English Medium Instruction in Saudi STEM programmes: A case study

Quotah, Shahd

Awarding institution:
King's College London

English Medium Instruction in Saudi STEM programmes: A case study

Shahd Quotah

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

School of Education, Communication and Society

Faculty of Social Science and Public Policy

King's College London

January 2023

COVID-19 IMPACT STATEMENT

Unfortunately, the research for my thesis was heavily impacted by COVID-19 and the associated lockdowns and restrictions. The pandemic started at the time when I had completed my upgrade exam and was ready to start collecting data. Following the start of COVID-19 restrictions, the university that was the subject of the case study was closed. That had a severe impact on my planned methodology as it prevented me from doing any observation and meant that I was unable to get permission to interview students and staff on campus and could not get access to recruit students. For the first few months after the start of the restrictions, I was unable to even enter Saudi Arabia as all of the airports were shut down as part of a policy that prevented anyone from either arriving in or leaving the kingdom.

Those various restrictions heavily impacted my research. For example, they caused a great deal of time to be wasted and made it very difficult for me to find participants (which is the primary reason why the study has a small sample size). When I did, finally, get the chance to interview participants, this could not be done face-to-face (as originally planned), which may have limited the potential to create a rapport and, thus, impacted the quality of the final data. The students also refused to take part in video recording, which prevented me from seeing their facial expressions, which obviously would have been possible had we met face-to-face (as intended prior to the imposition of COVID restrictions). The inability to observe lessons had a particularly

significant impact on my research as it prevented me from implementing what would have been a very effective strategy to enrich and triangulate my findings.

My precious family, my little Talia... This one is for you.

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and the Most Merciful, I thank Allah for all the blessings in my life and for giving me the strength to complete this thesis and reach the end of this road.

This doctoral thesis would not have been possible without the help and support of a number of people. First and foremost, I would like to express my sincere gratitude to my supervisors Dr Nick Andon and Dr Simon Coffey for always being there when I needed their support, reviewing my progress constantly, and guiding me through my PhD studies.

I want to express my gratitude to my country, the Kingdom of Saudi Arabia, for giving me the chance to pursue my studies. I would also like to thank the participants in this study for their valuable contributions. I would also like to extend my thanks to my friends and my in-laws for supporting me. I want to give my deepest appreciation to my friend who stood by my side, Dr Najat, who was always there for me, thank you for the unlimited support and unconditional guidance during this journey.

Finally, but most importantly, I would like to thank my family. My mother, my first love, thank you very much for all the love and for teaching me everything in life. My father, my first mentor and the backbone of the family, thank you for believing in me, and I hope that you are proud of me. My sisters Nouf, Ola and Sara, thank you for your support and for always being there for me. My brothers Abdulaziz and Abdulmohsin, thank you for standing by my side when times get hard. My nephews and niece Nomai, Yazan, and little Loli, thank you for making life much more enjoyable and keeping me sane throughout the whole process. My husband, thank you for always showing how proud you are of me and for your rock-solid support. And finally, my little sunshine, who joined us while I was conducting this study, my little Talia, thank you for

being my biggest motivation and for making me smile. The smile that you see on my face every single day would not be there without you!

ABSTRACT

Recent decades have witnessed the spread of the English language as a global lingua franca, alongside an accompanying rise in the use of English as a medium of instruction (EMI) in education internationally. In the context of globalisation and the increased internationalisation of education, the spread of EMI is often presented and accepted as being beneficial and, indeed, inevitable. However, a growing body of research has questioned both the concept and practice of EMI, stressing its potentially negative impacts in terms of academic outcomes and broader socio-cultural concerns. Saudi Arabia is no exception to the international trend towards EMI, with English now the mandatory medium of instruction for all science, technology, engineering and mathematics (STEM) courses in higher education. The Kingdom provides a particularly interesting example of EMI implementation because it is taking place in a context in which practically all students share the same mother tongue (Arabic), the internationalisation of education is largely absent, and the relationship between the national religion and the national language potentially renders EMI particularly controversial. This research is a qualitative case study examining the implementation of EMI on STEM programmes in one Saudi university, exploring the experiences and perceptions of six students, five lecturers and three managers through a series of semi-structured interviews (COVID-19 lockdowns, unfortunately, restricted the researcher's ability to make field visits to the case institution). The research questions focused on how EMI was being implemented, stakeholders' perceptions of that process, the broad range of pedagogical, social and cultural challenges they have identified, and the strategies they have used to try to overcome the challenges associated with EMI. The case also provides an opportunity to study what happens during the process of attempting to implement an unwritten policy in a context in which key stakeholders appear insufficiently prepared. The findings show

that the implementation of the EMI requirement is highly variable, with much evidence for the continued use of Arabic in teaching. Further, the stakeholders hold ambivalent views of EMI, with all claiming to be supportive of it but many identifying challenges in terms of its academic and social consequences. Finally, the research reveals the wide range of strategies employed by students to overcome EMI-related challenges, with social strategies most commonly employed. The study also highlights significant differences between the EMI experiences of state and private school graduates, which threaten to exacerbate inequality in Saudi society, and identifies the potential benefits of introducing translanguaging pedagogies to EMI classes, two issues that warrant further exploration through future research.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

AMI	Arabic medium of instruction
CC	Common Core
CLIL	Content and language integrated learning
CPT	Collaborative Planning Tool
EAP	English for academic purposes
EFL	English as a foreign language
EFNE	Education for a New Era *(government initiative in Qatar)*
EMI	English as the medium of instruction
EaS	English as a subject
ESP	English for specific purposes
EST	English for science and technology
GMI	Gujarati medium of instruction
GPA	Grade point average
GCC	Gulf Cooperation Council (i.e., Saudi Arabia, United Arab Emirates, Qatar, Oman, Kuwait and Bahrain)
HE	Higher education
HEI	Higher education institution
IELTS	International English Language Testing System
ISI	Institute for Science Information
L1, L2	First language, second language
MOI	Medium of instruction
MOHE	Ministry of Higher Education

MSA	Modern Standard Arabic
NES	Native English speaker
NEST	Native English-speaking teacher
NNES	Non-native English speaker
NNEST	Non-native English-speaking teacher
NVivo	Qualitative research analysis software tool
OECD	Organisation for Economic Co-operation and Development
OPT	Oxford Placement Test
PBL	Problem-based learning
PISA	Programme for International Student Assessment
PYP	Preparatory year programme
STEM	Science, technology, engineering and maths
TESOL	Teaching English to speakers of other languages
TNE	Transnational education
TOFEL	Test of English as a Foreign Language
UNESCO	United Nations Educational, Scientific and Cultural Organisation

