachers' Responds</b>	100%	00%

Teachers were asked if they had noticed any changes in the dynamics of students' participation and communication since the implementation of EMI. All the teachers responded affirmatively.

## **Section 6: Challenges and Solutions**

### **Q12: What challenges, have you personally encountered in teaching scientific courses in English?**

This question focused on the challenges that teachers have personally encountered in teaching scientific courses in English. Different answers were provided. The first teacher said it is about “how to deal with students who have a weak level in terms of the lesson content and the language itself”. The second teacher said that it is about “ communicating using English because we used to communicate either with French or Arabic”, while the third teacher said that it is about “the weak level of students when it comes to the language”. The fourth teacher said that “ the challenge lies in simplifying the lesson for students and encouraging their engagement with the explanation”. The fifth teacher claimed that “the major challenge is how to deal with students themselves as they may struggle to grasp the language”. The sixth teacher said it is about fluent use of the language as he/she is not used to it. The seventh teacher declared that it is about using the language itself because he / she is accustomed to teaching

using the French language only, while the last teacher, the eighth teacher, said that it is about language use and proficiency.

### **How have you addressed them?**

After asking teachers about the challenges they have personally encountered in teaching scientific courses in English, they were asked how they addressed them. Teacher 01 emphasized the importance of explaining scientific concepts initially in the native language before transitioning to English, prioritizing essential scientific terminology. Teacher 02 shared their approach of repeating scientific terms multiple times, utilizing resources like the Longman dictionary, and integrating continuous language practice. Teacher 03 suggested additional avenues for language learning, such as joining institutes or seeking private lessons. Teacher 04 highlighted the strategy of simplifying explanations and breaking down complex scientific terms to enhance students' understanding and retention. Teacher 05 mentioned implementing teaching methods like retrieval practice and assigning English exercises for homework to address language challenges. Teacher 06 underscored the necessity of self-development through deliberate language practice. Conversely, Teacher 07 acknowledged personal efforts in learning the language through dedication and hard work. Lastly, Teacher 08 admitted resorting to using the Arabic mother tongue when faced with difficulty, indicating a pragmatic approach to ensure effective communication and comprehension.

### **Q13: Are there institutional or departmental support systems in place to assist instructors in overcoming challenges related to EMI?**

In this inquiry, the majority of the professors expressed their enrollment in the Intensive Language Courses Institute of the University of Khenchela as a means of receiving institutional

and administrative assistance to address the difficulties associated with utilizing English as the language of instruction. However, two professors asserted that there are no existing institutional or administrative support systems in place.

## **Section 7: Future Perspectives**

### **Q14: In your view, what are the potential long-term benefits of EMI implementation for students pursuing scientific specializations?**

Among the responses provided by the teachers regarding the potential long-term benefits of (EMI) for students pursuing scientific specializations, a consensus emerged on the enhancement of opportunities for international engagement, scholarly progression, and career prospects. As stated by teacher 04 “The English language serves as the language of the global community and academia, thereby assisting students who will pursue further studies in their ability to write scientific articles and engage in self-development”. The teachers emphasized that EMI can serve as a facilitator for accessing global scientific advancements, fostering international cooperation, and capacitating students with the necessary skills to flourish in an progressively interconnected world.” In my view using English as a medium of teaching benefits Algerian institutions by keeping up with worldwide scientific advancement and boosting their level by opening up new avenues for international cooperation” (teacher 07).

### **Q15: Based on your experience, what recommendations would you make to enhance the effectiveness of EMI in scientific specialization courses at Khenchela University?**

The question seeks recommendations for enhancing the effectiveness of English as a medium of instruction (EMI) in scientific specialization courses at Khenchela University. In addressing

the challenges and benefits of using English in scientific education, a variety of strategies emerged from the teachers' responses. While Teacher 01 stressed the need for incorporating audiovisual aids and aligning English instruction with scientific content, Teacher 02 emphasized the importance of attending language institutes like the Intensive Language Institute to enhance both professors' and students' communicative skills. Similarly, Teacher 03 advocated for motivating students to join language institutes such as ILTS in Khenchela. In contrast, Teacher 04 recommended cultivating English proficiency before embarking on teaching or studying scientific subjects. Moreover, Teacher 05 proposed integrating English courses as mandatory in Algerian universities and across various fields. Teacher 06 highlighted the importance of workshops and access to resources for improving English proficiency. Meanwhile, Teacher 07 suggested forming university teams to develop English-medium instruction strategies, and Teacher 08 emphasized the necessity of extensive training for teachers in navigating English instruction effectively. These diverse approaches collectively aim to optimize the utilization of English in scientific education and enhance global engagement and scholarly advancement.

