



Mohamed Kheider University of Biskra
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Submitted and Defended by: **Aya SAIDI**

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Investigating the Effect of Using English as a Medium of Instruction on the Students' Instrumental Motivation: The Case of Second Year Mathematics Students at Mohamed Khider Biskra University.

A dissertation submitted in partial fulfillment of the requirements for a
Master Degree in English: Sciences of Language

Board of Examiners

Dr. Mustapha MEDDOUR	University of Biskra	President
Dr. Meriem ZEGHDOUD	University of Biskra	Supervisor
Mrs. Yasmina BENZIDA	University of Biskra	Examiner

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Declaration

I, Aya Saidi, hereby declare that this submitted work is my original work and has not previously been submitted for any institution or university for a degree. I also declare that all of the cited and quoted sources in this work are put forward in the references list. This work was certified and completed at Mohammed KHEIDER University of Biskra. Algeria.

Certified: Ms Saidi Aya , Master student, Section of English.

Signature:

Dedication

I dedicate this work

To my beloved parents, my family, and my friends

For their motivation.

Acknowledgments

First of all, I thank Allah for everything, and giving me the strength and the patience to complete this work.

My thankfulness and respectfulness go to my supervisor **Dr. Zeghdoud Meriem** for her guidance, kindness, and encouragement.

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Abstract

This study examines the impact of using English as a Medium of Instruction on the motivation of second year Mathematics students at Biskra University. It investigates how the shift from French to English is perceived by Mathematics students and how this switch affects their motivation. The study used a mixed-method, collecting data using a questionnaire administered to second year Mathematics students (L=30 learners), as well as holding a semi-structured interview with three teachers (n=3) in the same Department, because English is implemented recently, so we find only three teachers who are using English actually to instruct inside their classes. The results indicated that the majority of students experience a positive effect on their motivation to learn Mathematics in English due to EMI. Additionally, teachers generally asserted that EMI has a positive impact on students' motivation and learning.

Keywords: English as a Medium of Instruction (EMI), Motivation, Mathematics.

List of Abbreviations

EMI: English as a Medium of Instruction.

EFL: English as a Foreign Language.

HEIs: Higher Education Institutions.

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General Introduction

General Introduction

Background of the Study

Algeria worked to create an educational system that was suited to the needs of the people it served since achieving independence in 1962. However, until the late 1970s, Algeria regarded learning French as a cultural need because of its historical ties to France. Following the 1971 Arabization Policy and global socioeconomic shifts, English became a more widely used language for communication within Algeria, which had become more globalized. As a result, differences in French usage began to disappear at the crossroads, making a greater opportunity for the instruction of English as a second foreign language (Mami, 2013).

This number appeared in comparison to the thousands of Algerian-French and French professors that were sent to secondary schools in the 1960s and 1970s. New national universities and exclusive "Grandes écoles" were founded, and new administrators adopted French work standards. In Algeria, Arabic was designated as the language of instruction for all other subjects, with the exception of science and medical, while English was classified as the language of science and technology (Mami, 2013). It's also important to take into account the considerable status that French has among Algerian speakers. To do this, both educators and learners had to utilize Algeria's bilingualism, whether locally or globally (Arab, 2015).

After gaining independence in 1962, Algeria started an effort to remove French cultural authority. In an effort to promote "Arabization" and avoid violence, Colonel Boumediène sent in Arabic professors and imams from the Middle East. Algeria switched from using French to English in higher education starting in September. If the new policy was successful, it might make English literature easier to find and encourage international collaboration and exchange (Sills, 2023). The language is a medium of instruction, which is defined as a language used for instruction, which may or may not be the official language of the country and is referred to

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as the "medium of instruction." It is employed to help students gain topic knowledge and get acquainted with and knowledgeable about that specific language (Mohini, 2018).

English Medium Instruction (EMI) refers to the use of the English language as the medium of instruction for academic subjects, excluding English itself, in countries or regions where the majority of the population's first language is not English. In EMI, the primary focus is on teaching academic content in subjects such as Engineering, Biology, Medicine, Physics, and Applied Linguistics, using English as the primary language. The objective of EMI is for students to acquire both subject knowledge and proficiency in the English language necessary for effective communication. This entails developing the ability to comprehend and express ideas in English within a disciplinary context, facilitating the effective transmission of academic concepts in English (Litovchenko & Shmeleva, 2020).

In this case, the language was English, which Macaro (2018) defined as the practice of teaching academic courses (apart from English itself) in nations or regions where the majority of people do not speak English as their first language (L1). Motivation is an internal situation or force that drove individuals to behave in a goal-directed manner. It was distinguished by the focus, determination, and direction of efforts made to achieve a particular objective. The capacity of learners to put in effort and concentrate on their studies was influenced by motivation, which could come from both internal and external sources (Salili & Tsui, 2005). Motivation was a theoretical concept that explained human behavior by driving individuals to act and meet their needs. It was the path leading to and resulting from goal-oriented behaviors aiming to fulfill needs or expectations (Gopalan et al., 2017). Filgona (2020) defined motivation in education as the amount of mental effort usually expended in learning tasks has been linked to motivation, resulting in a conviction that motivation and personality are similar in that they may be seen as stable traits of learners. What drove someone to act, comprehend, believe or acquire certain information abilities attitudes or values was known as motivation.

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Educational psychologists were particularly focused on motivation because it was crucial as learners were not inherently internally motivated at all times. This type of motivation was found in the surroundings that the instructor provided for students' learning. But the particular type of motivation examined in the specialized context of education was fundamentally different from broader all-encompassing types of motivation investigated by psychologists in other domains. Motivation in the classroom could impact students' learning and attitudes about the subject matter in a number of ways. It could encourage more effort and energy focus behavior on certain goals boost the number of activities started and continued improve cognitive processing to identify reinforcing effects ultimately lead to better performance (Tohidi And Jabbari 2011).

Statement of the Problem

The recent shift in Algeria's language of instruction for science and technology in higher education, from French to English, raises significant issues about how this change may affect students' motivation, especially in mathematics. This change takes place in the context of complex historical events formed by "Arabization" efforts conducted after independence and the continued significance of Arabic and French in society. Concerns have been raised regarding the effects of the language policy change in Algerian education, particularly the transition from French to English at the university level, on student motivation, especially in mathematics. The purpose of this study is to investigate how math students feel about shifting from French to English and how that change affects their motivation.

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Research Questions

This study seeks to answer the following questions:

1. What are the students' perceptions regarding the effect of English as a medium of instruction on the students' motivations?
2. What are the teachers' perceptions regarding the effect of English as a medium of instruction on the students' motivations?

Significance of the Study

The significance of the study lies in its potential to inform educational policymakers, administrators, and educators about the implications of the language transition in Algerian higher education, particularly in the field of mathematics. This transition from French to English as the language of instruction for science and technology is occurring within a complex historical and socio-cultural context, marked by "Arabization" efforts and the enduring social significance of French and Arabic. The study's findings can help teachers and students in several ways, not just policymakers. By exploring the perceptions of mathematics students regarding the shift from French to English and its influence on their motivation, the study can provide valuable insights into the potential impact of this language policy change on student engagement, learning outcomes, and the broader educational landscape in Algeria. Teachers can use these insights to adapt their teaching methodologies and strategies to better support students' learning needs and enhance their motivation.

Additionally, the study can contribute to the ongoing discourse on language education policies, linguistic diversity, and the global relevance of language instruction, which can help teachers and students to better understand the importance of language learning and its impact

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on their future academic and professional success. Especially in the context of the growing influence of English as a medium of scientific communication and international collaboration. Also, it can inform the development of language education policies that are more responsive to the needs of teachers and students, ensuring that they receive the necessary support and resources to succeed in a rapidly changing global landscape.

Operational Definitions of Terms

Motivation: Ulper (2011) defined motivation as an innate capacity or emotion that drives an individual to take action in order to reach a goal. In the current study, motivation concerns Mathematics students 2nd year at Biskra University.

English as a Medium of Instruction: English as a medium of instruction, or EMI is the use of the English language to teach academic material in countries where the majority of people do not speak English as their first language (Dearden, 2014). In the current study, English as a medium of instruction use at the level of Mathematics department at Biskra university.

Review of Related Literature

This section serves as a comprehensive literature review, including a variety of studies that contribute to the existing body of knowledge.

The study conducted by Kalkoul (2014) aimed to investigate the motivation of EFL (English as a Foreign Language) students in Algeria. A mixed-methods approach was used to conduct the study, including both quantitative and qualitative data collection methods. The sample consisted of 200 EFL students from various Algerian universities. The researchers measured the learners' motivation levels, attitudes toward learning English, and the factors influencing their motivation using questionnaires and interviews. The study discovered that

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several variables, such as the learners' attitudes toward the language, their self-efficacy beliefs, and their perceptions of the use of English, had an impact on their motivation. The study could provide insights into the variables influencing the motivation of EFL learners in Algeria and be used to improve language teaching methods in the country. The sample of EFL students for the study was gathered from various universities in Algeria, where the study took place.

According to another study conducted by Maarouf (2022), which aimed to investigate the possible transition from French to English in Algerian higher education, especially in the Ibn Khaldoun University of Tiaret's Faculty of Applied Sciences, the study held interviews with seven teachers while distributing a questionnaire to 100 engineering students to find out how students and teachers perceived this change. The findings showed that a significant percentage of the sample strongly felt that there should be a switch from French to English and acknowledged the value of the language. According to the professors who were interviewed, both they and their students would benefit from learning applied sciences in English.

The purpose of the study, performed by Benassou (2022), was to investigate how students and teachers perceived teaching scientific subjects in English. The study used a combination of qualitative and quantitative methods to achieve this goal. A questionnaire was given to one hundred (100) second-year biology students at Guelma University, in addition to interviews with five (5) teachers in the same department, to collect information regarding the attitudes of both students and teachers. The results of the analysis showed that although instructors and students understood the value of English, they still agreed to use it in place of French in Algerian universities. Additionally, most of the participants had positive feedback about English being used as a medium of instruction in scientific fields. Based on these results, the investigation provided some educational suggestions to help students, educators, and politicians use English as a medium of instruction in scientific fields.

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Another study of Saidani and Afkir (2023), which used a questionnaire-based methodology with participants responding on a Likert scale, 63 students in Algerian higher education were surveyed to determine their opinions on English Medium of Instruction (EMI). The study found that while students generally supported EMI, they emphasized the need for more language support to ensure its successful implementation. Positive views on EMI's benefits, such as increased academic resources and better English skills, were acknowledged, among other aspects of education.

The articles discussed a comprehensive overview of the recent state of English language instruction and policy in Algeria. The studies highlight the importance of English as a global language and its potential impact on Algerian education, society, and economy. The studies also examine the challenges and opportunities associated with the shift from French to English as a medium of instruction, including the need for language assistance, support, and proficiency. The articles use various research tools, such as interviews, questionnaires, and cross-sectional analysis, to investigate the attitudes, motivations, and perceptions of students and teachers of English language learning. The studies provide valuable information into the historical, sociolinguistic, and educational aspects that impact English instruction in Algeria and offer guidance for policymakers and educators to develop a successful language policy that meets the needs of both students and instructors. Therefore, the articles contribute to the ongoing discourse regarding the role of English in Algerian higher education and its ability to enhance Algeria's competitiveness in the global market.

Methodology

This study will use the mixed method for a more thorough investigation of the impact of English as a Medium of Instruction on the motivation of second year Mathematics students at Biskra University. Quantitatively, it gathers relevant information methodically through the

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use of a questionnaire as a data collection tool. In addition, using interview as a data collection tool to interview three teachers is suitable because they provide clarity about students' motivation when teaching them in English. This would improve the exact methodology of the study by using a mixed-method.

Population and Sample

The study's population will comprise approximately 80 students who are divided into three groups. From this population, a sample of 30 students (L= 30 learners) will be selected reflecting a non- random convenience sampling.

Data Collection Tools

In this study, data collection tools will be conducted through a questionnaire and an interview. The questionnaire aims to investigate the perspectives of L2 Mathematics students at Mohamed Khider University of Biskra on how EMI impacts on their motivation. The interview component seeks to gather insights from teachers regarding their perceptions of how EMI influences student motivation.

Structure of the Dissertation

The current dissertation is divided into three chapters. The first and second chapters focus on the theoretical framework, while the third chapter deals with the practical aspect. In the first chapter, an overview of motivation is discussed. It deals with the definition of motivation, types, theories, and factors. Also, it discusses the importance of motivation. In addition, it covers motivation in learning, self- motivation. The second chapter investigates an overview of English as a Medium of Instruction. It deals with definition of EMI, history,

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the purpose of using it, and the significance of EMI. Also, it discusses how the status of English language is in Algerian context. In addition, it provides the implementation of EMI in Algerian universities. Finally, the third chapter focuses on analyzing and interpreting the research findings. It provides a detailed examination of the research methodology, data collection tools, and the validity of the instruments employed. It describes and analyzes the questionnaire given to the students and the interviews conducted with the teachers, followed by a comprehensive discussion and interpretation of the results.

Chapter One:

Motivation

Chapter One: Motivation

Introduction

Motivation, one of the most significant subjects in education, is often inadequately addressed in the majority of courses. Given that it promotes achievement, it is obviously one of the issues that teachers bring in the most. Otherwise, having excellent teaching techniques is meaningless if students in the class are unmotivated, unruly, and most importantly, disengaged. As a result, successful teachers must attend to the needs of the students and make every effort to improve the space. On the other hand, maintaining a set seating arrangement throughout the year might have a significant impact on motivation. As a result, we think that occasionally experimenting with modern seating arrangements may improve students' motivation to learn (Rezoug, 2014).

Since fundamental reasons greatly influence the success of every human action, motivation is assumed to play an essential role in the learning process. Motivation shapes, guides, and encourages ethical conduct in others (Wisnuwardhani, 2022). In both psychology and education, motivation has always been one of the most researched topics. Why do people show motivation sometimes and not at other times? What influences people's decisions and actions in life? Furthermore, what starts the motivation process? The complexity of the concept is reflected in these and many other questions, primarily due to the fact that motivation is deeply entwined with and approaches various sub-disciplines within psychology (Tchouar, 2022). This chapter is an overview about Motivation. It deals with the definition of motivation, types, theories, and factors. Also, it discusses the importance of motivation. In addition, it covers motivation in learning, self- motivation.

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1. Definition of Motivation

Pardee (1990) defined motivation as the internal force that is believed to drive behavior and determine its direction. It is the process that influences people's decision-making when they are presented with various choices for voluntary activities. Motivation is a complicated internal drive that impacts individuals' decisions, actions, and productivity within work environments.

According to Ryan and Deci (2000), motivation is being moved to act. Therefore, someone who lacks motivation is said to be unmotivated, whereas someone who is inspired or energized to take action is said to be motivated. The majority of people who interact or play with others are, therefore, concerned with motivation. They must decide how motivated they, or others, are for a given task, and individuals of all designs have to keep encouraging more and less motivation in people around them. These worries are reflected in the majority of theories of motivation, which see motivation as a singular phenomenon that provides a great deal of motivation to very little.

An inner demand, drive, feeling, or desire that encourages someone toward carrying in a specific action is considered motivation. It describes the experiences or objectives that a person chooses to pursue or refuse, as well as the degree to which he will make an effort in that direction (Mezhoud, 2015).

Although the term "motivation" has been defined in a number of means, it always has some connection to what students do. Most of the motivation literature centers on stimulating and increasing students' interest (Frymier, 1993).

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One of the most crucial conditions for fulfillment and success is motivation, which is defined as a physical, psychological, or social need that drives people to meet their needs, reach their goals, and feel satisfied as a result of doing so (Tuncel et al., 2016).