CHAPTER 1 INTRODUCTION

Universities in non-anglophone countries worldwide are increasingly shifting from teaching English as a foreign language to using English as the medium of instruction (EMI) to teach academic subjects such as business, science, and medicine (Dafouz & Smit, 2020). This trend has been observed in the universities of Saudi Arabia, where all STEM programmes have shifted from Arabic medium of instruction (AMI) to EMI. Therefore, any student who wishes to be admitted to a STEM programme has to pursue his/her education through EMI because AMI is not an option. The justifications for using EMI include the desire to internationalise education and advance students' English language abilities in ways that will help them to participate competitively in global markets (Dearden, 2015). In addition, the lack of Arabic educational resources and the belief held by some policymakers and lecturers that Arabic is not adequate for teaching STEM at the tertiary level are other reasons why EMI has been adopted (Troudi, 2009). Nevertheless, the introduction of EMI has created significant challenges, foremost of which appears to be the struggles that many students have with transitioning from AMI at school to EMI at university. Furthermore, critics have highlighted the detrimental effect that EMI may have on local languages, culture and identity wherever it is applied. All these controversies are likely to become increasingly significant as EMI continues to spread in Saudi Arabia and around the world. The present research investigated the use of EMI in a Saudi STEM programme through an interpretive qualitative case study. It aims to provide insights into the EMI phenomenon by exploring it within the Saudi context through an investigation of the current practices, perceptions, challenges and coping mechanisms of the stakeholders involved.

In this introductory chapter, I present the nature of the problem to be explored in the present thesis (Section 1.1), specify the rationale behind conducting this study (Section 1.2) and

explain its significance for Saudi higher education institutions using English as a medium of instruction (Section 1.3). In addition, I also discuss the contribution that this study aims to make and the gaps in present knowledge that it aims to fill (Section 1.4). The chapter concludes with the presentation of the four research questions that will be addressed in the present thesis (Section 1.5) before describing the structure of the rest of this paper (Section 1.6).

1.1 The nature of the problem

In the Kingdom of Saudi Arabia, government policy has long stipulated that Arabic, the official language of the nation, should be the medium of instruction for education in all phases (MOE, 1993). However, since 2014, all science programmes at the university level in Saudi Arabia have been delivered using English as the medium of instruction (MOI). This move was introduced through a royal order because it was believed that this change would help higher education institutions in the Kingdom to internationalise and introduce foreign and joint programmes to Saudi students (Le Ha & Barnawi, 2015).

However, the implementation of EMI has raised several concerns in Saudi society. First, despite the governmental intention to improve Saudi Arabian students' command of English through EMI programmes, there is a broad agreement among English as a Foreign Language (EFL) researchers that the level of English performance among Saudi secondary school graduates is unsatisfactory to master basic skills, not to mention the difficulties EMI students encounter during their university studies (Al-Faqih, 2011; Al-Seghayer, 2013; Alhawsawi, 2013; Alrabia, 2016). KSA Vision 2030 emphasizes the importance of education and language as key factors in achieving the country's economic and social development goals. The policy document recognizes the need for improving English language proficiency to support the country's efforts to become a more competitive player in the global economy. However, it also stresses the

importance of preserving the Arabic language and cultural heritage, as a source of national and cultural identity. This relates directly to the issue of English medium instruction in Saudi Arabia, where there is a tension between the need to improve English language proficiency and the desire to preserve the Arabic language and cultural identity. The low level of English proficiency among Saudi Arabian university students, as evidenced by various statistical reports, suggests that there is a need for greater support for English language learning before implementing EMI.

Furthermore, KSA Vision 2030 highlights the importance of preparing students for the workforce, and this also relates to the need for English language proficiency. The policy document recognizes the importance of developing skills and knowledge that are relevant to the job market, and English language proficiency is considered a critical component of this. However, it is important to ensure that students are adequately prepared for EMI and have the necessary language skills and confidence to participate fully in EMI classesn response to these issues, Saudi Arabian universities now offer a preparatory year programme (PYP) to improve the command of English among school graduates entering higher education in the country. However, even if we accept that the PYP benefits prospective EMI students, the very need to introduce it suggests that there is a deficiency in public education, i.e., that the twelve years that students have spent in public education prior to university have failed to equip them with the English language skills required for their university studies.

A second important concern relates to societal reactions to the EMI language policy in Saudi Arabia. Specifically, concerns have been voiced that using EMI in higher education and giving it a superior status in the Saudi education system might put the Arabic language at risk of becoming diminished in a way that might impact the development of Arabic language skills (Karamani, 2010; Troudi, 2009). Similarly, it has been argued that using English instead of

Arabic at the university level could negatively affect Arabic culture, identity, and the Islamic religion (Hussein & Al-Emami, 2016; AlRubaie, 2010). On account of these issues, opposition to EMI has been voiced in Saudi society.

The third concern with EMI education in Saudi Arabia relates to considerations about learning outcomes and raises questions about how studying in a second language (L2) might influence students' learning experience and the quality of education they receive. While there is a common belief that using EMI would help university students to gain a double benefit – improved English language skills and improved content knowledge – most Saudi school leavers are unprepared to undertake their university studies in English. In fact, there is evidence that graduates of PYPs also finish such programmes with poor proficiency in English and skills that are insufficient for university-level studies (Alhmadi, 2014; Al Seghayer, 2014; McMullen, 2014), which, of course, adversely affects the quality of their education. In fact, many previous studies have documented the challenges that EMI students face, such as not being able to understand the lectures, having difficulties interacting in classes, struggling with written assignments and reading books, and being unable to understand or answer exams questions (Izawa & Rose, 2019; Airey 2011; Chapple, 2015). In view of this evidence, EMI can be seen as a significant additional burden for students, which can lead to lower performance, higher dropout rates, and psychological issues, such as low self-esteem (Gregersen & Horwitz, 2002; Kudo et al., 2017). Moreover, although it is commonly believed that using EMI will improve and advance students' English levels, research conducted in this area suggests that the use of a second language as the medium of instruction may not have significant language learning benefits (Lau & Yuen, 2011; Yip& Tsang, 2007).