## **II.5 Analysis of the Classroom Observation**

### **Section one: the language used**

#### **Classroom 01 (with Teacher A)**

**Table 24:**

*The language used by the teacher*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The teacher uses only English		×
The teacher uses English and Arabic		×

The teacher uses English and French		×
The teacher uses only French		×
The teacher uses only Arabic		×
The teacher uses English ,French and Arabic	×	

**Table 25:**

*The language used by students to respond*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students respond using only English		×
Students respond using English and Arabic		×
Students respond using English and French		×
Students respond using only French		×
Students respond using only Arabic		×
Students respond using English ,French and Arabic	×	

**Table 26:**

*The frequency of English language usage*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The frequency of English language usage is low	×	
The frequency of English language usage is average		×
The frequency of English language usage is high		×

**Table 27:**

*The language used in the handouts given by teachers*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The language used in the handouts is English	×	
The language used in the handouts is Arabic		×
The language used in the handouts is French		×

Upon scrutiny of classroom 01 observation, it was discerned that English, French, and Arabic were employed for instructional purposes. While the teacher used all three languages sporadically throughout the lecture (although English was less used), students predominantly responded using Arabic with occasional use of French, and sometimes English. Notably, the handouts disseminated by the teacher were exclusively in English. However, our observations revealed a relatively low frequency of English language usage overall.

### **Classroom 02 (with Teacher B)**

**Table 28:**

*The language used by teacher*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The teacher uses only English		×
The teacher uses English and Arabic	×	
The teacher uses English and French		×
The teacher uses only French		×
The teacher uses only Arabic		×
The teacher uses English ,French and Arabic		×

**Table 29:**

*The language used by students to respond*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students respond using only English		×
Students respond using English and Arabic	×	
Students respond using English and French		×
Students respond using only French		×
Students respond using only Arabic		×
Students respond using English ,French and Arabic		×

**Table 30:**

*The frequency of English language usage*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The frequency of English language usage is low		×
The frequency of English language usage is average	×	
The frequency of English language usage is high		×

**Table 31:**

*The language used in the handouts given by teachers*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The language used in the handouts is English	×	
The language used in the handouts is French		×
The language used in the handouts is Arabic		×

The observation revealed that Teacher 2 mainly employed English and Arabic during instruction, with students using these same languages for their interaction in class. There was an average frequency of English language usage in the class. Furthermore, the handouts provided by Teacher 2 were solely in English. In this class and the previous one, it is noticed that the students used the same languages used by their teachers. This may mean that the students were influenced by their teachers.

### **Classroom 03 (with Teacher C)**

**Table 32:**

*The language used by teacher*

<b>Options</b>	<b>Yes</b>	<b>No</b>
----------------	------------	-----------

The teacher uses only English		×
The teacher uses English and Arabic		×
The teacher uses English and French	×	
The teacher uses only French		×
The teacher uses only Arabic		×
The teacher uses English ,French and Arabic		×

**Table 33:**

*The language used by students to respond*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students respond using only English		×
Students respond using English and Arabic		×
Students respond using English and French		×
Students respond using only French		×
Students respond using only Arabic		×
Students respond using English ,French and Arabic	×	

**Table 34:**

*The frequency of English language usage*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The frequency of English language usage is low		×
The frequency of English language usage is average		×
The frequency of English language usage is high	×	

**Table 35:**

*The language used in the handouts given by teachers*

<b>Options</b>	<b>Yes</b>	<b>No</b>
The language used in the handouts is English	×	
The language used in the handouts is French		×