Ulper (2011) defined motivation as an innate capacity or emotion that drives an individual to take action in order to reach a goal.

2. Types of Motivation

Intrinsic, Extrinsic, Integrative, and Instrumental motivation. Understanding the differences between these types has been crucial in improving educational and developmental practices.

2.1. Intrinsic Motivation

According to Cherry (2023), the term "intrinsic motivation" describes the act of doing something just because it achieves you. It refers to acting in a way that satisfies oneself without thinking about getting something in return. The action is viewed as a reward in and of itself.

According to Vallerand (2000), the type of motivation known as intrinsic motivation originates from within the person and is generated by the pleasure and fulfillment that an activity naturally brings. It is represented by a feeling of relatedness, competence, and autonomy and is frequently linked to increased psychological well-being and activity participation.

When a person experiences intrinsic motivation, it indicates that their internal motivational factors are at perform. The reason a person is motivated to carry out a particular task is

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because the outcome fits with their beliefs or satisfies a desire, and therefore holds significance (Alik & Arabi, 2021).

Intrinsic motivation occurs when individuals are driven to pursue activities that captivate their interest and provide personal satisfaction. This type of motivation involves engaging in behaviors for the inherent enjoyment they bring, rather than solely for external rewards. It underscores a fundamental aspect of human nature, demonstrating natural desire towards learning and self-achievement (Abadlia & Khalfallah, 2019).

When someone is motivated by intrinsic factors, they act because they find the behavior engaging and fulfilling in and of itself. When someone is intrinsically motivated, they act out of the good emotions that come with the actions themselves. Individuals show interest in their work, show curiosity, investigate new stimuli, and push to overcome challenging situations (Deci & Ryan, 2008).

The learner's attitude (whether they think the language and its cultural, political, and ethnic aspects are beneficial), is a major factor in determining intrinsic motivation, which is the generalized desire to put effort into the learning process for the purpose of learning (Ur, 1999).

2.2. Extrinsic Motivation

Alik and Arabi (2021) stated that contrasting to intrinsic motivation, which means engaging in something due to intrinsic enjoyment for the activity itself; extrinsic motivation describes how one does of an action in order to achieve a particular objective. Contrary to some viewpoints that consider behavior driven by external factors to be predictable and non-autonomous, the term "extrinsic motivation" describes rewards that are gained from outside sources. Promotions, acknowledgment, cash, and professional opportunities are a few

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examples of these rewards. They typically have goals that must be taken or are concrete. Extrinsic motivation is the process of performing a thing for a goal other than its own intrinsic enjoyment, like winning prizes or staying out of trouble. We do things since they are required of us or we want to accomplish another goal, not due to we enjoy them. In these situations, we are driven by outside forces.

Cherry (2016) claimed that extrinsic motivation occurs when we are motivated to engage in an activity or perform a behavior in order to avoid punishment or receive a reward. Rather than being motivated by self-satisfaction or enjoyment, our actions are motivated by the expectation of obtaining something desirable or avoiding something undesirable.

Motivation that is encouraged by outside forces like promotions, punishments, or social pressures is known as extrinsic motivation. Based on the level to which the motivation is internalized and integrated into the self, extrinsic motivation can be further divided into distinct forms, such as external regulation, introjected regulation, identified regulation, and integrated regulation (Vallerand, 2000).

People have many different types of motivations, and because they are social creatures, they have a strong connection with their environment. Social groups have a significant effect on behavior because they provide motivation and make people think about how their actions might affect other people (Sounders, 2019).

Extrinsic motivation, as opposed to the desire to learn for itself or interest in tasks, is that which results from the effect of an external motivation (Ur, 1999). Extrinsic motivation requires doing something because it will result in a different outcome. The actions taken in order to receive a material reward or keep away from trouble are the most obvious examples of extrinsically motivated behaviour (Deci & Ryan, 2008).

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2.3. Integrative Motivation

Integrative motivation means the desire of the learner to learn a language in order to effectively integrate into the target language community, as well as for personal growth and cultural development (Zekiouk & Zaoui, 2017). While learners want to become a part of a different language group and incorporate into its culture, they are motivated by integration (Wisnuwardhani, 2022). Integrative orientation describes the student's want to become somehow integrated into the target community or to learn more about the target language's cultural society. The term "integrative orientation" describes a desire for stronger relations to the community of interest (Ghanea et al., 2011).

2.4. Instrumental Motivation

Instrumental motivation can be defined as the drive to learn a language in order to progress in a specific career (Wisnuwardhani, 2022). A more useful orientation, instrumental orientation describes the desire of students of languages to acquire the language in order to achieve a non-interpersonal goal, like passing a test or advancing in their profession (Ghanea et al., 2011).

3. Theories of Motivation

3.1. Maslow's Needs Hierarchy

Acquah et al, (2021) demonstrated that Abraham Maslow created the first and most recognized theory of motivation during the 1940s and 1950s. Maslow maintained that people have a strong inner drive that is always developing and that this drive is part of what makes people motivated. Maslow (1954) developed the needs hierarchy system, which is a widely used classification system for human motives. There are five categories of motives in all, with lower-level needs at the bottom that must be fulfilled before higher-level needs can be

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considered. The following order of hierarchy demonstrates the five general levels of needs as defined by Timothy A. Judge and Stephen P. Robbins.

- **Physiological:** covers sex, food, drink, shelter, and other basic needs.
- **Safety:** security and defence against harm, both psychological and physical.
- **Social,** Friendship, Acceptation, Belonging, and Love.
- **Self-esteem** elements that are external, like focus, position, and recognition, and internal, like accomplishment, freedom of choice, and self-respect.
- **Self-actualization:** is the desire to reach what is possible and involves personal development, self-fulfillment, and development.

Stoyanov (2017) demonstrated Maslow's theory of psychology; individuals are motivated by a hierarchy of needs, coming from the most fundamental. He created a linear hierarchy of needs to illustrate this, starting with physiological needs and moving on to needs for safety, love, and self-worth before reaching the needs for self-actualization. The most crucial of these needs are physiological, or those required for a person to function in a healthy way; a person still requires food, water, and oxygen to stay alive in the absence of everything else. The absence of each of these components will ultimately result in death. The next most crucial needs are related to safety; such as obtaining cover and security.

Maslow contends that this need is the main driver of human social organization, as people realize they are safer in groups than on their own. He classes physiological and safety needs as important demands, considering that it is challenging for individuals to live without dealing with these first. Other needs begin to emerge as significant once these basic needs have been met, even in part. The need for love and affection as well as a feeling of community is the third need. The need to be liked and accepted by others is the

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next, and it has also to do with self-esteem. Kurt Goldstein, a German psychiatrist, first used the term "self-actualization" to characterize people's desire to reach their full capacity. This is the last need. Love and self-esteem needs are frequently satisfied in regions of the world where basic needs are taken for granted, but self-actualization is uncommon and frequently appears itself in creative achievements, such as a talented writer, musician, or painter.

3.2. Herzberg's Motivation Theory

Often referred to as the two-factor theory, Herzberg's motivation hygiene theory focuses on the factors of motivation that are relevant to completing tasks. According to this theory, there exist distinct factors called hygiene factors that lead to dissatisfaction and some called motivating factors that lead to job satisfaction. He asserted that lack of satisfaction is a type of satisfaction, not dissatisfaction. While job dissatisfiers are concerned with the elements that define the job setting, job satisfaction factors are those that are involved in performing the job. In contrast to hygienic factors (dissatisfiers), which also include company procedures, leadership, job circumstances, social standing, and pay, he classified motivating factors (satisfiers) as achievement, recognition, the work itself, advancement, and development. Herzberg claims that hygiene lacks motivation and, when utilized to perform so, can have negative long-term consequences. These factors are more complicated, specific, and frequently difficult to quantify. However, employees will likely seek out more hygiene to the extent that management prioritizes hygiene at the expense of motivators. This limits the process of creating a motivated workforce (Acquah et al., 2021).

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3.3. Alderfer's Theory

Acquah et al., (2021) explained three categories of needs (relatedness, growth, and existence). Given that it describes needs as a variety rather than a hierarchy, this theory is incredibly adaptable. The explanations of these need classes are provided as follows:

Relatedness needs: People seek public recognition and popularity, and they require meaningful relationships (with relatives, friends, or superiors), love, and a sense of belonging. Maslow's social needs and the external element of esteem needs are included in this category of needs.

Growth needs: This category of needs includes the need for progress, development, and self-development. Maslow's self-actualization needs and the intrinsic component of esteem needs are included in this category of needs.

Existence needs: Among them are the criteria for fundamental material needs. It encompasses a person's physiological and physical safety needs.

4. Factors Fostering Motivation

According to Ebata (2008), it is completely thought that three key factors (self-confidence, successful and fulfilling experience, and positive interactions between students and teachers) are what most effectively foster motivation for language learning. In the technique of developing motivation, it is suggested that all three of these factors are correlated with one another.

4.1. Self-confidence

When learning a language, self-confidence is the most important factor. It gives students the motivation and interest to start feeling good about their own learning. Additionally, it

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gives them the motivation to learn the language in question, take pleasure in the process, and engage in conversations that are real. One is stopped from reaching the task of seeking a targeted language achievement when they lack confidence in their abilities. Furthermore, it's generally accepted that students' self-confidence grows over time as they experience success, fulfillment, and positive relationships.

4.2. Successful and fulfilling experience

Students who have experienced success are more motivated to aim for new objectives. It makes it possible for language learners to enjoy interacting with people and comprehend the point of trying. Some people may experience success when they are able to express their ideas to others, while others may experience success when they finish a difficult task in their chosen language. It repeatedly experiences a sense of success, especially when he recognizes the level of his growth and accomplishment. However, there are those who value compliments from others. The experiences of success and satisfaction are similar in that people who experience success always feel satisfied, not just when learning a language but in everything. It is widely accepted that feeling satisfied and experiencing success go together.

4.3. Positive interaction between students and teachers

English teachers can utilize a variety of techniques to motivate their students in the classroom, and they should be flexible in choosing the approach that works best for the group of students. Teachers must comprehend that their students come from different cultures and have a range of interests, ambitions for the future, and, most importantly, differing personalities in order to build relationships with them. Teachers can establish a level of confidence with their students by using customized teaching and communication strategies once they have a deeper understanding of them. Once a rapport is established, the classroom

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will be relaxed and fun enough for students to take all helpful lessons from the teacher at once.

5. Importance of Motivation

The majority of motivation theorists make the assumption that motivation plays a role in all learned responses; in other words, unless a behavior is motivated, it will not occur. In general, the main debate among psychologists is whether motivation influences behavior primarily or indirectly. That is, are concepts specific to motivation more relevant, or are changes in behavior better explained by theories based on environmental/ecological influences, perception, memory, cognitive development, emotion, explanatory style, or personality (Huitt, 2011).

According to Alik and Arabi (2021), from student's academic journey, students' motivation plays a vital role in their learning process. Students' motivation can influence various aspects of their education, such as their overall school approach, teacher-student relationships, time and effort invested in their studies, support needed during difficult times, efforts made to engage or disengage others academy students, and test scores.

When competency of a second or foreign language is the goal of learning, motivation becomes an even more complex variable. In general, learning a second language differs from studying other subjects because it involves additional factors, such as understanding cultural norms that influence language learning models. As a result, the importance of affective factors, particularly motivation, increases. In general psychology as well as education, the significance of motivation has been discussed, particularly in regard to language learning (Samad et al., 2021).

6. Motivation in learning

Students who are more motivated to learn English will put forth more effort to learn than those who are not as motivated. Furthermore, the student who is highly motivated to learn English will perform better than the one who is lacking motivation. It's obvious that motivation plays a big part in the learning process (Gitawaty, 2010).

6.1. Student's motivation

Naturally, a student's motivation to engage in the educational process is correlated with that want. However, it also refers to the motivations or objectives that drive their participation in or absence from academic activities. Learners may have different motivational sources even though they may be similarly motivated to complete something. An intrinsically motivated student participates in an activity for its own purposes, whether it is for the pleasure it provides, the knowledge it allows, or the sense of achievement it motivates. When a student is extrinsically motivated, they work to achieve goals that are not directly related to the task at together, like grades, stickers, or teacher approval. (Lumsden, 1994).

6.2. Language Classroom Motivation

The motivation of students to learn languages is influenced by various factors, including the classroom environment, course and curriculum design, teacher qualities, and students' academic focus. Creating a positive and supportive classroom atmosphere is crucial for language learning motivation. Students should feel comfortable taking risks and making mistakes. Additionally, the curriculum should be well-structured, engaging, and relevant to students' interests and needs. Effective language teachers are excited, patient, and skilled at providing constructive feedback. They employ various teaching methods to aware different learning styles. Students who are intrinsically motivated to succeed academically are more likely to develop the necessary effort to become proficient in a new language. Other factors,

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such as class size, access to native speakers, and opportunities for participation and real-world practice, also contribute to students' language learning motivation (Gardner, 2010).

7. Self- motivation

Seven (2020) identified self-motivation as keeping motivation based on personal interests. Being self-motivated is a good thing because it is essential to leading to an enjoyable life. Self-motivation is essential to one's own life because it allows for frequent self-evaluation. Self-assessment indicates one's areas of strength and weakness, allowing one to work on strengthening the former and overcoming the latter. Self-motivation consequently leads to in the desired success in life. Self-motivation expresses a desire to learn. All successful learning stems from the learner's desire to understand and gain knowledge. The desire and aspiration to learn have a strong association with the efficiency and speed of learning. Clear goals, high aspirations, and knowledge of outcomes are crucial, particularly if the student is motivated to create his own objectives and follow better separated goals.

Conclusion

Given that fundamental reasons have a significant impact on the success of every human action, motivation is believed to play a crucial role in the process of learning. Motivation is the internal force that is believed to drive behaviour and determine its direction. It is the process that influences people's decision-making when they are presented with various choices for voluntary activities. Motivation is a complicated internal drive that impacts individuals' decisions, actions, and productivity within work environments. This chapter highlights the overview of Motivation. It deals with the definition of motivation, types, theories, and factors. Also, it discusses the importance of motivation. In addition, it covers motivation in learning, self- motivation.

Chapter Two:

An Overview of English as a Medium of Instruction.

Introduction

Language serves as more than just a way of information and communication. Language choice is still a significant policy issue in many cultures, whether they are monolingual or multilingual, and plays a significant role in the aspirations of national development. Proficiency in language is essential for gaining access to information and education, and it improves academic achievement (Kaddari, Mazouzi, 2022).

English is being taught as a foreign language (EFL) in non-Anglophone nations, but there seems to be a fast global shift toward English being the medium of instruction (EMI) for academic subjects such as science, mathematics, geography, and medicine (Dearden,2014). English is becoming the main language used for communication in today's world of globalization. Because of this, English has become increasingly important in higher education all over the world in order to meet the increasing local, national, and global demand for English proficiency (Koul & Kaewkuekool, 2010).

English has become the official international language of communication, used by people from diverse linguistic and cultural backgrounds all over the world. Alongside its widespread usage, the concept of English as a Medium of Instruction (EMI) is gaining global prominence in academia (Benassou, 2022).This present chapter discusses the overview of English as a Medium of Instruction (EMI). It deals with definition of EMI, history, the purpose of using it, and the significance of EMI. Also, it discusses how English language is in Algerian context. In addition, it provides the implementation of EMI in Algerian universities.