A fourth concern frequently voiced about the implementation of EMI is that introducing English as the main medium of instruction can create inequality in educational settings, giving more opportunities to those students who attended private/international secondary schools compared to their peers who attended AMI state schools (McLaren, 2011; Troudi & Jendli, 2011). Contrary, perhaps, to some international perceptions of Saudi Arabian society, most people cannot afford to send their children to private/international schools (with only 20% of pupils privately educated) (MoE, 2022). Indeed, the opportunity to learn in a private institution is generally available only to students from economically advantaged families. To enter university, graduates of both private and state schools must enrol in the PYP and, during that one-year programme, compete for the available undergraduate places at universities. This, on the one hand, lowers the chances of state school graduates being able to pursue higher education at a university after the PYP and, on the other hand, could be perceived as a waste of time and resources for private school graduates who do not require the PYP in order to be able to complete a subsequent EMI programme.

To summarise, many problems have been associated with the implementation of EMI. These challenges include the students' levels of English proficiency, the impact of EMI on the Arabic language and culture, the impact of EMI on students' quality of learning and, finally, the unequal opportunities that EMI creates in educational settings. The present thesis proposes to explore all these issues in further detail to generate an increased understanding of their nature and to help to identify potential solutions to these challenges.

1.2 The rationale for the study

I am a language practitioner working on a PYP that is meant to prepare students for their EMI university studies. Consequently, I was motivated to conduct the present research to better

understand students' experiences in their EMI programmes as that would inform my own teaching practice and allow me to achieve the objectives of the PYP more effectively. I strongly believe that without a thorough understanding of students' needs we cannot provide them with the support that they need to achieve their potential and thrive through education. At the same time, I have seen first-hand how students struggle with the English language and how those difficulties can further disadvantage even highly capable students who come from state school backgrounds. The potential that English language learning has to open up new possibilities for students internationally is clear to me. However, I fear that the headlong rush towards the implementation of EMI both in Saudi Arabia and elsewhere risks creating significant negative consequences for students and societies if it is not managed well. It is my hope that this study can, in some small way, help to better inform the implementation of the policy so that its benefits can be maximised, and its disadvantages minimised.

Previous research has demonstrated that the medium of instruction is one of the major factors that influence education quality (AlBakri, 2017; Civan & Coşkun, 2016). In that context, Godfrey (2014) argued that, in order for students to get actively engaged in knowledge construction, they should be allowed to use a language that they fully understand. Similarly, Qorro (2006) asserted that the most successful learning occurs in one's native language, arguing that, even if an individual is learning a foreign language, s/he would be able to better grasp its logic and the meanings associated with it if the foreign language were to be taught in students' mother tongue or a language in which the students are proficient. As discussed previously, Saudi students leave schools with a low level of proficiency in English, and most of them finish the PYP without gaining much from that one-year programme, which is insufficient to bridge all gaps in their knowledge (Hussain et al., 2016). When Saudi Arabian students finally get admitted

to the scientific programme of their choice, they are taught by content lecturers who might not have the pedagogic skills for EMI that are necessary to help students with the language aspects of their courses. With that in mind, it is important to think about the main stakeholders in the education process: the students. With insufficient mastery of English, how can they manage to interact with their peers and lecturers on EMI courses or even simply answer questions during exams?

To address those issues, the present study aims to understand the experiences and challenges of major stakeholders in EMI education in Saudi Arabia. In a context in which English is a foreign language, and where most students receive their pre-university education in Arabic, there is an urgent need to investigate the impact of EMI on students' learning experiences and education quality. As a PYP English language practitioner, I have ample experience of observing the challenges associated with students' transition from school to university in Saudi Arabia. On the theoretical level, however, the implementation of EMI in Gulf countries generally remains an under-researched area (AlBakri, 2017). On the practical level, the status quo of using EMI in Saudi higher education institutions is that major stakeholders, including students and lecturers, are not given any choice regarding the language of instruction; non-EMI courses are not offered, and no consultations are made. On the level of decision-makers, there is a shared belief that using EMI is a logical move to internationalise Saudi Arabian higher education institutions, prepare students for professional life, and make them more competitive in the international job market (Alshareef et al., 2018). However, it remains poorly understood whether this policy indeed benefits all students, including those who plan to work in local jobs, or whether this policy compromises students' abilities to acquire expert knowledge and skills in their respective fields of study.

In this context, it is imperative to investigate the implementation of EMI in Saudi Arabia and analyse key stakeholders' perceptions of this policy. Since the faculty teaching in EMI programmes represents a mixed population that includes both native and non-native speakers of English, and students come to the classroom with varying levels of proficiency in the language, it can reasonably be expected that different perceptions regarding EMI would emerge. Allowing a wide range of voices to be heard will help both policymakers and those charged with implementing their policies to understand both the positive and negative aspects of EMI in Saudi Arabian higher education and the ways in which programmes delivered through English can be improved. Accordingly, a major rationale for conducting this research was the need to thoroughly investigate different perceptions of EMI among students, lecturers, and university-level managers so that, based on this knowledge, the ways in which EMI is being implemented can be identified and the EMI experience can be improved for all.

1.3 Significance of the study

To date, little is known about students' and lecturers' perceptions of EMI within science, technology, engineering and mathematics (STEM) programmes in Saudi Arabia, as well as about the impact of EMI on the quality of higher education in the Saudi context. We can only understand those perceptions, however, through first developing an understanding of the sort of EMI that is being implemented in Saudi universities. The significance of the present study is that it seeks to fill this gap in the literature by investigating the current situation where Saudi university students, with different English education levels following earlier education phases, are expected to successfully adjust to EMI. Its analysis of stakeholders' experiences and their reports of classroom practices provides a detailed picture of the relationship between the policy and practice of EMI in Saudi STEM programmes in university settings, raising awareness about

critical concerns related to EMI in such programmes. It also explores the effects that EMI has on students' learning experiences – an area that has rarely been addressed in the literature. The results also provide an account of the strategies that students employ to overcome challenges in EMI programmes. The results can also help policymakers and teaching staff to better meet the academic needs of students in EMI programmes at Saudi Arabian universities, particularly those with limited English abilities, by providing the extra support that they require. Similarly, the present study's investigations of lecturers' perceptions of EMI and related pedagogical challenges can inform the design of training workshops. The analysis of their opinions also helps to focus on what lecturers practically struggle with and adequately address their needs. The present study is significant because it focuses on the perceptions of managerial staff within universities fills a significant gap within the body of knowledge on EMI in Saudi universities as this crucial stakeholder group has been almost entirely ignored by previous research (see the literature review in Chapter 3 for more on this).