The language used in the handouts is Arabic		×
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Different from the observations of classrooms 01 and 02, it was observed in classroom 03 that English and French were the languages predominantly utilized for instruction by the teacher. Students, in turn, responded using a combination of English, Arabic and French. The frequency of English language usage was notably high. Moreover, the handouts disseminated by Teacher 03 were exclusively in English. That all teachers tried to use English although they lack proficiency; this is maybe because of the presence of the researchers, so teachers were trying to impress the researchers that they can teach using English. And the same thing was noticed about the students; and the students were generally noticed using the same languages used by their teachers when they tried to respond or interact in class; and this can be interpreted that the students are influenced by their teachers as regards the language being used in class. But the fact is that when both the teachers and their students are interacting in Arabic and French, they were found more casual and natural; but when using English, they stuttered a lot and could barely make a complete well structured sentence, they rather tried to throw out scattered words, some of which were sometimes meaningless in the context

## Section 2: Students-teacher Interaction

### Classroom 01 (with Teacher A)

**Table 36:**

*Students interact effectively when teacher uses*

Options	Yes	No
Students interact effectively when the teacher uses only English		×

Students interact effectively when the teacher uses English and Arabic		×
Students interact effectively when the teacher uses English and French		×
Students interact effectively when the teacher uses only French		×
Students interact effectively when the teacher uses only Arabic		×
Students interact effectively when the teacher uses English , Arabic and French	×	

**Table 37:**

*Engagement level when using English*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are more engaged when English is used	×	
Students are less engaged when English language is used		×
Students are disengaged when English language is used		×

**Table 38:**

*Engagement level when using English, Arabic and French*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are more engaged when English, Arabic and French are used	×	
Students are less engaged when English , Arabic and French are used		×
Students are disengaged when English , Arabic and French are used		×

In the assessment of classroom 01 observation, it was evident that students effectively interacted when the instructor utilized English, French, and Arabic. Particularly noteworthy was the heightened engagement observed when English was employed. Moreover, students appeared even more engaged when the instructor utilized a combination of English, Arabic, and French.

### **Classroom 02 (with Teacher B)**

**Table 39:**

*Students interact effectively when teacher uses*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students interact effectively when the teacher uses only English		×
Students interact effectively when the teacher uses English and Arabic	×	
Students interact effectively when the teacher uses English and French		×
Students interact effectively when the teacher uses only French		×
Students interact effectively when the teacher uses only Arabic		×
Students interact effectively when the teacher uses English , Arabic and French		×

**Table 40:**

*Engagement level when using English*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are more engaged when English language is used	×	
Students are less engaged when English language is used		×

Students are disengaged when English language is used		×
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**Table 41:**

*Engagement level when using English , Arabic and French*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are engaged when English, Arabic and French are used	×	
Students are less engaged when English , Arabic and French are used		×
Students are disengaged when English , Arabic and French are used		×

In our classroom 02 observation, students engaged effectively when the instructor utilized both English and Arabic. It was also noted that the students were more engaged when the English language was used. Heightened engagement was particularly observed when the instructor employed a combination of English, Arabic and French languages.

### **Classroom 03 (with Teacher C)**

**Table 42:**

*Students interact effectively when teacher uses*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students interact effectively when the teacher uses only English		×
Students interact effectively when the teacher uses English and Arabic		×
Students interact effectively when the teacher uses English and French	×	

Students interact effectively when the teacher uses only French		×
Students interact effectively when the teacher uses only Arabic		×
Students interact effectively when the teacher uses English , Arabic and French		×

**Table 43:**

*Engagement level when using English*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are more engaged when English language is used	×	
Students are less engaged when English language is used		×
Students are disengaged when English language is used		×

**Table 44:**

*Engagement level when using English, Arabic and French*

<b>Options</b>	<b>Yes</b>	<b>No</b>
Students are more engaged when English, Arabic and French are used	×	
Students are less engaged when English , Arabic and French are used		×
Students are disengaged when English , Arabic and French are used		×

Regarding the interaction between the students and their teacher, the observations indicates that students demonstrated effective engagement when the teacher employed both English and

French languages. It is apparent that students were more engaged when the English language is used. However, their level of engagement increased when using English, Arabic and French.