1. English as a Medium of Instruction (EMI)

1.1. Definition of Medium of Instruction

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The decision of medium of instruction is an emotive issue since it affects a nation's educational policies. Since it's frequently associated with the preservation of a community's culture and identity, it also involves a very sensitive topic. However, the state of education has changed from earlier times. It is no longer only a means of following a crushed status quo and mindless commitment to the past. As the modern world, it is recognized as a tool of social change and survival of the fittest. Because of this, choosing a medium for many new nations can be a difficult and important decision that must be balanced with the community's values of cultural and identity preservation as well as the demands of modernization and social and economic mobility. On the contrary, the only requirement for rural or tribal communities choosing to educate their children is that the chosen medium ensure the most effective and comprehensive education possible. Early on, private opinion may actually state that a child's education in her mother tongue is the most effective. However, an in-depth investigation will show that the switch to a local or even national language has improved education effectiveness and increased the amount of general knowledge that the majority of people can acquire almost everywhere in the world. (Shaturaev, 2021).

According to Dhami (2021), defined the Medium of Instruction as a language used for teaching and learning that may or may not be the official language of the country. It serves as a medium for providing instruction so that students can learn specific language skills in addition to content knowledge.

1.2. Definition of English as a Medium of Instruction

Many scholars in the field of education have investigated and defined English as a Medium of Instruction (EMI). Universities, secondary schools, and even primary schools are using EMI in increasing numbers. There are significant effects for youth education from this phenomenon (Dearden, 2014). English as a medium of instruction, or EMI is the use of the

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English language to teach academic material in countries where the majority of people do not speak English as their first language (Dearden, 2014).

English as a Medium of instruction (EMI) refers to the method of teaching academic material in educational settings using English as the primary language (Selvi, 2014). In addition, Hellekjaer (2010) defined EMI as the practice of teaching non-language courses, such as political science, physics, or medicine, in English to students who are not native English speakers. Additionally, these courses are often taught by lecturers whose first language is not English (L1). The growth of EMI can be attributed to the increasing number of international students, university cooperation programs, and the hiring of foreign teachers.

2. The History of English as a medium of instruction in Algeria

There have been many stages in the growth of the English language's status and function in Algeria. In Algeria, there was no written or spoken form of English before to the colonial era. On the other hand, the Algerian educational system adopted a foreign language as a result of French colonization. That was the start of Algeria's English language education. The country has long taught English as a foreign language, and this practice is still continuing today. In the years of French colonization (1830–1962), English status was comparatively low. There had been no communication between the two nations in 1830, the year before colonization. However, British consulate schools were founded following the 1830 bombardment of Algiers, and subsequently, British schools were opened under the authority of the established church. Still, these efforts were abandoned by 1832. The British were unable to establish a school system that was similar to the French model since there were no more exchanges between the two nations. An agreement was reached with France in 1839 that allowed the building of English churches in Algiers, Bone, and Oran. After the agreement,

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there would only be one chaplain and two readers (one for the seamen), with the possibility of more ministers if the mission proved to be successful. Due to the mission's failure, all British personnel were sent back to England when World War I fell out in September 1839. The French then took control of Algiers in 1840. Up until 1962, this marked the end of English language instruction in Algeria (Ben-Madani, 2020).

In order to ensure "Arabization," the government of Colonel Boumediène imported hundreds of Arabic teachers and imams from the Middle East in order to avoid being in conflict with their ideology. But the thousands of French and Algerian-French teachers who had been placed in secondary schools in the 1960s and 1970s could never be compared to the number of such Arabic teachers. Meanwhile, a special education policy emerged that was quite similar to the French policy in place. New national universities and select a few "Grandes écoles" were established in independent Algeria shortly after, in a matter of a decade or two. Thus, new administrators in academia, industry, and science, research and similar fields spoke and wrote in French and worked according to using French standards (Mami, 2013).

After years of linguistic suppression, Algerians were interested to reclaim their language and resume teaching English. As more people realized the value of English as a global language and its potential for advancement in politics, the economy, and culture, the desire to introduce English into their educational institutions grew. After Algeria separated from France in 1962, the nation saw many changes, including a revival of interest in education and a reassessment of its linguistic rules (Maarouf & Lamouri, 2022).

Following its independence in 1962, Algeria declared to destroy French culture and control. Algeria recognized the benefits of multilingualism and set out on a comprehensive language planning process to make Arabic the official language after gaining independence.

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English started to reclaim its position in Algeria's educational system, along with other foreign languages. The decision to reintroduce English as a foreign language led to the creation of language institutes and specialized schools whose objective is to teach Algerian students English (Khelloul & Benneghrouzi, 2020).

3. The purpose of EMI

Learning English as a medium of instruction has become more important than before. Using a common language of instruction that is understood by people worldwide will be a huge benefit in today's globalized world, where boundaries are almost completely deleted and global education is selected. This will encourage understanding among people and reduce the division between cultural and social groups internationally. Learning English provides the opportunity to use the world of the internet for information and knowledge. The majority of online content is written in English. English-speaking people might learn more than non-speaking people because they have access to the knowledge that is available online. Therefore, there will be a global knowledge gap between nations if anyone is left without the information. The gap may be closed or removed by using English as the primary language of instruction. Also, since English is a universal language, teaching students in it will prepare them for work in any part of the world in the future. Having strong technical skills is crucial in this new information technology era. Since English is used for the majority of information and proficiency courses, learning in English is more beneficial. In addition, to work for a transnational or international business in today's world, the employer will usually search for someone who can speak and understand English. Consequently, having fluency in English now will be very beneficial (Sah, 2022).

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4. The significance of EMI

English's importance as a medium of instruction comes from its ability to serve as a bridge, supporting effective communication and learning through a variety of educational contexts. Students from multilingual backgrounds can access opportunities, resources, and knowledge beyond their local languages by using English as a common language. Educational institutions can improve their students' language skills and set them up for future success in the classroom and in a globalized employee by utilizing English as the medium of instruction. Additionally, by providing a standardized language of instruction that divides in linguistic barriers and encourages a more cohesive and interconnected learning environment, English as a medium of instruction can support inclusivity and equal access to education (Kyeyune, 2003).

English is widely used and has global significance, which makes it an essential medium of instruction. The fact that English is a language that people from different linguistic backgrounds can communicate effectively in boundaries emphasizes the significance of English as a teaching medium. The essential role of English in linguistic and cultural communication. English proficiency not only improves educational opportunities but also opens doors to a lot of global networks, resources, and information in an increasingly interconnected world (Tang, 2020).

5. The Status of English in Algeria

5.1. English language

Although English is the international language of communication and the language of science, just a few percent of Algerians are competent in it. The country's knowledge of the English language continues to grow, particularly among the youth. Despite this, English is the second foreign language in Algeria. Scholars believe that English represents greater danger to

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a language that has a rich history connected to Algeria and has been taught and spoken for many years, even though it has many features and the younger generation wants to learn and improve it. It is only a matter of time until French shifts to English as the primary foreign language, despite the fact that French still has a significant influence on both formal and informal communication in Algeria as well as on various spoken dialects (Maarouf & Lamouri, 2022).

5.2. English language policy in Algerian universities

English has long been considered a language that can greatly connect Algeria with the rest of the world. Over the past few decades, many reforms have been implemented to revolutionize higher education in Algeria. The ultimate objective was to develop a curriculum that would need both university teachers and learners in practical situations, in order to enhance Algerian higher education and align it with global standards. It is crucial for university teachers to enhance their proficiency in the English language. The global popularity of English as a tool for internationalization has led countries worldwide to initiate language programs. Many countries where English is not the first language have experienced a rise in a phenomenon called "Englishization." Algeria is no exception, as universities in the country have also observed this growing trend. Currently, there is a significant amount of discussion surrounding the use of English in scientific research and teaching. Therefore, it is crucial to engage in more conversations regarding the enhancement of English language skills with Algerians and the academic community (Kadi, 2022).

5.3. Transition from French to English

The Algerian people and authorities have to transition from French to English. The language, which served as a reminder of 132 years of French colonization, was something they sought to reduce. Additionally, the increasing global influence of English contributed to

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the decline of French. Since its usage does not evoke memories of the past, the English language has consistently fostered a high level of collaboration among the Algerian people. Furthermore, the decision to replace French with English in Algerian higher education is not recent. Instead, it is the result of multiple reforms and a long-term strategy. In response to widespread dissatisfaction with the prevalence of the French language in Algerian higher education curricula, the Algerian authorities have implemented a language policy aimed at facilitating a transition from French to English. As part of this policy, several reforms have been introduced to decrease the influence of French and promote the use of English (Kadi, 2022).

5.4. Language Differences: French vs. English

Maarouf & Lamouri (2022) declared that the number of French speakers worldwide reached 300 million, including 13 million and 800.000 Algerians whose speak French in their daily lives. Therefore, the French language is an expansion of the French control over Algeria and has a strong status in administrative documents, educational curricula, and even in the speeches of officials. Even though Algeria is the second largest Francophone country, it is not a member of the Francophone Organization, which includes countries that use French as the official language or the most used and spoken by people. The English language holds great promise in Algeria. Its higher status over French suggests a conflict between the two languages, an effort to decrease French's authority over the language, which is more than just a matter of preference—French is a crucial component of Algerian identity, culture, and history. Speaking English instead of French has become a popular demand as Algerians believe it is time to move out the use of French, with many voices speaking against it. The debate over language is one that occurs often in the nation.

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5.5. English: The Global Language of Education and Opportunity

When it comes to interacting and communicating, people who do not speak the same native tongue continue to choose English. English's being as a global language for business, science, and technology has also encouraged higher education policymakers to use it as the primary language of instruction. English as a medium of instruction (EMI) is also regarded as the most effective way to internationalize higher education in order to bring in foreign teachers and learners, encourage academic exchange and mobility, and provide students with a competitive advantage in an increasingly globalized job market (Messeded, 2023).

5.6. English in Algerian universities

The university program's language of English does not need to be expanded on, but having a general understanding of the field's specialized studies helps to better understand its status worldwide. A few years ago, the English language was taught in more universities outside of the nation's main cities than it was in other subjects. Due to this, the majority of students who chose to major in English were forced to travel far and live on campuses in order to complete their education. Owing to the growing student body, English language departments are now found in the majority of significant cities in the nation, providing more opportunities for individuals who wish to specialize in the language (Benali Fellague, 2014).

The history of Algerian society is at a crossroads. In this country, language is a frequently discussed topic. Since the start of the popular a revolution, many people have expressed their opposition to the French language, which has been used in Algeria for more than 150 years. French was the language of the colonizers, it is not a language used in international commerce, and Algerians feel that it is time to remove the French language from their country and replace it with English. Since former higher education minister Rachid Harraoubia (2010)

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stated that his department was seriously investigating the possibility of using English rather than French in universities, particularly in scientific and technological fields, the idea of switching languages has already gained acceptance. The former minister of scientific research and higher education, Tayeb Bouzid, recently encouraged university sectors to back the exploratory process meant to advance and expand the use of English in Algerian institutions (Benassou, 2022).

Ouarniki (2023) discussed the recent growth of English as a medium of instruction (EMI) in Algerian higher education institutions. The Algerian government recognized the value of English language proficiency and the advantages of teaching in English as part of its efforts to modernize and internationalize the nation's educational system. In this case, using English as the primary language of instruction has been perceived as a means of increasing educational standards, making graduates more desirable on the international job market, and making Algerian universities more attractive to scholars and students from other countries. The increased demand from parents and students for English-language instruction has also led to the start of EMI in colleges and universities. Being able to communicate and conduct business internationally in English has become essential for success in many fields, as the language has become the *lingua franca*. Strong English proficiency increases the probability of finding work in multinational corporations and other organizations that employ highly qualified English speakers, such as Algerian graduates and students.

According to Rahmani (2021), governments worldwide should give consideration to the use of English in higher education institutions and universities for research and teaching purposes, as it seems to be a certain trend.

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5.7. Embracing English: The Evolution of Education in Algeria

Algeria is not an isolated case in this trend. Both the general public and a large number of decision makers support the promotion of English in primary and higher education. The Algerian government made a number of important decisions regarding education, one of which was to introduce English as a foreign language beginning in the third year of primary school. The Algerian government has also made a number of moves in higher education to encourage the use of English in academia, particularly its adoption as a medium of instruction beginning in the academic year 2023–2024. Although there are many reasons for this policy change, the main ones are to increase the Algerian university's worldwide standing and provide students with the tools they need to succeed in the twenty-first century (Messeded, 2023).

5.8. English Medium Instruction: Transforming Higher Education in Algeria

In order to achieve this, the Algerian Ministry of Higher Education and Scientific Research (AMHESR) has started a national initiative to train university lecturers in English. When possible, this training is being conducted in English departments or at the intensive language learning centers found in universities (Messeded, 2023).

A considerable change in the country's linguistic policy is indicated by recent efforts in Algeria to support English as the main medium of instruction (EMI) in higher education. Started in September 2023, English emerged as the primary language of instruction in various fields, including science, technology, and medicine. This change aims to improve education quality and prepare students for the global job market while also being a means of modifying

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to the demands of a changing global environment. The universities, faculty, and students in Algeria stand to gain a great deal from this drive (Khenioui & Boulkroun, 2023).

6. Implementation of EMI in Algerian Universities

Ouarniki (2023) also mentioned that there are difficulties in implementing EMI in Higher Education Institutions (HEIs). It's possible that a large number of teachers and students do not have the language proficiency needed to instruct or learn in English. Concerns may also exist about how EMI will affect the use of Arabic, the nation's official language, and the preservation of Algerian culture. There might be issues with creating English-language instructional materials, finding qualified English-speaking instructors, and getting resources and technology to support EMI. The Algerian government and universities are still committed to applying EMI into influence in spite of these obstacles. The development of language proficiency curriculum for learners and teachers, the enhancement of English language teaching resources, and the employment of more competent English-speaking teachers are all current efforts. Algerian universities are interested in providing their students with the knowledge and skills necessary for success in the global economy and improve the country by embracing EMI.

6.1. Difficulties of EMI Implementation

These difficulties may have to do with curriculum design, pedagogy, or language proficiency:

To appropriately participate in EMI, teachers and students both must be fluent in the English language. This calls for both a high level of language proficiency in English and the capacity to express complicated ideas in that language. Lack of language skills can result in misunderstandings, difficulty comprehending the material, and a general dissatisfaction with

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the educational process. Pedagogy presents another difficulty in the implementation of EMI. To effectively instruct courses in English, teachers need to receive education. They need to be aware of potential linguistic and cultural gaps among their students and be able to change their teaching strategies accordingly. This calls for fluency in the language as well as a thorough comprehension of instructional strategies that can be modified for many different types of students. Also, the design of curriculum presents another potential difficulty when implementing EMI. Teachers must be able to create materials that are appropriate for the students' language level, and courses must be created with the unique language needs of the students in mind. Creating highly qualified course materials that are effective for a wide range of learners can take significant time and resource commitment (Ouarniki, 2023).

6.2. Challenges faced teachers

- **Language Barrier:** Teachers encounter difficulties when providing mathematical knowledge in English, particularly if they lack proficiency in the language. This may have an impact on pronunciation, sentence structure, and articulation, making it more difficult to effectively communicate mathematical ideas (Ningsih et al., 2024).
- **Curriculum Needs:** Teachers have to find a balance between applying the National Curriculum's needs and helping students understand mathematics in a meaningful and engaging way. Exam format changes, like the addition of calculators, can make it more difficult to teach students how to effectively answer questions in a variety of ways (Duff, 2002).
- **Teacher Support and Training:** Teachers may not have received enough training in mathematics education, particularly in specialized fields like teaching blind students. Teachers may also encounter difficulties in providing resources for special

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needs students, learning written form, and obtaining training in these fields (Mungunda, 2023).