1.4 Contribution to knowledge

This study's main contribution is that it investigates the actual implementation of the EMI policy in Saudi Arabia at the level of university classes and provides a descriptive account of EMI programmes from multiple perspectives. In addition, this study contributes to previous research on EMI in terms of both the target area under investigation (Saudi Arabia) and the methodology it employs (a qualitative case study approach). Such an approach permits a deeper investigation of stakeholders' perceptions than does a qualitative, survey-based study. As mentioned previously, while EMI has been comprehensively investigated in many countries, relevant research focusing on the Gulf countries – and particularly Saudi Arabia – remains scarce. As noted above, another important contribution of the present thesis is that, unlike most EMI

literature that has focused on students and lecturers, it also analyses the perceptions of EMI among university managers, which enriches my analysis of the implementation of EMI in Saudi Arabia.

Finally, the present thesis contributes to current knowledge with its analysis of a broad range of aspects – from major stakeholders' accounts of their experiences in EMI classes to the strategies used by students to overcome the challenges that they face. These insights will hopefully be of interest to both decision-makers and academics in the field of EMI in Saudi Arabia and beyond as the literature reveals that EMI students in other countries can experience similar problems.

1.5 Research questions

The present thesis addresses the following research questions:

1) How is EMI implemented in STEM programmes in Saudi Arabia?
2) What are stakeholders' perceptions of EMI?
3) What are the pedagogical, social and cultural challenges associated with EMI in Saudi universities?
4) What learning strategies do students use to address the challenges they encounter in EMI programmes?

1.6 Structure of the thesis

The remainder of this thesis is structured as follows. Chapter 2 describes the context of Saudi Arabia, detailing its education system, with a particular focus on higher education and the EMI policy. Chapter 3 provides a literature review, examining relevant research internationally and within Saudi Arabia related to EMI and the present study's research questions; that chapter also further details the gaps that the current study intends to fill. The qualitative research

methodology used in the present study is discussed in Chapter 4. The results concerning the four research questions addressed in this thesis are presented in Chapter 5. Chapter 6 discusses those findings and situates them in a broader research context, discussing the consistencies and divergences of the results with previously reported findings. Finally, conclusions are drawn in Chapter 7, which also offers recommendations, discusses the limitations of this study and outlines directions for further research.

CHAPTER 2 CONTEXT OF THE STUDY

While many of the challenges associated with EMI (see Sections 3.4 and 3.5) are broadly common across different contexts, the ways in which those challenges manifest and the relative significance of each of them vary according to the characteristics of the environment where the policy is being implemented. Therefore, it is essential to examine Saudi Arabia's unique social, cultural, political and economic profile in order to understand how that might affect EMI implementation and outcomes. Accordingly, in this section, I review the Saudi context and the issues associated with the introduction of EMI in the country's higher education institutions.

Section 2.1 gives a broad overview of that context. Section 2.2 goes into more depth about the history and current practice of EMI within the Saudi education system. Section 2.3 focuses on the Saudi higher education system, situating the university that is the subject of the present study within that broader context. Section 2.4 looks in more detail at the characteristics of the university that is the subject of the present research (although care is taken throughout to maintain its anonymity). It is divided into three sub-sections that introduce the university and its admissions process, discuss its PYP and provide contextual information about the EMI STEM courses at the institution.

2.1 Overview of the Saudi Arabian context

Situated in the Middle East, the Kingdom of Saudi Arabia is amongst the most oil-rich countries in the world. A large portion of the revenue generated from oil sales has been reinvested in major government projects that aim, amongst other things, to modernise and improve the country's infrastructure whilst preparing it for a more diverse future beyond oil. Since its foundation in

1932, Saudi Arabia has been a monarchy, with the king as head of state with sovereign authority. In the discharge of his duties, he is supported by the crown prince, who is second in command, and his ministers.

Accordingly, most of the legislation in the country, including policies such as EMI, is communicated through royal decrees. In October 2019, the Council of Universities' Affairs was established by the Royal Decree No. M/27. This government council is responsible for organizing university affairs and approving policies and strategies for university education in Saudi Arabia, as well as preparing regulations for universities, private colleges and branches of foreign universities in Saudi Arabia and controlling them (The Law of Universities, 2020).

The population of Saudi Arabia consists of Saudi citizens, who are L1 Arabic speakers, and expatriates who have different L1s, some of whom use English and Arabic, often only at a very basic level, as means of communication. Saudi Arabia is a Muslim country, with Arabic as the official language. Saudi citizens make up 64% of the population, with the remaining 36% expatriates. As argued by Almunaked (1997), "Islam plays a central role in defining the culture and determining the norms, values, attitudes, and practices of [Saudi Arabian] society" (p. 8, cited in Al-Saggaf & Williamson, 2004, p. 2). The Arabic language is closely tied to both religious and cultural ideologies. English, the only foreign language taught in Saudi Arabia, was first introduced in the late 1920s. At that time, however, English was not considered to be as important as it is today, and there was a common belief that the language constituted a threat to Arabic language and to Saudi culture as a whole (Mahboob & Elyas, 2014).

However, with the advent of globalisation and the global spread of English as the lingua franca (see Section 3.1), Saudi policies regarding English education at the university level have

been wavering between attempts to preserve the Arabic language and efforts to foster deeper connections with the rest of the world in a context of globalisation (Barnawi & Hawsawi, 2017). In recent decades, English has also gained prominence as a means of communication among the country's visitors, including millions of Muslims who visit Saudi Arabia for Hajj (pilgrimage), as well as during important Islamic events such as Ramadan, Eid al-Fitr and Eid al-Adha. Coming from different parts of the world, these visitors use English as their lingua franca.

2.2 The rise of EMI in Saudi Arabia

Before 2001, the English language did not play an important role in Saudi education as the Islamic ideology was closely tied with the Arabic language. However, between 2003 and 2010, the country experienced a series of political and economic changes, which led to a growing demand for English language proficiency. Two particularly significant events that triggered this shift were the September 11, 2001, terrorist attacks by Al-Qaeda against the United States and the economic downturn caused by the 2008 global financial crisis.