### **Section 3: Attitudes towards English language Use in Class**

#### **Classrooms 01, 02, and 03**

**Table 45:**

*Teachers' attitudes towards using English*

<b>Options</b>	<b>Classroom 01</b>	<b>Classroom 02</b>	<b>Classroom 03</b>
Teachers' attitudes towards using English is positive	×	×	×
Teachers' attitudes towards using English is negative			

**Table 46:**

*The students attitudes towards using English*

<b>Options</b>	<b>Classroom 01</b>	<b>Classroom 02</b>	<b>Classroom 03</b>
The students attitudes towards using English is positive	×	×	×
The students attitudes towards using English is negative			

It is highly noted that all the teachers and their students in the three classrooms observed have positive attitudes towards the utilization of English as a mean of instruction.

## **II.6 Interpretation and Discussion of Results**

This section discusses the main findings gathered from analyzing the different sources of data, namely, students' surveys, teachers' interviews, and classroom observations, focusing on science and technology education at Khenchela University. These insights help understand how both teachers and students feel about using EMI. The findings support the initial research hypothesis and offer detailed perspectives on the topic.

The results of the students' questionnaire showed that most students support using English for teaching in the Science and Technology faculty. They felt comfortable with it and recognized its importance, pointing out its benefits and advocating for its widespread use. This agreement shows a strong belief in the advantages of using English across various academic subjects. Students see English as crucial for international communication and collaboration, especially in business, science, and technology. They expect to use their English skills to build professional networks, participate in international events, and take advantage of global opportunities in scientific research.

Moreover, the importance of English in academic research and publishing was highlighted, making it the main language for scholarly discussions and for sharing knowledge. So, using English for teaching is seen as a way to help students engage more with the global academic community and contribute to it effectively. In response to first-year Science and Technology students' suggestions for improving their English skills, several solutions were proposed. These include providing English learning resources, creating learning platforms, starting English clubs and activities, and offering English support programs, especially focusing on English for Specific Purposes (ESP). These proposed interventions are deemed

integral to addressing students' needs and enhancing their language competencies to align with both academic pursuits and professional aspirations.

The interviewed faculty members in the Science and Technology department have unanimously agreed on the crucial importance of using English as the main language for teaching. This decision is based on recognizing English's widespread use and deep roots in science and technology. By using English, educators can access a wide range of educational materials and resources, which supports scholarly activities and allows for contributions to international discussions through publications in respected journals and platforms. Additionally, using English makes it easier to participate in national and international conferences and collaborate on research projects, which enhances involvement and recognition in academic communities worldwide. Highlighting the significance of English goes beyond accessing resources; it also facilitates the exchange of ideas and fosters a dynamic academic atmosphere. By teaching in English, educators aim to provide students with a comprehensive set of resources, creating an environment conducive to intellectual development and academic exploration. This commitment to English-medium instruction remains steadfast despite any challenges that may arise, whether at the individual level for educators or in meeting the preferences of students less comfortable with English.

Therefore, teachers strongly recommended adopting English as the language of instruction across scientific disciplines within the academic faculty. This strategic decision aligns with the Ministry's overall goal of fostering a scholarly environment that is globally connected and promotes academic excellence.

Based on the observations conducted, the findings suggest that language choice significantly influences student engagement and attitudes towards EMI. While the teachers in

all three classrooms employed English as an instructional language, variations in language combinations and frequency of usage yielded distinct outcomes in student-teacher interaction. Moreover, attitudes towards EMI were generally positive, indicating a recognition of its benefits in facilitating effective instruction.

## **Conclusion**

The practical component of this study utilized student questionnaires, teacher interviews, and classroom observations to evaluate EMI in Science and Technology department at Khenchela University. The student questionnaires provided quantitative data on student attitudes and perceptions regarding EMI, while the teacher interviews offered qualitative insights into the experiences and opinions of the faculty members. Classroom observations allowed for an on-the-ground assessment of the actual use of EMI in teaching practices. Together, these methods offered a comprehensive understanding of the current state of EMI at department of Science and Technology at Khenchela University, highlighting both the benefits and challenges experienced by students and teachers. The findings from these diverse data sources will inform future strategies for enhancing EMI implementation in the university's scientific faculties.