- **Student Engagement and Learning Styles:** It can be difficult for teachers to take into account students with special needs and large class sizes, but they must do so in order to meet the needs of a variety of learners. Maintaining discipline, modifying teaching methods, and making sure that every student participates fully in the learning process are the same challenges (Duff, 2002).
- **Technological Integration:** Due to a lack of resources, lack of instruction and results that are inconsistent with the use of computers for integrated learning systems, integrating technology into the teaching of mathematics can be difficult (Duff, 2002).

Conclusion

English as a Medium of Instruction (EMI) is the use of the English language to teach academic material in countries where the majority of people do not speak English as their first language. It is becoming increasingly important in higher education all over the world in order to meet the increasing local, national, and global demand for English proficiency. This chapter discusses the definition of EMI, history, the purpose of using it, and the significance. It also discusses how English language is in Algerian context and provides the implementation of EMI in Algerian universities. English as a Medium of Instruction (EMI) refers to the method of teaching academic material in educational settings using English as the primary language. The purpose of EMI is to encourage understanding among people and reduce the division between cultural and social groups internationally.

Chapter Three:

Analysis and Discussion of the Results

Introduction

This chapter delves into the fieldwork conducted to investigate the impact of using EMI on student motivation. It encompasses a thorough analysis of data acquired through two primary research methods: a questionnaire administered to second-year Mathematics students and interview conducted with their teachers at Biskra University. The chapter thoroughly interprets these findings to address the research questions. The subsequent sections provide a detailed examination of the research methodology, data collection tools, and the validity of the instruments employed. It describes and analyzes the questionnaire given to the students and the interview conducted with the teachers, followed by a comprehensive synthesis and discussion of the results.

1. Research Methodology

The research methodology used in this study is a mixed- method, combining qualitative and quantitative tools. To gather insights directly from the student population, a questionnaire was administered to second-year students in the Mathematics department at Mohammed Khider University, Biskra. In addition, an interview was hold with teachers from the same department to gain an in-depth understanding of the topic from the instructors' viewpoints. This complemented the data collected from the student-focused questionnaire.

2. Data Collection Tools

Data collection tools are tools used to gather necessary data and aims to obtain the objectives. These tools may include interviews, questionnaires, tests, and other methods. In this particular study, two research tools were used a questionnaire administered for students to

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investigate the effect of using English as a Medium of Instruction on Students 'Motivation. Moreover, interview for teachers to elicit their perceptions about Students' motivation.

3. Population and Sample

This study focused on second-year students at Mohammed Khider University in Biskra. These students were chosen because their curriculum involves studying Mathematics in English. A convenience sampling was used to select participants. Ultimately, 30 second-year students completed the questionnaire.

Regarding the interview, the sample of the current study consists of three teachers of Mathematics Department, at Mohamed Khider Biskra University. The teachers are chosen non -randomly, who they are teaching Mathematics in English in order to perceive the students' motivation about using English as a medium of instruction in Mathematics field.

4. Validity of Instruments

The questionnaire and the interview were sent to the supervisor and some English department teachers for suggestions and feedbacks regarding the questions included on it before the students' answers were actually collected. Finally, the supervisor made some helpful remarks and advised checking the questionnaire with some of participants for evaluating its clarity regarding content, performance, delivery, degree of difficulty, and questions arrangement. As a result, some of the questions that the supervisor and teachers felt were unnecessary and unclear were removed from the completed questionnaire and the interview.

5. Students' Questionnaire

The questionnaire is represented to investigate the impact of students' motivation for using the English language as a medium of instruction in the field of Mathematics. It also measures students' level of interest in using and applying the language.

5.1. Description of Students' Questionnaire

The main purpose of the students' questionnaire is to investigate how the use of English as a medium of instruction affects the motivation of second-year Mathematics students at Biskra University. This questionnaire is comprised of 20 questions that are divided into three main sections, each section focusing on a specific aspect. The questionnaire incorporates various types of questions (open-ended questions, likert scale), along with follow-up questions for clarification (explain, why) to ensure clear and comprehensive responses. Additionally, participants are encouraged to provide free answers using their own words.

The first section focuses on general information, specifically asking questions about the students' background. It comprises two main questions, with the aim of describing the sample. The questions range from one to two. The second section consists of seven questions, numbered three to nine. These questions pertain to the learners' knowledge of English as a medium of instruction, their proficiency in the language, and the significance of using it in the field of Mathematics. The purpose of this section is to gauge the students' perspectives on the meaning of EMI, their language proficiency, and whether it impacts their comprehension of the courses. Moreover, the third section consists of nine questions, numbered from 10 to 19. This section aims to investigate students' motivation towards the language used as the medium of instruction, as well as the challenges they face when utilizing this language to

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learn the modules. Finally, the last question covers the recommendation or suggestions regarding the use of English as the medium of instruction in your Mathematics courses.

5.2. Analysis of the Students' Questionnaire

This section provides a thorough analysis of the results obtained from the questionnaire.

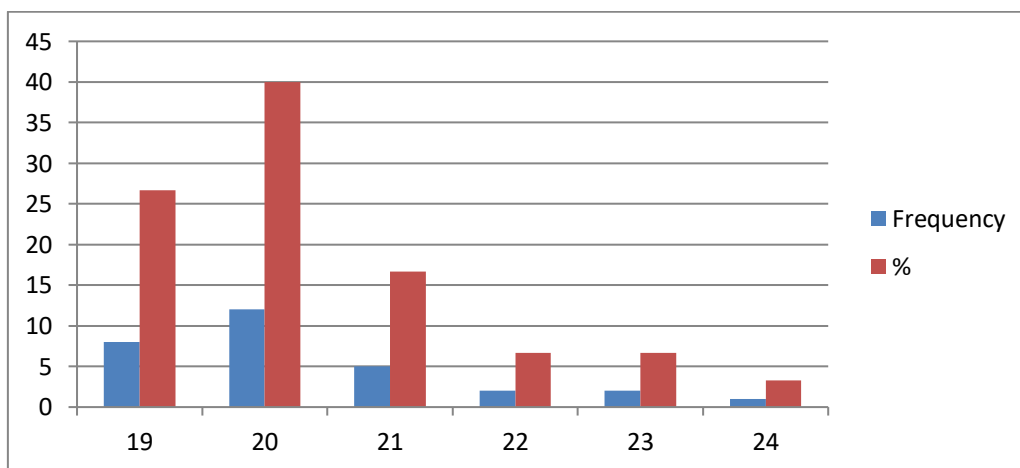
Section One: General Information

Item 1: Age.

Table 1: Students' Age.

Options	Frequency	Percentage (%)
19	8	26.7 %
20	12	40 %
21	5	16.7 %
22	2	6.7 %
23	2	6.7 %
24	1	3.3 %
Total	30	100 %

Figure 1: Students' Age.



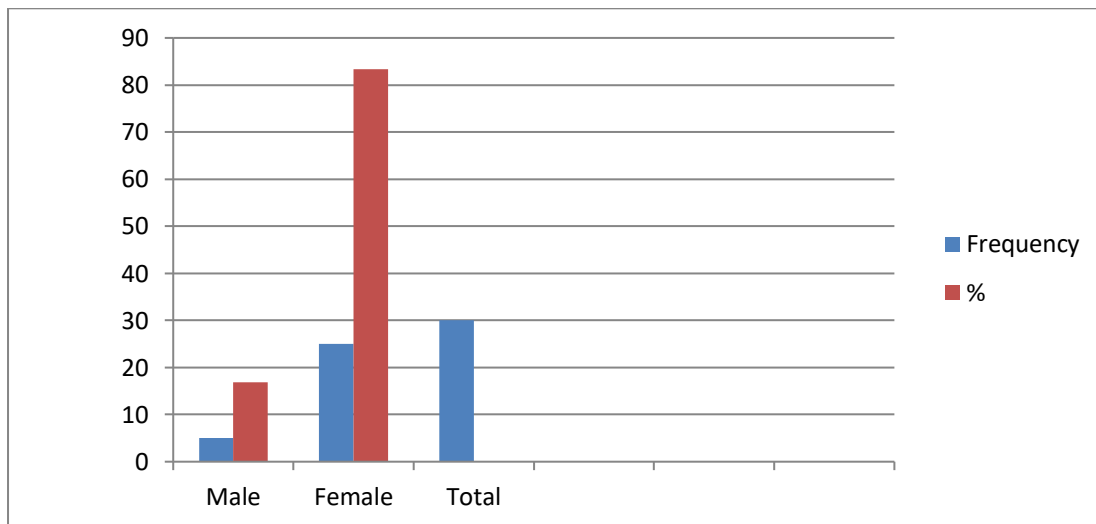
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Item 2: Gender.

Table 2: Students' Gender.

Gender	Frequency	Percentage (%)
Female	25	83.3%
Male	5	16.7%
Total	30	100%

Figure 2: Students' Gender.



According to figure 2, the sample is divided among the selected participants in the following way: 83.3% female participants and 16.7% male participants.

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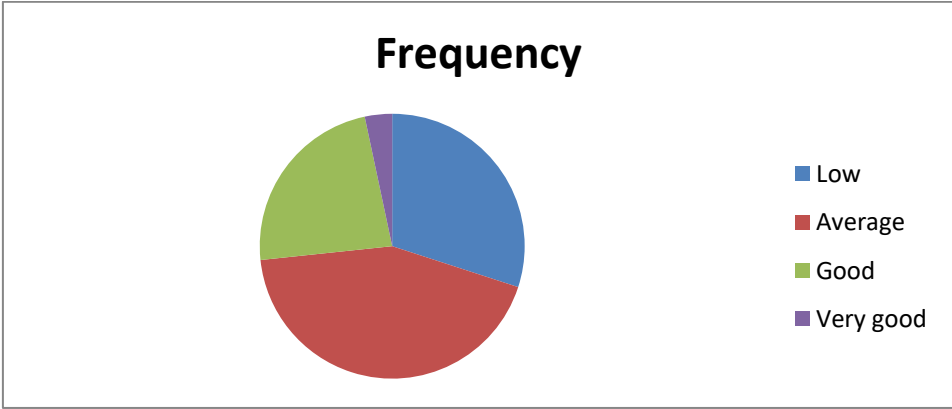
Section Two: English Language Proficiency

Item 3: How can you evaluate your level of English comprehension?

Table 3: Students’ Level of Comprehension in English.

Options	Frequency	Percentage (%)
Low	9	30 %
Average	13	43.3 %
Good	7	23.3 %
Very good	1	3.3 %
Total	30	100

Figure 3: Students’ Level of Comprehension in English.



When asked about their proficiency in this language, most of the students described themselves as having an average level. A few students reported having a low level of understanding, while the rest claimed to have a good level. It is clear that the majority of the students are generally satisfied with their level and have achieved their goals to reach it. It is

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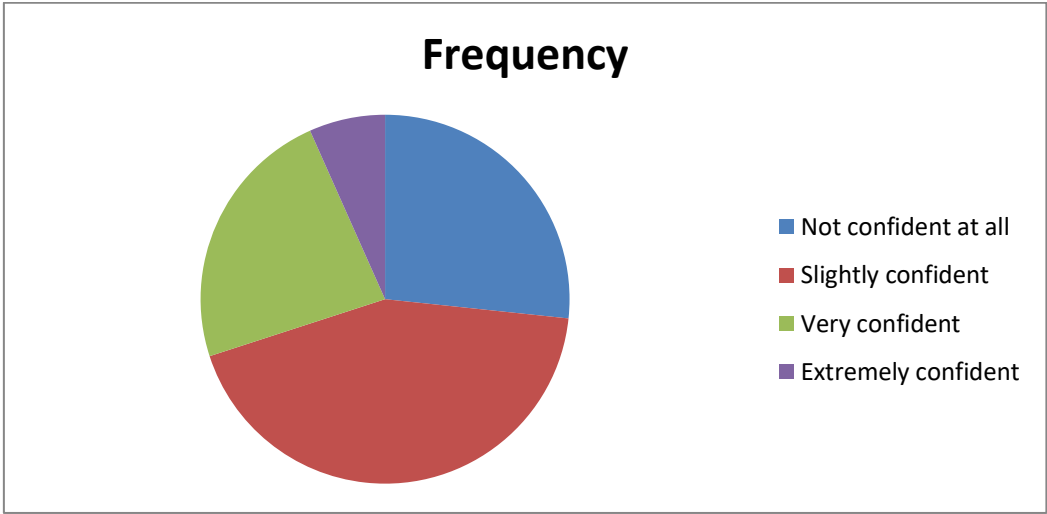
important to note that the sample of students chosen for this research consists of those with an average level, which will contribute to the evaluation of the research results.

Item 4: How confident are you in your ability to express yourself clearly in English during class discussions?

Table 4: Students ‘confidence in Expressing Oneself Clearly in English during Class Discussions.

Options	Frequency	Percentage (%)
Not confident at all.	8	26.7 %
Slightly confident.	13	43.3 %
Very confident.	7	23.3 %
Extremely confident.	2	6.7 %
Total	30	100 %

Figure 4: Students ‘confidence in Expressing Oneself Clearly in English during Class Discussions.



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According to the table, most students (43.3%) were slightly confident when it comes to using clear English during class discussions. Furthermore, many of them (26.7%) declared that they do not feel confident. However, only 6.7% of students said they are very confident in their ability to communicate in English in the classroom, while a smaller percentage of students (23.3%) reported feeling extremely confident. These results showed that a lot of students struggle with confidence issues when it comes to speaking English in class. It appeared that shyness, nervousness, and fear of making mistakes are some of the factors that prevent them from actively participating and expressing themselves clearly. According to the data, many students lacked the confidence necessary to speak fluently in English during class discussions.

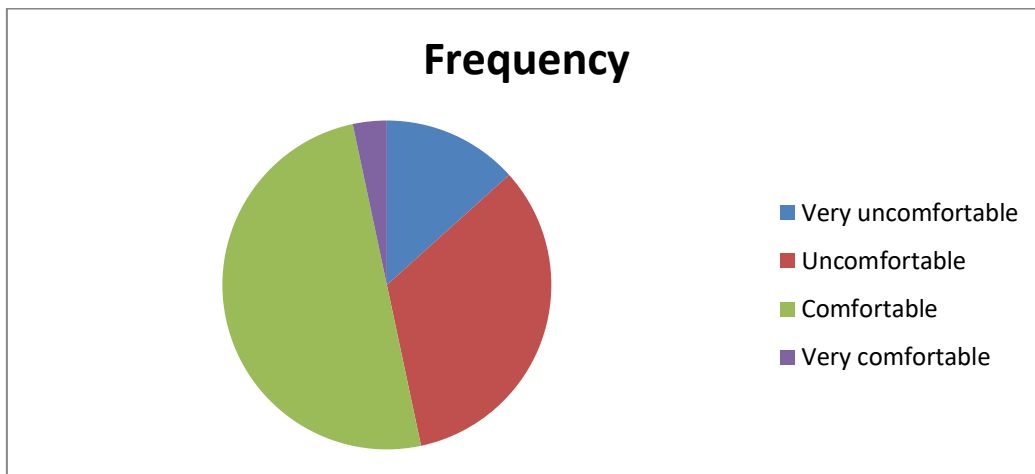
Item 5: How comfortable do you feel learning Mathematics in English?

Table 5: Students’ Comfort Level of Learning Mathematics in English.

Options	Frequency	Percentage (%)
Very uncomfortable	4	13.3%
Uncomfortable	10	33.3%
Comfortable	15	50%
Very comfortable	1	3.3%
Total	30	100%

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Figure 5: Students' Comfort Level of Learning Mathematics in English.