Since several Saudi international students were suspected to be involved in the 9/11 attacks, the Saudi education system was blamed for its support of what was claimed to be a conservative and intolerant culture. Accordingly, the United States placed strong pressure on the Saudi government to emphasise English language studies in the country's education system as part of a drive to expose Saudi citizens to the notions of tolerance, acceptance and living in harmony with others (Al-Mushrif, 2006, as cited in Mahboob & Elyas, 2014). In 2003, recognising the political, economic and social advantages of its citizens becoming proficient in English, the Saudi government started to introduce the English language to the curriculum of all primary schools (Elyas, 2008). While the previous English curriculum in Saudi Arabia focused on Saudi culture, with a strong emphasis on the avoidance of certain behaviours, such as dating

and alcohol consumption, the revised English language curriculum carefully introduced different Western lifestyles and cultures. Accordingly, in recent years, Ahmed bin Mohammed al-Isa (Saudi Arabia's former minister of education) claimed that the Saudi Ministry of Education has been working to "combat extremist ideologies by reviewing school curricula and books to ensure they do not reflect the banned Muslim Brotherhood's agenda" (Rashad, 2018, p. 3).

The need for English language proficiency in Saudi Arabia was further reinforced by the global financial crisis of 2008, which revealed how deeply developments in the international economy influenced Saudi Arabia, highlighting the strong interconnectedness between the Saudi economy and those of all other countries (Bourland, 2010). As a member of the G20 (G20 members represent more than 80% of world GDP, 75% of international trade and 60% of the world population), Saudi Arabia fully acknowledges its need to be integrated into the global economy. Given that English is the main language for business and trade in the global marketplace, Saudi Arabia, along with the other Gulf countries, recognises that proficiency in English is an essential prerequisite that can help to maintain stable political and economic relations with the rest of the world.

The introduction of English into Saudi curricula was further reinforced by the creation and implementation of the Saudi Vision 2030. Officially launched on April 25, 2016, by Crown Prince Mohammad bin Salman, the Saudi Vision 2030 is a major plan to make Saudi Arabia an economically, socially and culturally advanced country. Its main aims include reducing the country's dependence on oil, diversifying its economy, and developing its public service sectors, such as education, health, recreation, tourism, and infrastructure, so as to make Saudi Arabia a vibrant society, a thriving economy and an ambitious nation (Vision 2030, 2016).

Although the Saudi Vision 2030 does not mention EMI specifically, it does emphasise that achieving its ambitious objectives will require having well-educated, skilful and knowledgeable citizens who can communicate with the rest of the world and compete internationally to access high-quality jobs (Patalong, 2016). Along with other competencies, this goal also presupposes enhancing the English language proficiency of the population (Yusuf, 2017). To meet this objective, in 2014, the Ministry of Higher Education in Saudi Arabia mandated English as the medium of instruction (EMI) in all the higher education institutions across the country (Macaro, 2018). According to Le Ha and Barnawi (2015),

> [the Saudi MOHE has] been adopting top-down internationalization policies to promote national, institutional, and individual competitiveness in response to the increasing globalization of English. [Saudi] universities and colleges are revising their mission statements to ensure a commitment to internationalization, franchising international [programmes] to their local people, cultivating partnerships with foreign institutions, launching joint [programmes, and] adopting international curricula, among other endeavours. (p. 6)

Introducing EMI in this context was assumed to both increase the overall quality of education general (Le Ha & Barnawi, 2015) and improve students' English proficiency (Alfehaid, 2018). For more discussion on the perceived benefits of EMI in Saudi Arabia and elsewhere, see Section 3.5.

2.3 Saudi higher education system

Before discussing the characteristics of the Saudi Arabian higher education system, it is necessary to briefly comment on the country's school system, which provides the overwhelming

majority of the students for Saudi Arabia's universities. In Saudi Arabia, there are three types of schools: private, international and public. They differ in their fees, MOI and curricula. Table 1, below, shows the differences between those type of schools.

Table 1

Types of Schools in Saudi Arabia

Type of school	State schools	Private schools	International schools
Curriculum	Saudi Ministry of Education curriculum	Saudi Ministry of Education curriculum + extra English curriculum	International curriculum (e.g., UK, USA)
Medium of instruction	Arabic	Arabic and English	English
Student population	85% Saudis 15% non-Saudis	Both Saudis and non-Saudis	Both Saudis and non-Saudis
Admission fees	Free	High fees	Very high fees
Teachers	Saudis	Saudis, non-Saudis	Saudis, non-Saudis

The system of all educational phases in Saudi Arabia — including higher education institutions — is based on the following three major principles: (1) teaching Islamic values and traditions is at the core of the Saudi education system, (2) education is free to all Saudi citizens, and (3) boys and girls are segregated (Smith & Abouammoh, 2013). Kaliyadan et al. (2015, p. 141) classified the level of English taught at AMI high schools as "very basic".

In the last two decades, Saudi Arabia has massively invested in the education sector. Particularly substantial investments have been made in higher education. For instance, the number of Saudi Arabian public universities has increased from 8 in 2000 to 30 in 2019 while the number of private colleges and universities has grown to 33. Although study at public universities is tuition-free for Saudis, private universities charge high tuition fees that can be as expensive as USD$25,000 per year for undergraduate programmes. This means that most students at these institutions tend to come from affluent families. Nevertheless, state universities are generally seen as delivering a higher quality of education than their private equivalents because they are actually more difficult to enter (private universities have lower entry standards as long as their fees can be paid). In addition, Saudi Arabia also has 37 health colleges and institutions and 12 technical colleges (Alamri, 2011; AllahMorad, 2020).

With rare exceptions, admission to public universities is open only to Saudi nationals. Article 155 of the Saudi education policy stipulates gender segregation at all levels of education, with the exception of kindergartens, nursery schools, some private institutions, and several medical university programmes. However, students of both genders are taught using the same curriculum, with some differences in physical education and home economics. A significant number of teaching hours is allocated to teaching religious subjects. The most widely used teaching method is rote learning, i.e., learning facts that can be repeated from one's memory rather than developing thinking skills and a deeper understanding of issues (Smith & Abouammoh, 2013).

All of the twelve to fifteen thousand students newly admitted to Saudi public universities every year have to complete an intensive preparatory year of English — the so-called preparatory year programme (PYP), which is entirely dedicated to improving their English language skills. The PYP is designed to prepare high school graduates to pursue their professional studies in

different majors and to ensure students' smoother transition into higher education from secondary school. Among other aspects, the PYP is also meant to provide students with adequate skills in English and to guide them to the appropriate discipline (Al-Shehri, 2017). In terms of its goals, the concept of the PYP in Saudi Arabia is similar to that of many foundation programmes at international universities. However, PYPs differ from the aforementioned programmes in terms of their content. Specifically, while foundation programmes generally prepare students for university study in their areas of specialisation (Yednak, 2016), the main goal of PYPs in Saudi Arabia is to develop students' English skills and introduce content in the English language, regardless of their prospective major (Al-Shehri, 2017).