## II.7 Limitations

The study had several limitations that should be acknowledged:

- The questionnaire distribution coincided with Ramadan, resulting in high student absenteeism.
- Teachers did not assist with conducting interviews.
- Some teachers opted to respond to the interviews in written form rather than face-to-face.
- Not all the teachers returned their written responses. Some did not even bother to reply to our recurrent emails kindly asking to send answers if done.
- Classroom observations were conducted with only three teachers during the final week of the study due to time constraints, and because most teachers provided different excuses in order not to have us in their classrooms.
- One teacher publically declined to let us in his sessions for the classroom observation.

## **II.8 Recommendations**

Based on the findings of this research, several suggestions and recommendations for further research are proposed. Firstly, it is recommended to broaden the research scope by including a larger number of students and teachers to enhance the perspectives and validity of the study's findings and outcomes. This study focused on first-year students in the Science and Technology Department at Khenchela University. Future research should explore different academic fields and diverse backgrounds to capture varied perspectives across Algerian universities.

Secondly, university administrations are pivotal in the implementation of EMI. They must establish policies, allocate resources, and monitor progress to ensure effective implementation. Algerian institutions should invest in comprehensive English language training programs for both students and faculty. These programs should include pre-university intensive English courses, ongoing language support throughout students' academic careers, and professional development for teachers. Specifically, professional development should focus on English for Specific Purposes (ESP) to enhance teachers' English proficiency and their teaching skills in an EMI context.

Lastly, further studies should address the challenges faced in EMI environments, identify effective strategies and approaches for EMI courses, and propose solutions to various issues. By addressing these recommendations, research on the implementation of EMI in Algerian higher education can be significantly improved, ensuring a thorough and comprehensive understanding of the impacts, challenges, and benefits of EMI.

## **General Conclusion**

The present research endeavors to enhance understanding regarding the implementation of English as the medium of instruction (EMI) within Science and Technology department at Khenchela University. This study introduces the notion of EMI and devises a methodological framework to evaluate its efficacy, thereby enhancing the practical utility of this investigation. The outcomes derived from students' questionnaires, teachers' interviews, and classroom observations are delineated. Through a comprehensive analysis of data collected via these diverse methods, the study endeavored to provide substantive answers to the following questions : What are students' attitudes towards the implementation of English as a medium of instruction in Science and Technology department at Khenchela University? What are teachers' attitudes towards the implementation of English as a medium of instruction in Science and Technology department at Khenchela University?

The results from the students' questionnaires indicate a range of perspectives on EMI. Many students recognize the importance of English in the global scientific community and expressed a willingness to improve their language proficiency to better engage with international scientific literature and opportunities. However, some students also voiced concerns regarding their current level of English proficiency and the potential challenges it poses to their comprehension and academic performance.

Teachers' interviews provided a complementary viewpoint. While many educators acknowledged the benefits of EMI in terms of broadening students' academic and professional horizons, they also highlighted practical challenges. These include the need for additional training for both students and staff, the availability of adequate teaching materials in English,

and the potential impact on the depth of students' understanding of complex scientific concepts when taught in a non-native language.

Classroom observations further enriched the study by offering a real-time evaluation of the EMI implementation process. These observations revealed variations in how EMI is being executed across different scientific disciplines. In some classes, the transition to English was seamless, with students actively participating and demonstrating a good grasp of the content. In others, the shift was more problematic, with noticeable gaps in comprehension and participation.

The hypothesis of this research assumes that both students and teachers in the Science and Technology Department at Khenchela University have a positive attitude towards the implementation of English as a Medium of Instruction (EMI). The findings confirm this hypothesis to a significant extent, showing general support among both students and teachers for EMI, though tempered by concerns about language proficiency and resource availability. For policymakers, it underscores the need for targeted interventions, such as enhanced language training programs and the development of high-quality teaching materials in English. For educators, it highlights the importance of continuous professional development to effectively teach in a non-native language.

Overall, the study advocates for a balanced approach to EMI implementation, ensuring that both students and teachers are adequately supported to maximize the benefits of this educational strategy.

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## Appendices

### Appendix 1

#### Students' Questionnaire

Dear Participant,

Thank you for participating in this survey. The questionnaire aims to gather insights into your experiences and perspectives regarding the implementation of English as a Medium of Instruction in Science and Technology faculty .Your responses will help inform future decisions related to language instruction at Khenchela University. Please answer the following questions honestly.