The item five investigated the extent to which students feel comfortable students are learning Mathematics in English. 50 % of the students viewed they felt comfortable using this method of instruction. After that, 33.3% of students declared they were uncomfortable and 13.3% stated they were extremely uncomfortable. Just 3.3% of students stated that they felt extremely comfortable learning Mathematics in English. According to these results, a large number of students found that learning Mathematics in English is comfortable, while a smaller but still some students find them uncomfortable or very uncomfortable. This emphasized how important it is to take into account the students' comfort level when using language-based learning strategies into Mathematics instruction.

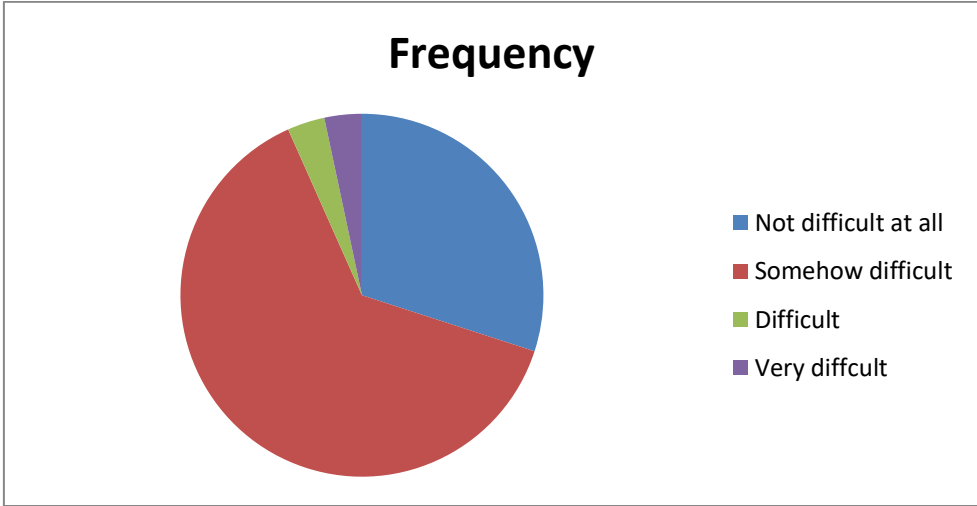
Item 6: To what extent does using English as the language of instruction make it difficult for you to understand the Mathematical concepts being taught?

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Table 6: Impact of English Language Instruction on Students in Math Concept Understanding.

Options	Frequency	Percentage (%)
Not difficult at all.	9	30%
Somehow difficult.	19	63.3%
Difficult.	1	3.3%
Very difficult.	1	3.3%
Total	30	100%

Figure 6: Impact of English Language Instruction on Students in Math Concept Understanding.



Based on the responses gathered, the table illustrated how Math concept understanding is impacted by English language instruction. The majority of participants (63.3%) declared that

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combining Math and English language concepts was challenging in some way. A smaller percentage (30%) stated they had no problems at all. Just 3.3% of respondents thought that the Mathematics taught in English was either extremely difficult or difficult. These results represented that many people have some difficulty comprehending Maths when they involved the use of English.

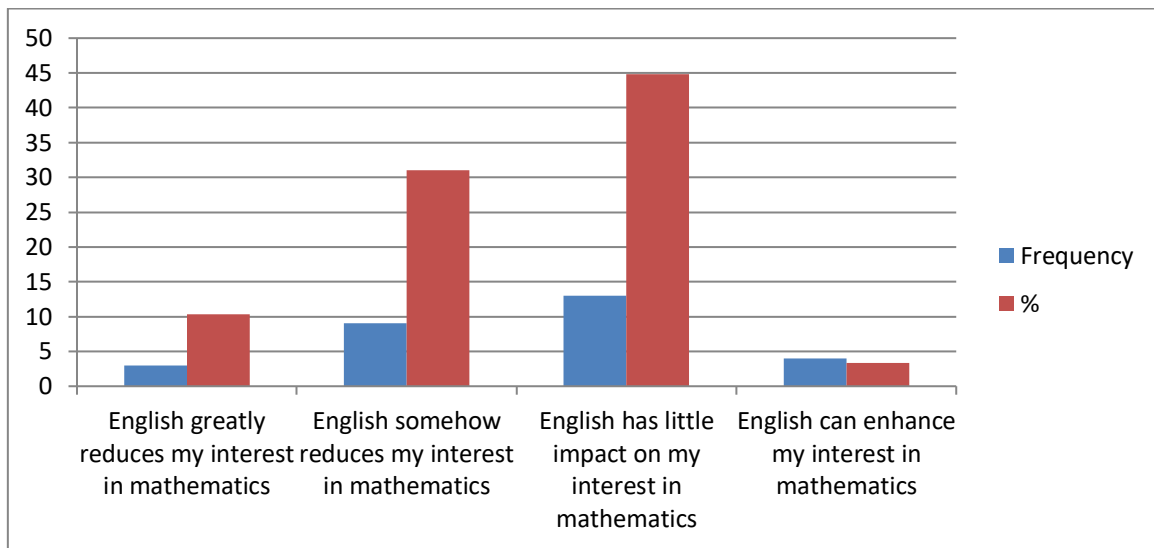
Item 7: To what extent does English affect your interest in Mathematics?

Table 7: The Impact of the English Language on Students' Interest in Math.

Options	Frequency	Percentage (%)
English greatly reduces my interest in Mathematics.	3	10.3%
English somehow reduces my interest in Mathematics.	9	31%
English has little impact on my interest in Mathematics.	13	44.8%
English can enhance my interest in Mathematics.	4	13.8%
Total	29	99.9%

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Figure 7: The Impact of the English Language on Students' Interest in Math.



The impact of the English language on students' interest in Mathematics appeared in the table. The majority of respondents (44.8%) stated that their interest in Mathematics was not significantly impacted by the English language. However, some participants (31%) stated that their interest in the topic was in some way diminished by the English language. 10.3% of respondents thought that learning English significantly decreased their interest in Mathematics, while a smaller percentage (13.8%) thought it could increase their interest. These results suggested that although English language proficiency may not be a major factor for many students, it can have a negative effect on some of the students' interest and engagement with Mathematics.

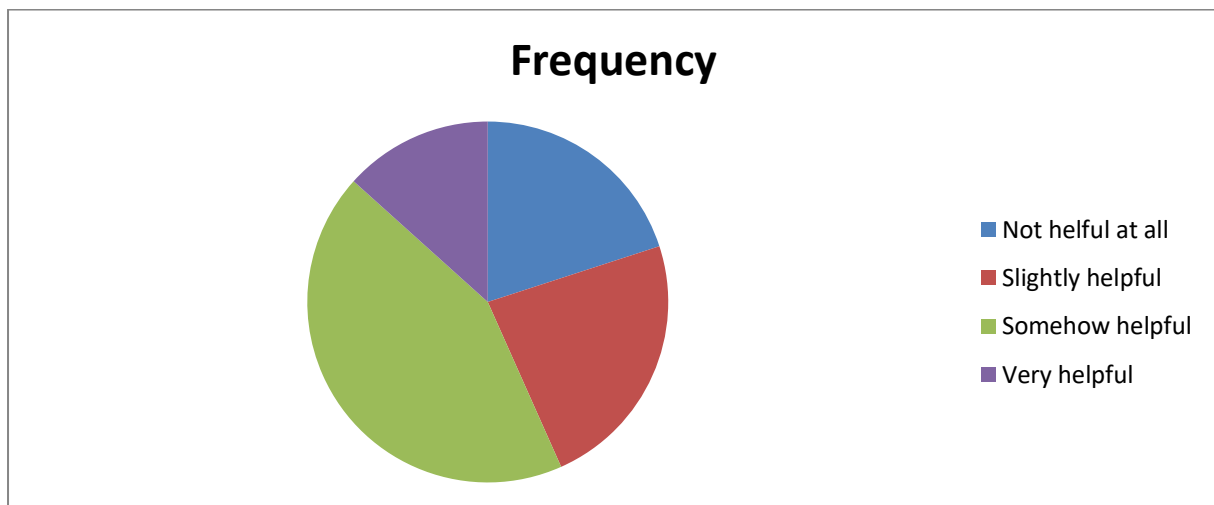
Item 8: How helpful are your teachers in explaining mathematical concepts in English?

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Table 8: Teacher Effectiveness in Explaining Math Concepts in English.

Options	Frequency	Percentage (%)
Not helpful at all.	6	20%
Slightly helpful.	7	23.3%
Somehow helpful.	13	43.3%
Very helpful.	4	13.3%
Total	30	100%

Figure 8: Teacher Effectiveness in Explaining Math Concepts in English.



The effectiveness of teachers' English-language explanations of Math concepts could be observed in the table 8. (43.3%) of the participants thought that the English explanations provided by the teachers were at least helpful in some way. (13.3%) thought the explanations were extremely helpful, while a smaller percentage, 23.3%, thought they were slightly helpful. But a sizable portion (20%) thought it was completely useless to use English to explain Math concepts. These results showed that while some of students thought English as a

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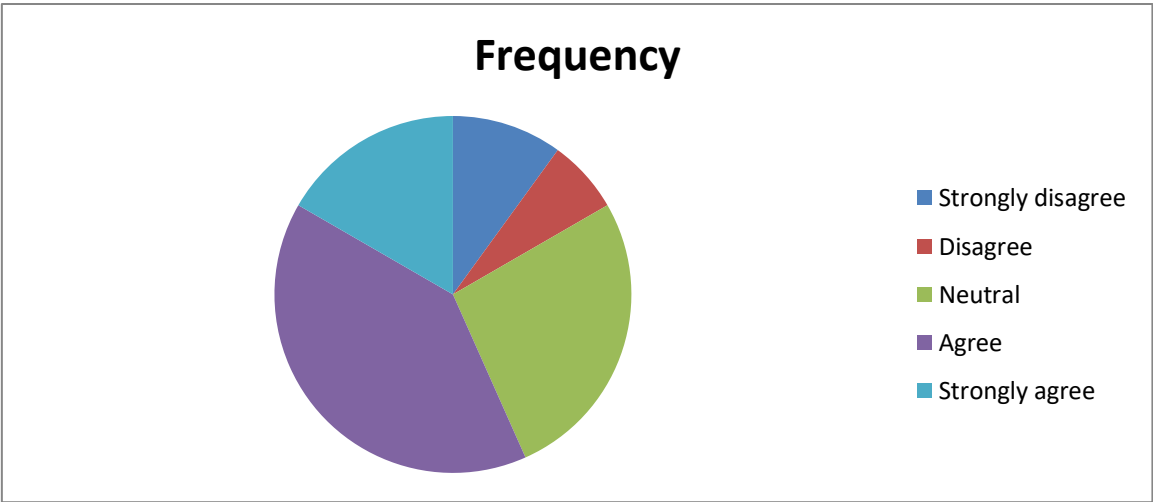
medium of instruction was at least somehow helpful, fewer of them had difficulties. This showed that students' comprehension of Mathematical ideas can be significantly impacted by the language used in instruction.

Item 9: Using English as the language of instruction helps me develop my English language skills.

Table 9: Students’ English Language Development through English Math Instruction.

Options	Frequency	Percentage (%)
Strongly disagree.	3	10%
Disagree.	2	6.7%
Neutral.	8	26.7%
Agree.	12	40%
Strongly agree.	5	16.7%
Total	30	100%

Figure 9: Students’ English Language Development through English Math Instruction.



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Question 9 demonstrated Students' opinions about how their English language development has been impacted by studying Math in English as a Medium of Instruction (EMI). Most respondents (40%) stated that learning Math in EMI improved their English language proficiency. (16.7%) more people strongly agreed with this viewpoint. In contrast, 26.7% of respondents had no opinion. 10% strongly disagreed and a smaller percentage (6.7%) disagreed that learning Math in EMI helped them improve their English language skills. These findings suggested that although a number of students perceived studying Math in EMI to have a beneficial effect on their English language proficiency, a smaller proportion either did not perceive any such benefits or were not known about the connection between the two.

Section Three: Students' Motivation

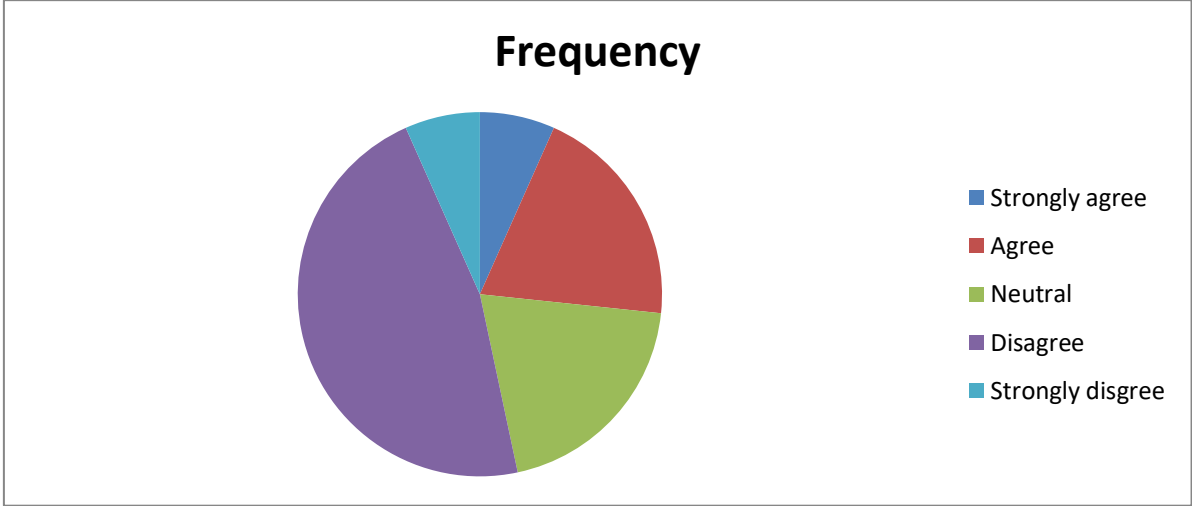
Item 10: Using English as the medium of instruction has a negative impact on my motivation to learn mathematics.

Table 10: Negative Impact of English Medium of Instruction on Student Motivation in Math.

Options	Frequency	Percentage (%)
Strongly agree.	2	6.7%
Agree.	6	20%
Neutral.	6	20%
Disagree.	14	46.7%
Strongly disagree.	2	6.7%
Total	30	100%

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Figure 10: Negative Impact of English Medium of Instruction on Student Motivation in Math.



The table revealed student perceptions of how instruction in English negatively affects their motivation for Math. The majority of respondents (46.7%) disagreed with this statement, indicating that they did not believe using EMI had a negative effect on students' motivation for Math. However, (20%) of respondents expressed no opinion at all, indicating that they were neutral. However, just (6.7%) strongly agreed and (20%) agreed that teaching Math in English has a negative impact on students' motivation. These varied answers proved how many people do not believe that teaching English has a negative effect on students' motivation for Math.

Why?