The PYP's English curriculum in Saudi Arabia has four levels of instruction, akin to the Common European Framework of Reference for Languages. Instructors are always provided with the curriculum and syllabus at the beginning of each module detailing the expected learning outcomes and the day-to-day lesson planning guide. The English programme has six credits that are subdivided into the four English language modules (starting with beginner). When students finish the four modules, which aim to catering for the general language needs of every student, they get assessed using an Oxford Placement Test. The test is set each year, and any student who fails the test is enrolled in the first level (Gaffas, 2016). Based on their academic performance in this preparatory year, students are then admitted to different EMI programmes with specialisations, such as medicine, engineering, sciences, communication and information technology, business, and management and economics. In some universities, the PYP also offers students the opportunity to study English for specific purposes (ESP) courses related to their preffered programmes. These are the general characteristics of the PYP with some variations

across universities. In the next section, the context of the specific university featured in the present study is reviewed in further detail.

2.4 Context of the study

2.4.1 The university and its admission process

The university that is the subject of the current study offers a wide variety of programmes for undergraduate and graduate students of both genders. It is funded by the Saudi government, and the vast majority of its students (99%) are Saudi nationals. The teaching and administrative staff come from a diverse range of countries (including Saudi Arabia, India, Pakistan, Egypt, the USA and the UK) and speak different languages. Like all other public universities in Saudi Arabia, studying at the university is free of charge, with the government covering all costs. With regards to proficiency in English, applicants are not required to pass any standardised test; however, they are required to pass two tests in Arabic, an aptitude test (Qudrat) and an achievement test (i.e., a multiple-choice test that covers major scientific subjects) (Qiyas, 2019). Upon admission, all students must complete a PYP before moving on to their undergraduate degree at one of the faculties. The PYP, and its relationship with the admissions process, is described in more detail below.

2.4.2 The preparatory year programme at the studied university

The PYP consists of two semesters over the course of one academic year. According to the university, the advantages of such a programme are that it helps with the admissions process by directing students to the college and major that best suits their abilities whilst also enabling them to develop their skills and knowledge in areas including research, computing, communication and English.

During the PYP, students select the faculties in which they wish to be placed. Those selections are then arranged based on priorities by the electronic services system. Students are not allowed to alter their selections after the results have been published during the placement process. Those students who pass all the PYP courses and achieve a grade point average (GPA) of two or higher are placed in their selected faculties if they have met its admission criteria and there are places available. If a faculty is oversubscribed with students who have met its criteria, then places are allocated according to the balanced average of students' scores on the PYP. Should a student fail to achieve the requirements of the PYP, s/he can be granted one additional semester in which to do so. Failure to achieve the PYP requirements over three semesters would prevent a student from continuing to study for their undergraduate degree. Ultimately, students' grades on the PYP contribute to their academic average at the university and, consequently, form part of their graduation requirements. However, it is important to acknowledge the trend in some of the Saudi universities to terminate PYPs.

2.4.3 EMI STEM undergraduate programmes: an overview

At the studied university, students' loads (e.g., lectures, tutorials, tasks, homework, examinations) range from 17 to 20 hours a week, with each course event lasting from three to five hours. Each course comprises three different types of events: lectures, practical sessions, and tutorials (see below for further details) plus time spent on homework. To successfully complete an EMI course, students should attend the three types of events, submit assignments by specific deadlines, and pass both mid-term and final exams. All oral and written interactions between EMI lecturers and students, as well as lectures, presentations, textbooks, exam materials, handouts, or sheets, are expected to be in English as the main language of instruction. While no official policy document regarding EMI is available at the university, all lecturers appeared to be

aware that they need to use exclusively English in the EMI classroom, however, they use Arabic alongside English in specific situations (this is discussed in much further detail in Section 5.1 of the findings).

The number of students in an EMI course typically varies between 20 and 25 individuals in each cohort, and different cohorts are taught by different lecturers. Each academic year, depending on each department, students are divided into groups, and those batches study the same courses. In some departments, students are divided into three, others two and, rarely, one batch. All students enrolled at the case university at the time of the interviews are Saudi nationals who speak Arabic as their L1. However, students come from different educational backgrounds, including government, private, and international schools. Consequently, students in the same class can have very different levels of proficiency in English on account of prior levels of exposure to English in educational settings (an issue that is discussed in much more detail in Section 5.3.2 of the results). Outside of EMI classes, most students may have no or little exposure to English, and rarely have to use it in any situation. Furthermore, to ensure fairness, instruction is provided based on the same materials and the same textbook for all students in a course. Likewise, the exams are unified amongst different lecturers.

Each EMI course at the university has a course coordinator who is responsible for the following tasks:

1) Organising the course.
2) Communicating with all lecturers who teach the course.
3) Scheduling mid-term and final exams.
4) Organising meetings.

5) Distributing materials among lecturers and ensuring that all students receive the same EMI course content.

As previously mentioned, there are three main types of events that take place in an EMI course: lectures, practical sessions and tutorials. The distinctions between the three events are briefly described here. Lectures make up around 70% of the course. In a lecture, lecturers are expected to teach theoretical aspects of their respective courses. Some do so simply by delivering a one-way flow of information while others prefer to make their sessions more interactive by incorporating questions and discussions. Regardless of their style, lecturers typically send PowerPoint slides of their lectures to students either before or after the event. In contrast, practical sessions (which comprise 20% of the course) are intended to encourage students to interact with each other and the lecturer and to apply the knowledge and/or skills that they have covered in the lecture to real-life events. Practical sessions are conducted either in labs or using problem-based learning (PBL). For example, students may be given case studies and requested to provide answers and/or solve the problems. In some EMI courses (e.g., medicine, applied sciences), students are expected to attend practical sessions in the university hospital where they are given the chance to interact with patients. In tutorials (which make up the remaining 10% of the course), lecturers usually review the material covered in the lecture, answer students' questions, and discuss the exams before and after they take place.