#### Notes:

EMI: English as a Medium of Instruction

TOEFL: Test of English as Foreign Language

IETLS: International English Testing System

#### Section one: Demographic Information

1. What is your gender?

a. Male

b. Female

2. Is the English Language integrated into the educational content within all subjects of your field of study?

a - yes

b - No

\_If “No”, specify the number of modules, which are conducted in English.

.....

## **Section Two: Attitudes towards EMI**

1. To what extent do you believe that implementing EMI enhances your overall academic experience?

a. Strongly Agree

b. Agree

c. Neutral

d. Disagree

e. Strongly disagree

2. Could you express your level of comfort when it comes to studying scientific subjects in English?

a. Very Comfortable

b. Comfortable

c. Neutral

d. Uncomfortable

e. Very Uncomfortable

3. Do you think EMI positively or negatively influences your understanding of complex scientific concepts?

a. Positively

b. Negatively

c. No Impact

4. What challenges have you faced/do you face when adapting to EMI?

a. Limited English language proficiency among students.

b. Difficulty in conveying complex scientific concepts in English.

c. Lack of motivation towards learning in English.

d. Communication barriers between students and teachers due to language differences.

5. What are the strategies or support mechanisms that can help you to improve your EMI in scientific courses?

a. Language courses

b. Scientific reading and writing work shops

c. Language labs to enhance language proficiency

d. Feedback from the instructor's

e. Language assessment (TOEFL, IETLS)

### **Section 3: Language Proficiency**

1. Do you feel that your current English language proficiency matches the demands of your scientific specialization courses?

a. Completely Matched

b. Mostly Matched

c. Somewhat Matched

d. Not Very Matched

e. Not Matched at all

2. Did you get any additional support or resources to manage the language demands in your scientific specialization courses?

a. Yes

b. No

- If yes, please specify

.....  
.....  
.....

3. How proficient do you consider yourself in conveying intricate scientific ideas in written English, such as in research papers or assignments.

a. Very Proficient

b. Proficient

c. Neutral

d. Not Very Proficient

e. Not Proficient at all

4. In your opinion, how effective are instructors in facilitating understanding during EMI courses.

- a. Very Effective
- b. Effective
- c. Neutral
- d. Ineffective
- e. Very Ineffective

5. Do you feel encouraged to actively participate in class discussions and ask questions during EMI courses?

- a. Yes
- b. No
- c. Neutral

#### **Section 4: Overall Feedback**

1. How do you foresee the role of EMI in your future career within the scientific field?

- a. Essential
- b. Beneficial
- c. Neutral
- d. Limited Impact
- e. Not Relevant

2. On a scale of 1 to 10, how satisfied are you with the current implementation of EMI in your scientific specialization courses

- 1  2  3  4  5  6  7  8  9  10

3. Would you recommend the implementation of EMI to future students in scientific specializations at Khenchela University.

- a. Strongly Recommend
- b. Recommend
- c. Neutral
- d. Do not recommend
- e. Strongly Do Not Recommend

4. In what ways do you think Khenchela University can better support English language use within your scientific specializations?

- a. Establishment of English Language clubs and activities
- b. Providing English Language resources (Learning platforms)
- c. Collaboration with English- Speaking institutions
- d. English support programs especially ESP

5. Please provide any additional comments or suggestions regarding the implementation of EMI in your academic experience.

.....

.....

.....

.....

.....

**Thank you for your collaboration**

## Appendix 2

### Teachers' Interview

Dear Teachers,

Thank you for participating in this interview. Your input is valuable in understanding attitudes as teachers towards the implementation of English as a Medium of Instruction (EMI) in the scientific disciplines at Khenchela University. Please answer the following questions honestly.

#### 1. Background Information

1. Can you provide a brief overview of your experience in teaching scientific specialization courses at Khenchela University?

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.....  
.....

2. How long have you been teaching courses with English as a Medium of Instruction (EMI)?

.....

#### 2. Attitudes and Perceptions

1. What are your overall perceptions of the positive aspects of implementing EMI in scientific specialization courses?

.....  
.....  
.....