The learners' answers showed a variety of difficulties and possibilities, giving different perspectives on the shift to learning Mathematics in English. The learners noticed some initial challenges because of their academic English level, even though they understood the supposed simplicity and international significance of English compared to French. Even with

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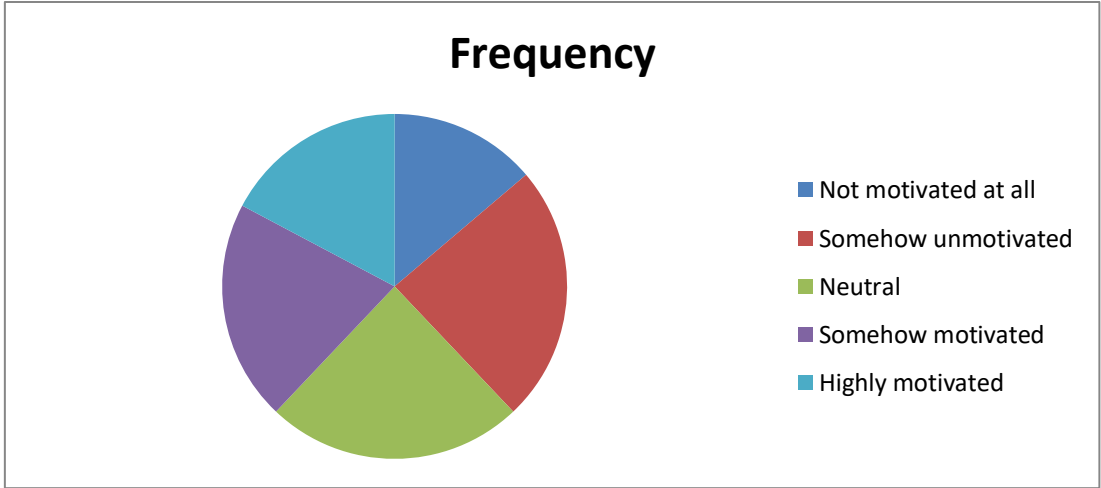
these difficulties, the students were aware of how learning Mathematics in English can enhance communication and provide access to information. They received the language shift as a reflection of current linguistic developments and view it as a chance to improve language proficiency and modify to the transforming context of education.

Item 11: How motivated are you to participate in English Mathematics classes?

Table 11: Students’ Motivation level in English Math Classes.

Options	Frequency	Percentage%
Not motivated at all.	4	13.8%
Somehow unmotivated.	7	24.1%
Neutral.	7	24.1%
Somehow motivated.	6	20.7%
Highly motivated.	5	17.2%
Total	29	99.9%

Figure 11: Students’ Motivation level in English Math Classes.



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In question 11, the data showed that a significant part of students could be categorized as somehow unmotivated (24.1%) or neutral (24.1%). This suggested that there is a lack of strong motivation in these groups. Additionally, (13.8%) of students reported being not motivated at all, further emphasizing a bit of the student population with low levels of motivation. On the other hand, (20.7%) of students expressed feeling somehow motivated, while (17.2%) indicated being highly motivated in their English Math classes. These findings indicate a range of motivation levels among students, with a numerous of them demonstrating moderate to high levels of motivation. However, there is also an important part of students who present lower levels of motivation or neutrality towards their English Math classes.

Explain.

The responses from the students showed different viewpoints regarding Mathematics education in English as compared to French. Some clearly preferred French because of its familiarity and simplicity of use, but others showed a strong desire to learn Mathematics in English because they are interested about the language and understand its importance all over the world. Those who preferred French are more comfortable with it. On the other hand, students who were interested to learn Mathematics in English are motivated to handle any challenges they face, like collecting and expressing ideas, in order to improve their language proficiency and stay with the language's becoming more common.

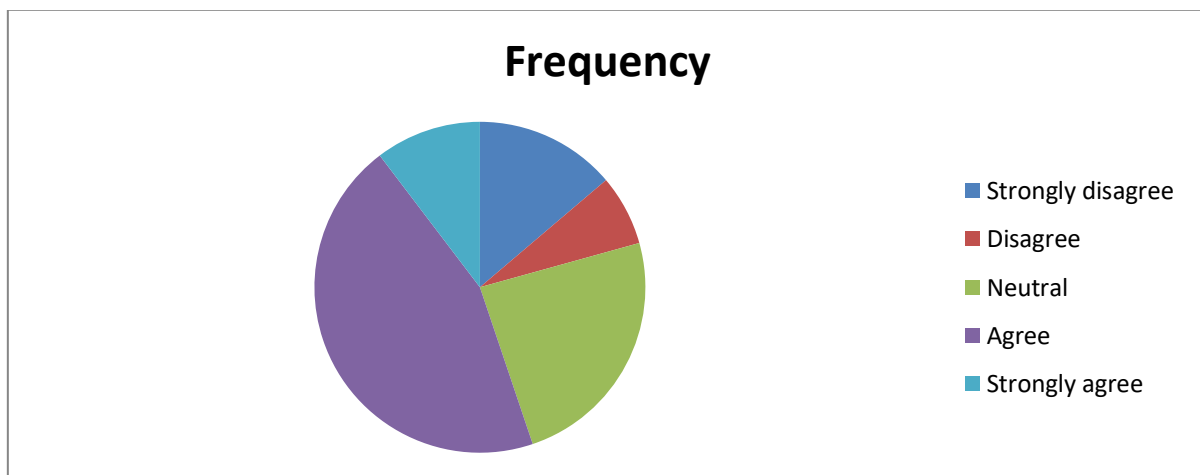
Item 12: Do you feel that the use of English as a medium of instruction has positively influenced your overall motivation towards learning Mathematics?

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Table 12: Impact of English Math Instruction on Student Motivation in Math Positively.

Options	Frequency	Percentage (%)
Strongly disagree.	4	13.8%
Disagree.	2	6.9%
Neutral.	7	24.1
Agree.	13	44.8%
Strongly agree.	3	10.3%
Total	29	99.9%

Figure 12: Impact of English Math Instruction on Student Motivation in Math Positively.



In item 12, the table showed how English Math instruction affects students' motivation for Math, and the results were mostly positive. Concerning the participants, (10.3%) strongly agreed and (44.8%) agreed that receiving Math instruction in English has a positive impact on their motivation. It also meant that some percentage of students is aware of the advantages of receiving Math instruction in English. Also, (24.1%) of students expressed no opinion, suggesting that some may not have strong feelings about it. On the other hand, the idea that

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receiving Math instruction in English has a positive impact on their motivation was viewed negatively by (13.8%) of respondents, while only (6.9%) disagreed. These results emphasized a more general view of how English Math instruction affects students' motivation, with most of the participants agreeing or strongly agreeing that it has a positive impact.

Explain.

It is clear from the students' responses that most of them had different ideas about the value of learning English as a language of instruction. Some students recognized benefits, stated it facilitates learning, helped in many foreign fields, and gave them good English-speaking experience. Some of them found problems, in relation to the language challenge, lack of instruction provided by teachers, and the need of education in real life application. There was also a comparison with French, where some students found English is easy to learn. Some had emphasized the relationship between Mathematics and English, stressing how crucial it is to comprehend English in order to comprehend Mathematics. Overall, different perspectives on the role of English in education were demonstrated by the fact that while some students perceive positive impacts on learning and problem-solving, others were unsure about the effect of both positive and negative aspects.

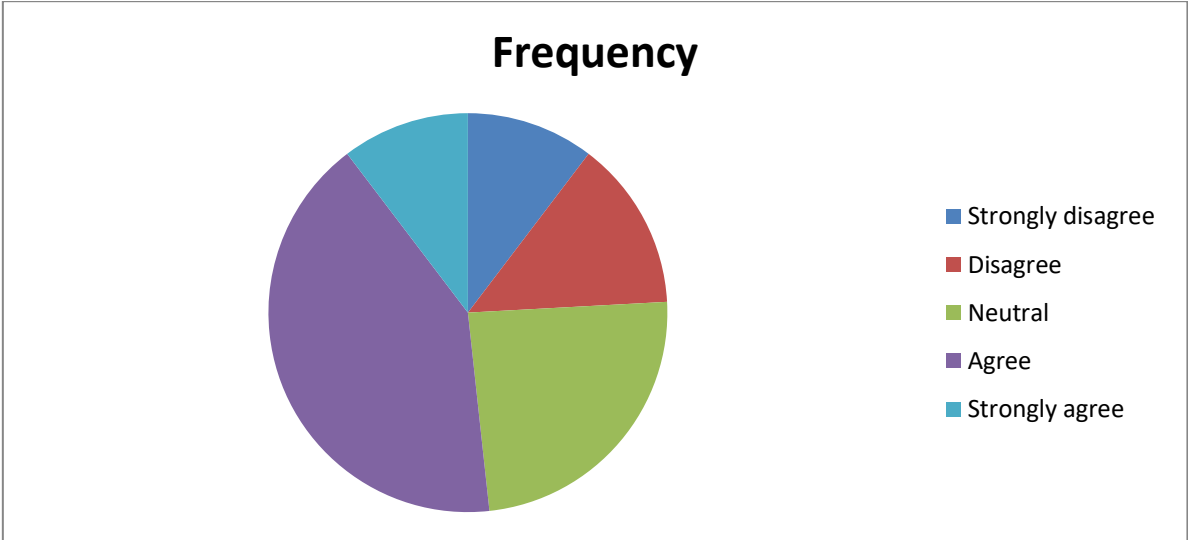
Item 13: If I have difficulty understanding the English language used in class, it negatively impacts my motivation to participate in class discussions.

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Table 13: Impact of Language Difficulty on Students’ Class Participation negatively.

Options	Frequency	Percentage (%)
Strongly disagree.	3	10.3%
Disagree.	4	13.8%
Neutral.	7	24.1%
Agree.	12	41.4%
Strongly agree.	3	10.3%
Total	29	99.9%

Figure 13: Impact of Language Difficulty on Students’ Class Participation negatively.



The table showed the impact of language difficulty on students' class participation, revealing a clear negative trend. A significant percentage of students, (41.4%), agreed that language difficulty hinders their class participation, and an additional (10.3%) strongly agreed with this. This indicated that a majority of students perceive language challenges as obstacles to their active involvement in classroom activities. However, (13.8%) disagreed and (10.3%) strongly disagreed with the idea that language difficulty has a negative impact on their class

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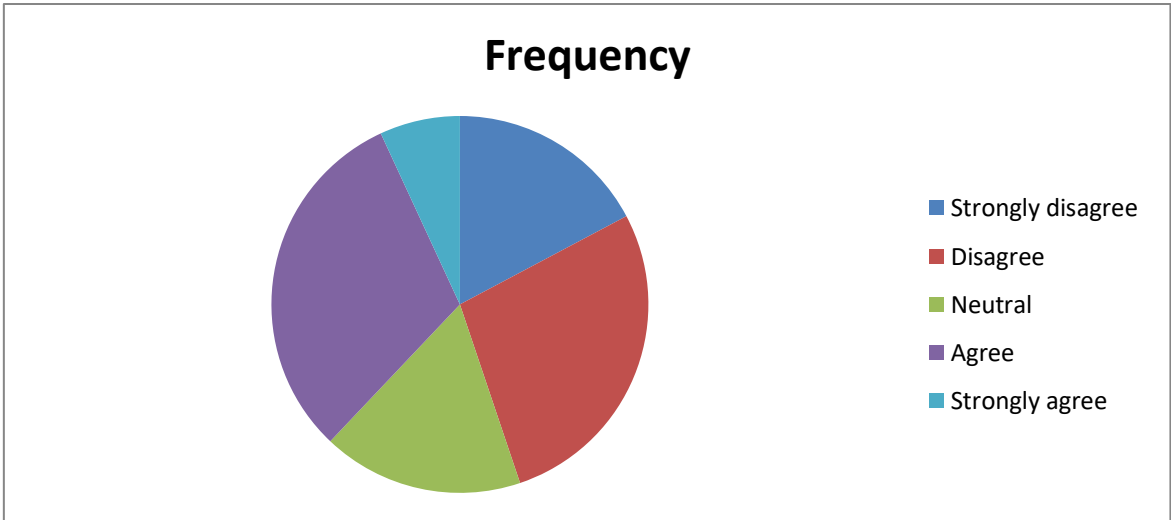
participation, suggesting some different perspectives among students. Furthermore, (24.1%) were neutral on the issue, highlighting a group of students who may not have a strong opinion on it.

Item 14: My motivation in Mathematics courses is hindered by the difficulty I faced it in understanding the English language.

Table 14: Students’ Difficulty with English & Math Course Motivation.

Options	Frequency	Percentage (%)
Strongly disagree.	5	17.2%
Disagree.	8	27.6%
Neutral.	5	17.2%
Agree.	9	31%
Strongly agree.	2	6.9%
Total	29	99.9%

Figure 14: Students’ Difficulty with English & Math Course Motivation.



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The table 14 presented findings from students' English difficulties and how they impact their motivation in Math courses. The participants expressed a wide range of perspectives. About (31%) of students agreed that their struggles with English have a negative influence on their motivation in Math courses, while (6.9%) strongly agreed. On the other hand, a significant group of students, (27.6%), disagreed with the idea that their English difficulties affect their Math motivation, with (17.2%) strongly disagreeing. This indicated a clear difference in opinions among students regarding the relationship between language challenges and motivation in Math. Additionally, (17.2%) of students were neutral. These results demonstrated the complexity of how students perceive the connection between language difficulties and their motivation in Math courses.

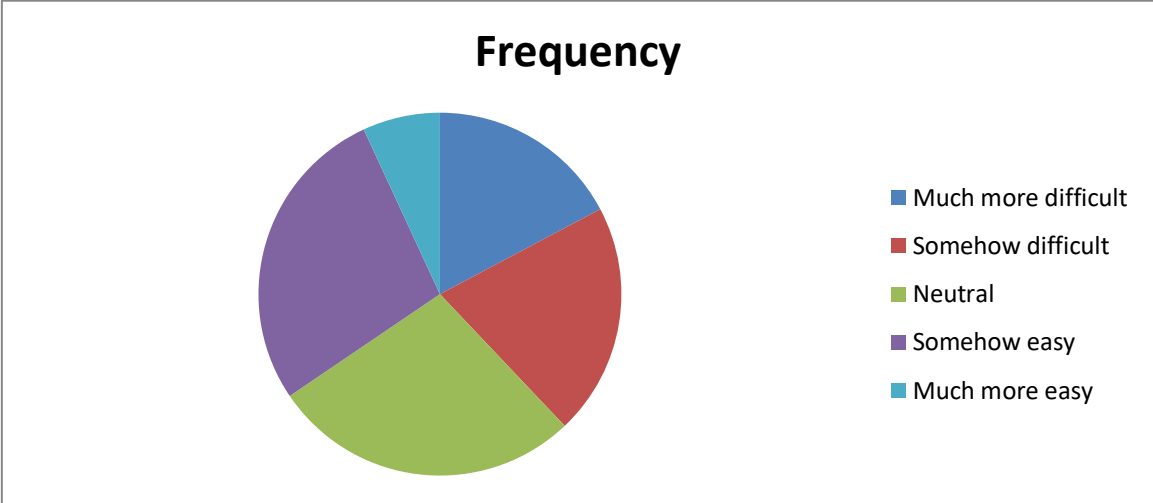
Item 15: How do you perceive the difficulty level of Mathematics courses taught in English compared to courses taught in French language?

Table 15: Students’ Difficulty Level of Perception on Learning Math in English.

Options	Frequency	Percentage (%)
Much more difficult.	5	17.2%
Somehow difficult.	6	20.7%
Neutral.	8	27.6%
Somehow easy.	8	27.6%
Much more easy.	2	6.9%
Total	29	99.9%

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Figure 15: Students’ Difficulty Level of Perception on Learning Math in English.



With regard to item 15, a significant number of students (20.7%) thought that learning Math in English was somehow difficult, while (17.2%) thought that it was much more difficult. On the other hand, an equal number of students (27.6%) thought that learning Math in English was neutral or somehow easy, and (6.9%) thought that learning Math in English was much easier or easier. These results showed that there is a balanced distribution of opinions regarding the difficulty level of learning Math in English, with no difficult consensus. The diverse perceptions suggested that students' experiences and comfort levels with Math instruction in English vary.