In addition to their participation in the three types of events described above, EMI students are also expected to complete and submit (both individual and group) assignments. Some lecturers also assign (either graded or non-graded) homework; relevant specifications are typically provided in the lecturer's syllabus (see Appendix P for an example). Some lecturers require students to do oral presentations as part of their graded assignments. According to the

general policy of the university, EMI students should attend all lectures, sessions, and tutorials. If a student's absence rate exceeds 10%, s/he will be expelled from the course.

In terms of materials for EMI courses, each course has a required international EFL textbooks. In addition, lecturers' syllabi typically provide a list of optional textbooks and resources like English websites that students can access independently (see Appendix J for an example). Lecturers are required to offer office hours, usually two to four hours per week depending on each department's policy. Finally, all lecturers are expected to contribute to formulating the exam questions. While some variability in the forms of exam questions is observed, most exams consist of multiple-choice questions, true/false statements, and essay questions. Examples of the grading of one course and grade computations are illustrated in Tables 2 and 3, respectively.

Table 2

Example Grading for a Course

Course Work	%
Midterm Exam (Theoretical)	15
Midterm Exam (PBL)	10
Final Exam- Theoretical (Comprehensive)	25
Final Exam- PBL (Comprehensive)	15
Assignments and case studies* • 3X Case studies (15 points) • 2X Group projects	35
Total	100

Note. Taken from a lecturer's syllabus

Table 3

Grade Computations

Percentage of Points	Anticipated Grade
90% and above	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

Note. Taken from a lecturer's syllabus

To summarise, lecturers and students in science courses are expected to exclusively use English for all forms of communication including, materials, books, lecturing, all event types, and all types of examinations whether written or oral. All course information contained in this sub-section was taken from lecturers' syllabuses and the university's website. The university name and website has been omitted to respect its confidentiality.

CHAPTER 3 LITERATURE REVIEW

This chapter reviews the relevant literature related to the subject of this thesis and its research questions. It begins by examining what that literature tells us about the global spread of English, relating that to the twin trends of globalisation and internationalisation (Section 3.1). It then proceeds to discuss the extent to which that spread is being responded to and driven by language planning and policies internationally, exploring the debate about the positive and negative aspects of policies that promote English and examining theories on policy implementation (Section 3.2). That is followed by Section 3.3, which examines issues related to language in the specific context of STEM learning, the focus area of the present study. The next section (3.4) moves into more detail on the EMI aspect of language planning specifically by defining the concept. Section 3.5 then examines the arguments that have been advanced in favour of EMI policies (i.e., the perceived benefits of EMI). Section 3.6 then looks at the ways in which EMI policies are being implemented internationally, with a particular focus on higher education (related to the present study's RQ1). That is followed by three sections that focus on the current studies' remaining RQs: stakeholders' perceptions of EMI (3.7), the pedagogical, social and cultural challenges associated with the implementation of EMI in Saudi universities (3.8), and the strategies used by students to overcome the learning challenges associated with EMI (3.9). Throughout this review, particular emphasis is placed on studies that focus on the Saudi Arabian context specifically and on the gaps in that literature that the present study proposes to help to fill (which are summarised in Section 3.10).

3.1 The global spread of English

This part of the literature review begins (in Section 3.1.1) by considering the global spread of English, explaining the scale of the phenomenon, exploring its origins and relating it to

globalisation, internationalisation and dynamics that stem from both colonial history and modern economic power. In addition to considering the phenomenon globally, this section also includes material about the spread of English within the GCC area generally and Saudi Arabia specifically (Section 3.1.2).

3.1.1 The ongoing rise of English as the world's lingua franca

There are over 7,100 languages spoken in the world today, but one of them is clearly dominant and has achieved the status of global lingua franca: English (Phillipson, 1992; Mauranen, 2015). It may not have the most native speakers in the world, with its 373 million trailing Spanish (475 million) and Mandarin Chinese (929 million), but it is either a primary or secondary official language in far more countries than any other (67 and 27, respectively, out of a total of 195 countries) (Eberhard et al., 2022). However, even the fact that 48% of all countries have English as an official language does not tell the full story of the language's dominance. The status of English as a lingua franca in many fields (business, politics, academia, even global travel) means that approximately 1.5 billion people speak it (around 19% of the world's population) (Statista, 2022).

While the total figure of people speaking English may not enormously exceed the total number of speakers of Mandarin Chinese (1.1 billion) (Statista, 2022), that language is of limited use outside a small number of countries (accepting the existence of a substantial emigrant Chinese population that preserves the language on a smaller scale in a broader range of countries). In contrast, the spread of English is so extensive internationally that its usage as a lingua franca connects millions of people who are not native speakers of the language, from the European tourist in south-east Asia to the African student in Scandinavia. In such a context, the role of the English language in the world economy can hardly be overstated, Slaughter and

Rhoades (2004) described it as the language of "global economic capital". Harvey (2005, p. 26) expanded on that point by stating that it is through English that "economic power flows across and through continuous space, towards or away from territorial entities (such as states or regional blocs) through the daily practices of production, trade commerce, capital flows, money transfers, labour migration, technology transfer, currency speculation . . . and the like." While the primary causes of the global spread of English were colonialism and the advancement of scientific and technical knowledge in the UK and its former colony the United States, the international dominance of English has been reinforced by the economic power of those two countries, especially the latter which rose to superpower status following the Second World War (Graddol, 2014; Pennycook, 2000; Wright, 2004). As aptly noted by Crystal (1997), "it may take a militarily powerful nation to establish a language, but it takes an economically powerful one to maintain and expand it" (pp. 7–8).

However, along with historical and economic factors, some of the literature has focused on the fact that the global spread of English has also been facilitated by several of its linguistic characteristics. For example, English is argued by some to have a relatively simple structure, which, according to Görlach (2002), makes it an easy language to learn and communicate in. Furthermore, English grammar is relatively simpler as compared to that of many other languages. For instance, in contrast to the grammar of Arabic – the native language of the respondents interviewed in the present thesis – English grammar is less complex (Alotaiby et al., 2014); Arabic pronouns and nouns have case and gender specifications, meaning that the English personal pronoun "you" can be rendered in Arabic in four different ways – namely, *anta* "you for singular-male ", *anti* "you for singular- female", *antm* "plural- males", *antn* and "plural-females". Another characteristic that is believed to have facilitated the expansion of English is its

flexibility. On the level of vocabulary, this flexibility manifests itself in the richness and depth of the English lexicon. The latest print edition of the revised *Oxford English Dictionary* (1989) is the world's largest dictionary, containing 615,000 words in 20 volumes, and the number of words in English is constantly growing. Importantly, much of this richness comes from borrowing words from other languages, which makes many English users feel that it has some similarities with their first language, especially for speakers of the Germanic and Romance languages from which English primarily derives. By the beginning of the 17th century, English had already borrowed words from over 50 different languages (Bragg, 2003). It has been calculated that 21st century English features words borrowed from around 350 languages, from Sanskrit to Swahili and Māori to Malay. Arabic alone has contributed over 1,000 words to English, ranging from "alcohol" to "zero".