2. Have you observed any challenges or concerns among students regarding the use of English as the medium of instruction?

a. Yes

b. No

3. In your opinion, how have students responded to EMI in terms of their academic performance and Engagement?

.....  
.....  
.....

**3. Teaching Strategies:**

1. What teaching strategies or approaches do you find effective in conveying complex scientific concepts in an EMI setting?

.....  
.....  
.....

2. Have you employed any specific methods to support students who may face language-related challenges in understanding scientific terminology in English?

a. Yes

b. No

**4. Professional Development:**

1. Have you received any training or professional development opportunities specifically related to EMI?

.....

\_how have they influenced your teaching practices?

.....

.....

2. Do you believe that ongoing professional development is essential for instructors involved in EMI courses?

a. Yes

b. No

\_Please Justify

.....

.....

## **5. Student-Teacher Interaction**

1. How would you describe the level of interaction between students and teachers in EMI courses?

.....

\_Do you think it differs from non-EMI courses.

a. Yes

b. No

2. Have you noticed any changes in the dynamics of student participation and communication since the implementation of EMI?

.....  
.....

**6. Challenges and Solutions**

1. What challenges, have you personally encountered in teaching scientific courses in English?

.....  
.....  
.....

\_How have you addressed them?

.....  
.....  
.....

2. Are there institutional or departmental support systems in place to assist instructors in overcoming challenges related to EMI?

.....

**7. Future Perspectives:**

1. In your view, what are the potential long-term benefits of EMI implementation for students pursuing scientific specializations?

.....  
.....  
.....

2. Based on your experience, what recommendations would you make to enhance the effectiveness of EMI in scientific specialization courses at Khenchela University?

.....  
.....  
.....

**Thank you for your collaboration**

## المخلص

يُعترف باللغة الإنجليزية على مستوى العالم كلغة للتواصل الدولي والخطاب العلمي. وقد اعتمدها العديد من الدول كلغة للتدريس في التعليم العالي، بما في ذلك الجزائر. هدفت هذه الدراسة إلى استقصاء مواقف كل من الطلاب والمعلمين تجاه تطبيق اللغة الإنجليزية كلغة للتدريس (EMI). ومن خلال تصميم بحثي يجمع بين الأساليب الكمية والنوعية، تم جمع البيانات من خلال استبيانات مقدمة للطلاب، ومقابلات مع المعلمين، وملاحظات في الفصول الدراسية. تم اختيار العينات عشوائياً؛ حيث تم توزيع الاستبيان على 60 طالباً، وإجراء مقابلات مع 08 معلمين، كما تم إجراء ثلاث ملاحظات في الفصول الدراسية مع ثلاثة معلمين مختلفين. أشارت النتائج إلى وجود تصورات إيجابية ومواقف داعمة تجاه تطبيق EMI بين كل من المعلمين والطلاب في قسم العلوم والتكنولوجيا بجامعة خنشلة. وأظهرت الدراسة أن تطبيق EMI في قسم العلوم والتكنولوجيا يعزز الأداء الأكاديمي للطلاب ويوفر لهم فرصاً عالمية أوسع. لكن الدراسة واجهت عدة قيود ينبغي الإشارة إليها: تزامن توزيع الاستبيانات مع شهر رمضان، مما أدى إلى ارتفاع نسبة غياب الطلاب؛ لم يقدم المعلمون المساعدة في إجراء المقابلات؛ اختار بعض المعلمين الرد على المقابلات كتابةً بدلاً من المواجهة؛ لم يعد جميع المعلمين ردودهم الكتابية، ولم يستجب البعض الآخر لرسائل البريد الإلكتروني المتكررة؛ تم إجراء الملاحظات الصفية مع ثلاثة معلمين فقط في الأسبوع الأخير من الدراسة بسبب ضيق الوقت واعتذار العديد من المعلمين؛ ورفض أحد المعلمين بشكل علني السماح لنا بحضور حصصه للملاحظة.

الكلمات المفتاحية: المواقف؛ المعلمون؛ الطلاب؛ اللغة الإنجليزية كلغة تعليمية (EMI)؛ التعليم العالي؛ العلوم والتكنولوجيا.