Item 16: what are the difficulties that you face while studying the modules in English?

The answers given showed a variety of difficulties faced by Math students learning in English. Common topics included things like not knowing the language well, being unfamiliar with new terminology, and having difficulty comprehending Math terms because of Arabic and French background. Students found difficulty pronouncing words correctly, having problems comprehending a limited vocabulary, and sometimes having difficulties understanding a particular term. While some students mentioned difficulties with probability

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questions and not enough teacher explanations, others believed that English is a more simple language than other languages. Regardless of these challenges, a large number of students recognized the value of switching to the new language and express confidence in their ability to face challenges with time and effort.

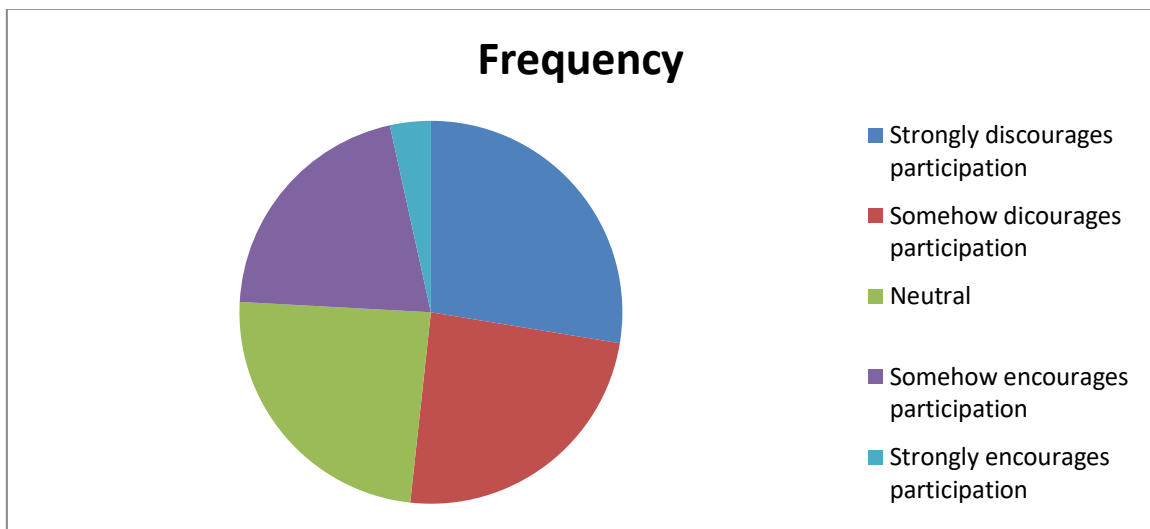
Item 17: Does the use of English influence your willingness to participate in group discussions and activities in Mathematics classes?

Table 17: Effect of English on Math Group Activity Willingness.

Options	Frequency	Percentage (%)
Strongly discourages participation.	8	27.6%
Somehow discourages participation.	7	24.1%
Neutral.	7	24.1%
Somehow encourages participation.	6	20.7%
Strongly encourages participation.	1	3.4%
Total	29	99.9%

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Figure 17: Effect of English on Math Group Activity Willingness.



From the participants, (27.6%) strongly discouraged participation in English use activities, and (24.1%) discouraged participation in some way. In this context, an equal percentage of (24.1%) had no opinion about English. Positively, (20.7%) of participants felt that using English in Math group activities encouraged them to participate somehow, and only (3.4%) strongly felt that using English encourages participation. This data indicated that responses to the use of English in group Math tasks vary; a larger but interesting group appeared to be motivated by the use of English, while a smaller but significant percentage expressed refusal or neutrality.

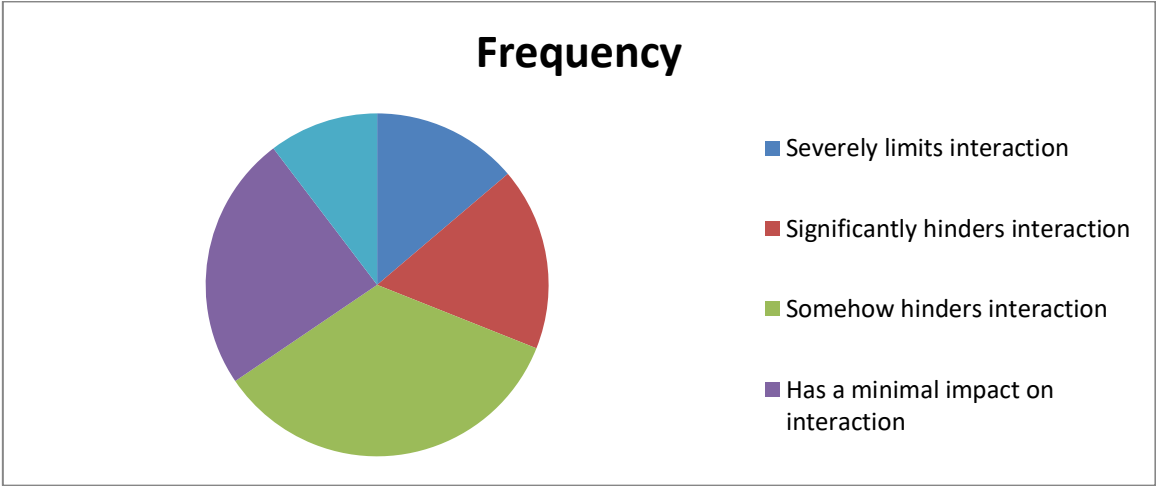
Item 18: To what extent does the language barrier affect your interaction with professors during Mathematics lectures?

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Table 18: Language Barrier & Professor Interaction in Math Lectures with Students.

Options	Frequency	Percentage
Severely limits interaction.	4	13.8%
Significantly hinders interaction.	5	17.2%
Somehow hinders interaction.	10	34.5%
Has a minimal impact on interaction.	7	24.1%
No impact on interaction.	3	10.3%
Total	29	99.9%

Figure 18: Language Barrier & Professor Interaction in Math Lectures with Students.



The answers to this question showed that a significant number of students found it difficult to interact because of the language barriers. In particular, (13.8%) of respondents thought language severely limits their ability to interact, while (17.2%) thought it seriously hinders. Moreover, (34.5%) believed that language in some way hinders their communication, indicating a significant percentage of students having difficulties. However, only (10.3%)

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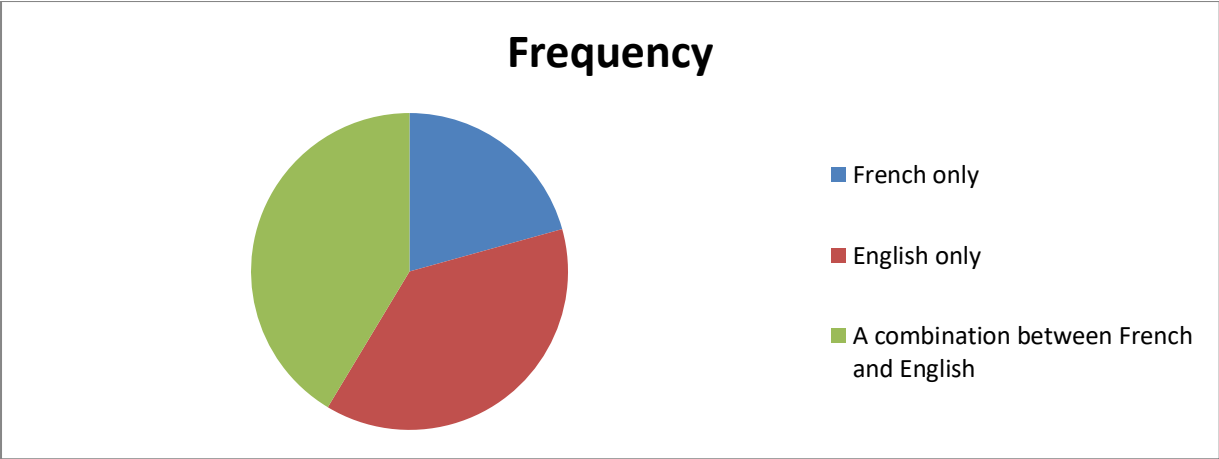
stated that language has no influence at all, and (24.1%) stated that it has a minimal impact on their interactions.

Item 19: In your opinion, which language would be most effective for teaching Mathematics courses at Biskra University? (Please select one).

Table 19: Student Preference: Language of Instruction for Math (Biskra University).

Options	Frequency	Percentage
French only.	6	20.7%
English only.	11	37.9%
A combination between French and English.	12	41.4%
Total.	29	99.9%

Figure 19: Student Preference: Language of Instruction for Math (Biskra University).



According to the item 19 data, (20.7%) of students preferred French exclusively, while an important percentage of students (37.9%) preferred English as the only medium of instruction. It is interesting to note that (41.4%) of students chose to receive Math instruction in both

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French and English. This preference for a bilingual approach suggested a strong desire to use both languages during the educational process. The findings pointed to an extensive variety of preferences among Biskra University students, with a significant percentage supporting Math instruction in both French and English.

Item 20: Do you have any other comments or suggestions regarding the use of English as the medium of instruction in your Mathematics courses?

Regarding the use of English as the medium of instruction in Mathematics courses, the responses given show mixed responses. Some students were strongly in favour of using English for teaching, which referred to its resources of instructional materials and simplicity of comprehension; others are not sure. Some students stated their age makes it harder for them to understand the professors, which might be one reason why they prefer bilingual education. However, the majority of students agreed that instruction should be carried out in English, with some bringing out the language's significance on an international level and the necessity of practice for improving their knowledge of it. Some students thought that one way to help students get over language barriers could be to offer free classes where they can learn a special terminology to their field of study.

5.3. Synthesis and Discussion of the Results

Numerous significant results regarding the effects of using English as a Medium of Instruction (EMI) on student motivation and engagement in Mathematics courses were provided by the questionnaire analysis.

The results of the questionnaire analysis showed that there are different effects on students' motivation and engagement when English is used as the medium of instruction (EMI) in Mathematics courses. Although the majority of students were somehow comfortable with

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EMI and had a basic understanding of the language, confidence was still an obstacle to active participation. Only a minority of students struggled greatly with EMI, which had an impact on their comprehension and interest for Mathematics. Despite these challenges, EMI enhanced English proficiency and international significance is highlighted by many students as having a positive effect on their motivation.

Teacher communication should be effective because it had a big impact on students' motivation. Addressing confidence and comprehension issues through supportive teaching strategies and language support is crucial to improving the benefits of EMI.

To conclude, EMI has a positive effect on the majority of students on their motivation in learning Mathematics in English.

6. Teachers' Interview

6.1. Description of Teachers' Interview

The interview consists of nine questions, which are organized from general to specific and aims to reach the research purposes. The purpose of the first question is to find out which language they favor using when teaching. For question two, aims to see if they personally on the use of EMI in Algerian higher education. In question three, the purpose of this question is to know if the teachers are in favour of using English. Question four is covered to see what challenges teachers face when transitioning French to English as a Medium of Instruction. According to question five, the aim of it is how teachers perceive the difficulties are students encountering when using EMI. From question six to eight, the purpose of them is to see teachers 'perception on students' motivation in classroom, and it is impact on their engagement and performance in English classes. Finally, it ends with a last question nine,

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which provides and suggests any recommendations for improved incorporation of EMI in the field of Mathematics.

6.2. Analysis of Teachers' Interview

Item 1: In your opinion, what is the significance of using English as a medium of instruction, and how can it contribute to the learning experience?

Teacher A: "The importance of English lies in its universality, its simplicity and above all in research. To contribute to learning it is simply enough to generalize to all teaching modules".

Teacher B: "English is a very important language for communication, business, technology, science, travel and many other fields".

Teacher C: "In my opinion, using English as the language of instruction can facilitate academic learning, and also give students the skills and knowledge needed to succeed in an increasingly interconnected world".

Although each of the three teachers clarified a different aspect, they all agree on the significance of using English as a medium of instruction. Teacher A suggested that using English only is sufficient to contribute to learning, highlighting the language's universality, simplicity, and importance for research. Teacher B offered a comprehensive list of fields in which English is useful. And the Teacher C, who claimed that academic learning, could be directly helped by EMI while giving students the tools they have to succeed in the world.

Item 2: How do you personally view the prospect of using English as a medium of instruction in Algerian higher education?

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Teacher A: “The use of English as a language of instruction in Algerian higher education is simply giving our students an opportunity to learn about scientific developments because, quite simply, most sciences are written in English”.

Teacher B: “No answer”.

Teacher C: “Students and educators need time to adjust to the new language of instruction. This includes adapting teaching methods, creating or sourcing appropriate materials, and building language skills”.

According to question two, Teacher A believed that it is necessary for getting access to developments in science. Teacher B did not answer. Teacher C suggested the difficulties of transitioning, such as changing teaching strategies and improving language proficiency, while knowing the necessity of shifting to English instruction. Teacher B's silence kept their personal opinion, while Teacher A highlights the useful advantages and Teacher C discusses the necessary changes.

Item 3: Are you in favour of utilizing English? If so, could you explain your reasons? If no, why?

Teacher A: “Yes, I am in favour of using English. Since the use of English as the language of instruction in Algerian higher education, gives students the opportunity to learn about scientific developments because, quite simply, most sciences are written in English”.

Teacher B: “I am in favor of utilizing English in order to modernize higher education in the country and make universities more efficient and more attractive to international students”.

Teacher C: “English is the language of instruction in many universities and colleges worldwide. By learning in English at earlier levels, students are better prepared for higher education opportunities both domestically and internationally”.

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All of the teachers were in favor of English being used in Algerian higher education. Given that the majority of scientific research conducted in English, Teacher A gave a strong emphasis on developments in science. In Teacher B's opinion, it meant giving up universities current and taking in foreign students. Teacher C emphasized how learning to English at an early age provided students for higher education through the world. While they focused on the advantages, they should also take into account any possible disadvantages, such as needs and the necessity of faculty training in light of this change.

Question 4: As a teacher who has previously taught in French, what challenges are you facing when transitioning to English as a Medium of Instruction?

Teacher A: “**On the contrary, most students prefer English over French. French is a difficult and not important language**”.

Teacher B: “**A significant challenge for teachers is the limited mastery of the English language, which requires in-depth training in English proficiency. In addition, the adaptation of teaching materials and study programs to an English-speaking context**”.

Teacher C: “**No answer**”.

Different viewpoints were shown by this question. According to Teacher A, students felt that English is easier to learn and more important than French, so they prefer it. On the other hand, teacher B made attention to some of the major difficulties that teachers encounter, like the need for years of instruction due to limited English language proficiency and the necessity of changing programs and courses to a to English setting, but Teacher C chose not to answer this question.

Question 5: In your opinion, what difficulties are students encountering when using English as a Medium of Instruction?

Teacher A: “**Students find it difficult to speak but this difficulty will fade over time**”.

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Teacher B: “Some students may still have difficulty understanding lectures, grasping complex academic texts, and speaking English confidently in academic settings”.

.Teacher C: “In some cases, students may not have sufficient support or resources to improve their English language skills. Lack of access to language support programs, tutoring, or language immersion opportunities can exacerbate the difficulties they face”.

A variety of issues appeared from an analysis of the teachers' answers to the question regarding the challenges students face when using English as a Medium of Instruction. According to Teacher A, there was a learning process associated with language acquisition and that students face difficulties speaking English. However, these difficulties slowly disappear over time. Teacher B, on the other hand, focused on problems like listening to lectures, reading difficult academic texts, and speaking with confidence in classrooms. These difficulties highlight continued challenges some students had that go on the first stage. Teacher C explored possible fundamental challenges that students may face, highlighting the negative effects of unsuitable resources and support on the development of English language proficiency.

Question 6: Do you find students motivated to use English in class? Explain please.

Teacher A: “It is obvious that the student is excited about the easiest and most useful language abroad”.

Teacher B: “No answer”.

Teacher C: “No answer”.

Teacher A represented that students were excited about learning the language, Given that English is the "easiest and most useful language abroad". This suggested that students

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understand the need and significance of being good in English, especially in an international context, which could be an effective motivator. However, neither Teacher B nor Teacher C responded to the question.

Question 7: How does the motivation of students impact their engagement and performance in English classes?

Teacher A: “No answer”.

Teacher B: “No answer”.

Teacher C: “Motivated students are more likely to actively participate in English classes. They ask questions, engage in discussions, complete assignments, and seek out additional learning opportunities, which enhance their overall engagement with the material”.

Only Teacher C gave a thorough response when asked how student motivation affects engagement and performance in English classes, compared to all the teachers' responses. According to Teacher C, motivated students were more likely to participate completely in English classes, which increased their engagement with the subject matter. This participation could take many different forms, such as asking questions, participating in conversations, finishing homework, and looking for more educational opportunities. Unfortunately, Teachers A and B did not answer to the question, which create a lack in the understanding of their viewpoints on this subject, making it challenging to make more comprehensive conclusions.

Question 8: How can educators foster a motivating learning environment that encourages students to actively use English in their classes?

Teacher A: “A simulating learning environment that encourages students to use English effectively in their classes can be fostered by using only English in conversation used”.

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Teacher B: “No answer”.

Teacher C: “Integrate technology tools and resources that support language learning, such as interactive language apps, online forums, or multimedia materials. Technology can make learning more engaging and accessible, allowing students to practice English in diverse ways”.

When analyzing the teachers' responses to the question on creating a motivating learning environment that encourages students to actively use English in their classes, Teacher A focused on the significance of creating an interesting classroom by using only English in conversations. Teacher B, on the other hand, did not reply. However, Teacher C supported the use of technological resources and tools, like online discussion boards, active language applications, and multimedia content, to enhance language learning. Teachers could improve student engagement and accessibility by using technology, which gave students more interactive and dynamic ways to practice their English.

Question 9: Can you provide any recommendations for improved incorporation of English as a Medium of Instruction in the field of Mathematics?

Teacher A: “The only recommendation is to introduce a specific mathematic standard to all levels”.

Teacher B: “No answer”.

Teacher C: “Both educators and students need access to support resources such as language courses, tutoring, and educational materials specifically designed for English language learners”.

The last question was examining the teachers' suggestions for an improved way of using EMI in Mathematics, teacher A offered a simple solution by recommending the implementation of just one Mathematical standard for all levels. Teacher B did not reply.

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Teacher C focused on how crucial it is to give students and teachers communication to support resources. These resources included learning tools made especially for English language learners, teaching services, and language courses.

6.3. Synthesis and Discussion of the Results

There is general agreement regarding the positive impact of English as a Medium of Instruction (EMI) on students' motivation and learning, according to the analysis of teachers' interview. Teachers emphasize the value of English worldwide and its use in a variety of fields.

The overall benefits of EMI, such as improved academic performance and student engagement, are clear, even in the face of challenges like the requirement for training in language competency and modification of teaching methods. Motivated students actively participate and look for more opportunities to learn, indicating that EMI can greatly improve educational outcomes given the right resources and support.

Conclusion

In conclusion, the purpose of this chapter is to analyze the results and discuss the data collected of the students' questionnaire and teachers' interview. In summary, the purpose of the questionnaire was to highlight the students' English language proficiency. It was given to second-year Mathematics students at the University of Mohamed Khider – Biskra. Additionally, the questionnaire's second goal was to find out how motivated the students were in English Math classes. On the other hand, the aim of the teachers' interview was to observe

Chapter three: Analysis and Discussion of the Results

the students' motivation in the classroom while taking into account the challenges they encountered when using EMI.

The current study, conducted at Mohamed Khider Biskra University in Algeria, investigated how English Medium Instruction (EMI) affected second-year Mathematics students' motivation. It confirms findings from previous studies by Saidani and Afkir (2023) and Maarouf (2022), showing that students perceive EMI favorably as a way of improving their job opportunities and English skills, as well as pointing out language proficiency gaps requiring for more support. While Maarouf (2022) highlighted the beneficial effects of EMI on English language proficiency, this study went deeper into motivational factors of Mathematics instruction, addressing issues such as language comprehension and confidence, and offering helpful strategies and instruments to maximize the advantages of EMI.

On the other hand, while Benassou (2022) emphasized the difficulties in implementing EMI in Algerian universities, and Kalkoul (2014) highlighted enhanced English proficiency, neither study specifically examined the impact of EMI on motivation. By concentrating on motivating factors and providing insights to improve EMI effectiveness for Mathematics students in Algeria, the current study enhances the current research environment.

The study focused on how EMI affected students' motivation to learn Mathematics, whereas studies by Kalkoul (2014), Maarouf (2022), Benassou (2022), and Saidani and Afkir (2023) focused more generally on EMI's effects on English language proficiency or EMI in general. It was conducted in the context of second-year Mathematics students at Mohamed Khider Biskra University in Algeria, uses a questionnaire for students and an interview with teachers. EMI had a positive impact on most students' motivation to learn Mathematics in English, even in the face of difficulties like language comprehension and confidence issues. While acknowledging difficulties like language barriers and the need for additional support,

Chapter three: Analysis and Discussion of the Results

the other studies, in contrast, emphasized the benefits of EMI on English proficiency and followed the international standards. Therefore, the study made a distinctive contribution to the field of research by analyzing the motivational effects of EMI in Algerian Mathematics education and highlighting the benefits and challenges of EMI implementation in this context.

General Conclusion

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General Conclusion

The present study aimed to investigate the effects of using English as a Medium of Instruction on students' motivation: the case of second year Mathematics students at Mohamed Khider Biskra University.

This study included three chapters; the first and second chapters introduced the theoretical background; however, the third chapter was devoted to presenting, analysing, and discussing the gathered data. The first chapter discussed the overview of motivation. In specific, it dealt with the definition of motivation, types, theories, and factors. Also, it discussed the importance of motivation. In addition, it covered motivation in learning, self- motivation, and strategies of motivation. Furthermore, the second chapter covered the overview of English as a Medium of Instruction (EMI). It dealt with definition of EMI, history, the purpose of using it, and the significance of EMI. Also, it discussed how English language is in Algerian context. In addition, it provided the implementation of EMI in Algerian universities.

The third chapter was devoted to analysis and discussion of the results. It deals with research methodology, data collection tools, population and sample, validity of instruments. This chapter divided into two sections. Section one discussed the analysis of students' questionnaire, and the synthesis and discussion of results. While section two, discussed the analysis of teachers' interview, and the synthesis and discussion of results.

Overall, the results indicated that EMI has a positive effect on the majority of students regarding their motivation to learn Mathematics in English. Teachers generally agree on the positive impact of EMI on students' motivation and learning. However, challenges such as confidence issues and language comprehension were noted, suggesting a need for supportive teaching strategies and additional language resources to maximize the benefits of EMI. In

General Conclusion

conclusion, while EMI enhances English proficiency and aligns with international educational standards, addressing its challenges is essential to foster a motivating and effective learning environment.

Limitations of the Study

- The sample size was intended to include more than 30 participants, but this target was not achieved.
- The interview was supposed to be conducted face-to-face and recorded. However, due to the teachers' busy schedules, face-to-face interview could not be arranged. Consequently, the questions were sent via email, and teachers responded.
- The study aimed to include more than three teachers, but this number was not met.
- An additional tool, such as observations, was planned to be included in the study. However, due to the teaching method involving multiple languages (French, English, and Arabic) in class, those were not feasible.

Pedagogical Implications and Recommendations

- Teachers should take a positive perspective on the use of English to increase their students' perception regarding this subject.
- They should motivate their students to become more proficient of using the English language both inside and outside the classroom.
- Teachers can improve their proficiency in English by taking an intensive language programs at the university level. These facilities offer intensive instruction in several languages, including English.
- Acknowledging English as a replacement for French and making an effort to increase their knowledge in order to use it as a medium of instruction.
- Learning Mathematical terms in English and gradually applying them to their context.
- Reading English-language Mathematical articles to obtain knowledge about the nature of the teaching and learning process.

- Speaking with people who speak English around the world in order to raise one's proficiency.

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Appendices

Appendix A

University of Mohamed Khider Biskra

Department of literature and foreign languages

English Division

Students' Questionnaire

Dear students,

You are kindly invited to participate in this questionnaire, which is part of a research conducted at Mathematics department. This questionnaire aims to investigate the impact of your motivation for using the English language as a Medium of Instruction in the field of Mathematics. Your answers will be carefully considered, and the information you provide will remain anonymous and confidential. Thank you very much for your valuable contribution and time.

Thank you in advance.

Section One: General Information

- 1. Age.**
- 2. Gender.**
 - Male.

- Female.

Section Two: English Language Proficiency

3. How can you evaluate your level of English comprehension?

- Low.
- Average.
- Good.
- Very good.

4. How confident are you in your ability to express yourself clearly in English during class discussions?

- Not confident at all.
- Slightly confident.
- Very confident.
- Extremely confident.

5. How comfortable do you feel learning Mathematics in English?

- Very uncomfortable.
- Uncomfortable.
- Comfortable.
- Very comfortable.

6. To what extent does using English as the language of instruction make it difficult for you to understand the mathematical concepts being taught?

- Not difficult at all.
- Somehow difficult.
- Difficult.
- Very difficult.

7. To what extent does English affect your interest in Mathematics?

- English greatly reduces my interest in Mathematics.
- English somehow reduces my interest in Mathematics.
- English has little impact on my interest in Mathematics.
- English can enhance my interest in Mathematics.

8. How helpful are your teachers in explaining mathematical concepts in English?

- Not helpful at all.
- Slightly helpful.
- Somehow helpful.
- Very helpful.

9. Using English as the language of instruction helps me develop my English language skills.

- Strongly disagree.
- Disagree.
- Neutral.
- Agree.
- Strongly agree.

Section Three: Students' Motivation

10. Using English as a Medium of Instruction has a negative impact on my motivation to learn Mathematics

- Strongly agree.
- Agree.
- Neutral.
- Disagree.

- Strongly disagree.

Explain

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11. How motivated are you to participate in English Mathematics classes?

- Not motivated at all.
- Somehow unmotivated.
- Neutral.
- Somehow motivated.
- Highly motivated.

Why?

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12. Do you feel that the use of English as a medium of instruction has positively influenced your overall motivation towards learning Mathematics?

- Strongly disagree.
- Disagree.
- Neutral.
- Agree.
- Strongly agree.

Explain

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13. If I have difficulty understanding the English language used in class, it negatively impacts my motivation to participate in class discussions.

- Strongly disagree.
- Disagree.
- Neutral.
- Agree.
- Strongly agree.

14. My motivation in Mathematics courses is hindered by the difficulty I faced it in understanding the English language.

- Strongly disagree.
- Disagree.
- Neutral.
- Agree.
- Strongly agree.

15. How do you perceive the difficulty level of Mathematics courses taught in English compared to courses taught in French language?

- Much more difficult.
- Somehow difficult.

- Neutral.
- Somehow easy.
- Much more easy.

Why?

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16. What are the difficulties that you face while studying the modules in English?

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17. Does the use of English influence your willingness to participate in group discussions and activities in Mathematics classes?

- Strongly discourages participation.
- Somewhat discourages participation.
- Neutral impact.
- Somehow encourages participation
- Strongly encourages participation.

18. To what extent does the language barrier affect your interaction with professors during Mathematics lectures?

- Severely limits interaction.
- Significantly hinders interaction.

- Somehow hinder interaction.
- Has minimal impact on interaction.
- No impact on interaction.

19. In your opinion, which language would be most effective for teaching Mathematics courses at Biskra University? (Please select one).

- French only.
- English only.
- A combination of French and English.

20. Do you have any other comments or suggestions regarding the use of English as the medium of instruction in your Mathematics courses?

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Appendix B

Teachers' Interview

Dear teachers,

The present study aims to explore the impact of using English as a Medium of Instruction on students' motivation: the case of second year license Mathematics students at Biskra University.

The purpose of the interview is to collect valuable information of using the English language in the field of Mathematics. Your participation in this interview is crucial for ensuring the credibility of our research. We would greatly appreciate it if you could take part in this interview, which will be recorded with your agreement.

Questions

Gender:

Grade:

Teaching Experience:

Level in English:

1. In your opinion, what is the significance of using English as a medium of instruction, and how can it contribute to the learning experience?

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2. How do you personally view the prospect of using of English as a medium of instruction in Algerian higher education?

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3. Are you in favour of utilizing English? If so, could you explain your reasons? If no, why?

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4. As a teacher who has previously taught in French, what challenges are you facing when transitioning to English as a medium of instruction?

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5. In your opinion, what difficulties are students encountering when using English as a medium of instruction?

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6. Do you find students motivated to use English in class? Explain please.

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7. How does the motivation of students impact their engagement and performance in English classes?

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8. How can educators foster a motivating learning environment that encourages students to actively use English in their classes?

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9. Can you provide any recommendations for improved incorporation of English as a medium of instruction in the field of Mathematics?

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Résumé

Cette étude examine l'impact de l'utilisation de l'anglais comme langue d'enseignement sur la motivation des étudiants en deuxième année de mathématiques à l'Université de Biskra. Plus précisément, elle analyse comment le changement du français à l'anglais est perçu par les étudiants en mathématiques et comment ce changement affecte leur motivation. L'étude a utilisé une méthode mixte, collectant des données au moyen d'un questionnaire non aléatoire administré à des étudiants de deuxième année de mathématiques (30 participants), ainsi que des entretiens semi-dirigés avec trois enseignants du même département. Les résultats indiquent que la majorité des étudiants ressentent un effet positif sur leur motivation à apprendre les mathématiques en anglais grâce à l'enseignement en langue maternelle (ALE). De plus, les enseignants s'affirmé généralement sur l'impact positif de l'ALE sur la motivation et l'apprentissage des étudiants.

Mots clés : Anglais comme Langue d'Enseignement (ALE), Motivation, Mathématiques.

المخلص

تجري هذه الدراسة بحثًا حول تأثير استخدام اللغة الإنجليزية كلغة للتعليم على دافعية طلاب السنة الثانية من الرياضيات في جامعة بسكرة. وبشكل أكثر تحديدًا ، فإنها تبحث في كيفية نظر طلاب الرياضيات إلى التحول من الفرنسية إلى الإنجليزية وكيف يؤثر هذا التحول على دافعتهم. استخدمت الدراسة أساليب مختلطة ، حيث تم جمع البيانات من خلال استبيان غير عشوائي تم توزيعه على طلاب السنة الثانية من الرياضيات (30 مشاركًا) ، بالإضافة إلى إجراء مقابلات نصف منظمة مع ثلاثة اساتذة في نفس القسم. تشير النتائج إلى أن غالبية الطلاب يرون تأثيرًا إيجابيًا على دافعتهم لتعلم الرياضيات باللغة الإنجليزية بسبب اعتماد اللغة الإنجليزية كلغة للتعليم . بالإضافة إلى ذلك ، أكد الاساتذة بشكل عام على التأثير الإيجابي للغة الانجليزية كلغة للتعليم على دافعية الطلاب والتعلم.

الكلمات المفتاحية: اللغة الانجليزية كلغة للتعليم ، الدافعية ، الرياضيات.