Although some scholars have argued that the relative simplicity and flexibility of English have facilitated its rise to global dominance (Görlach, 2002; Alotaiby et al., 2014), the conclusion that the language's rise to global prominence has primarily been driven by power dynamics seems unavoidable. English is far from the world's simplest language in grammar and structure. Bahasa Indonesia, for example, the language that connects the over 270 million inhabitants of the Indonesian archipelago, has a very simple grammar, which features no cases, conjugation of verbs or tenses. Meanwhile, attempts to create a simple and easy-to-learn language to act as the global lingua franca have failed; Esperanto, the most widely spoken such language, has only two million speakers worldwide (Wandel, 2014). English's prominence internationally, then, is to a very considerable extent the product of unequal power relations.

Regardless of its causes, it is irrefutable that the global spread of English as the predominant language of business, computing, research and development (Mouhanna, 2016) has

led to its extensive use for scientific, technological, and cultural interaction across nations. Accordingly, as argued by Graddol (2010, p. 10), competence in English has come to be regarded as "a new basic skill that all the children need to acquire if they want to participate fully in a 21st-century civil society". In fact, several authors have argued that, for L2 English students, proficiency in their second language is more important than that in their L1 (Wright, 2004). As a result of the aforementioned trends, English has come to be perceived as "a factor that needs to be taken into account in its language policy by any nation state" (Spolsky, 2004, p. 9) especially those that are aiming to modernise and compete globally (Marsh, 2006).

However, the global spread of English has also raised several important concerns. For instance, Graddol (2010, p. 10) argued that, rather than providing an advantage to its students, English as the global language can discriminate against those who do not speak it: "no one gains advantage by having it. Rather, anyone without it suffers." The same view was articulated by several other scholars (e.g., Phillipson, 1992; Muhanna, 2016). Furthermore, Pennycook (1994) reasoned that the requirement of English proficiency makes certain domains, such as access to information and education (Master, 1998), inaccessible to many people, while Ljungdahl (2004) argued that those who do not speak English may be deprived of employment opportunities. Some critics of the global spread of English also supported Phillipson's (1992) idea of "linguistic imperialism", arguing that uneven access to English learning contributes to socio-economic inequality between advanced and less developed countries. On top of that, even within developing countries, unequal access to opportunities to achieve English language proficiency may create "social divisions that serve an economy dominated by a small elite, and foreign economic interests" (Tollefson, 1991, p. 186). All these issues regarding the advantages and disadvantages of the spread of English are discussed in more detail in Section 3.2.

In both its positive and negative aspects, the spread of English described above can be taken as an example of the phenomenon of globalisation. It is beyond the scope of this thesis to examine in detail the debate around that phenomenon, but it is necessary to define it, for which purpose the words of Hopkyns and Elyas (2022, p. 17) serve well: “the increase in the movement of people, information and products, as well as an increased number of contact zones between people with diverse cultural and linguistic backgrounds.” Hopkyns and Elyas (2022, p. 17) connected and contrasted such a process with the internationalisation of higher education, defining the latter as “an increased mobility of students and faculty in higher education and the adoption of English-medium instruction”. Finardi et al. (2021, p. 54) argued that “the conceptual link between globalization and internationalization [of education] is so close that it is hard to know whether internationalization is an agent of globalization or a result”. Of course, it could also be that it is both simultaneously as the two enjoy a mutually reinforcing relationship. What matters most for the present thesis is the distinction made by Wächter (2000) between the two forces in the context of language policy, where “the former is relatively uncontrolled, [while] the latter is proactive, planned and moulded by ‘conscious action’” (Hopkyns & Elyas, p. 18; citing Wächter, p. 9). Section 3.2 of this literature review turns to the ways in which such language planning consciously impacts how languages are used in countries in various contexts, looking at a range of perspectives on the benefits and disbenefits of language policy, with particular focus on the impact of pro-English policies on societies and their local languages. Before that, however, it is necessary to briefly describe the overall spread of English in the Gulf Cooperation Council (GCC) area (Section 3.1.2) to show how the international trends described above have played out in that region and in the country that is the subject of the present study.

3.1.2 The spread of English in the Gulf Cooperation Council (GCC) area

Given that the six countries that make up the GCC (Bahrain, Kuwait, Oman, Saudi Arabia, Qatar and the United Arab Emirates (UAE)) all have Arabic as their official language, it might be expected that it is the lingua franca of the area. To some extent, of course, it is, enabling connections between the region's 45 million L1 Arabic speakers. However, the demographics of all six of these countries have changed significantly in recent decades as both the pouring in of oil money and attempts to diversify away from oil have contributed to the influx of large numbers of expatriate workers. It is an illustration of the extent to which the populations of the GCC area have diversified that Saudi Arabia's 45% expatriate population is the second lowest in the region (the lowest is Oman's at 33% and the joint highest are Qatar and the UAE at just under 90%) (GLMM, 2016). So diverse have these six countries become that the region is home to speakers of over 100 languages (Hopkyns & Elyas, 2022), with English acting as the de facto lingua franca (Alharbi, 2017). Global businesses using English are "omnipresent" (Hopkyns & Elyas, p. 19) and even some of the largest locally based firms, including Saudi Airlines and Saudi Aramco, use the language to train their staff (Mahboob & Elyas, 2014). The extent of the English language's presence and influence across the Gulf has led to Arabic being described as a "minority language" there (Eisele, 2017, p. 309). According to some authorities, the demographic and societal changes in the Gulf in recent decades may constitute one of the most rapid and dramatic examples of globalisation (Hopkyns, 2020), all of which contributes towards making studying the impact of language policies in the region a particularly important endeavour (Galloway et al., 2020).

3.2 Language policy and planning (LPP)

This section of the literature review looks at the ways in which the English language has been spread internationally through conscious decisions at governmental or institutional levels that can be grouped together as language policy and planning (LPP). The term language planning refers to "deliberate efforts to influence the behavior of others with respect to the acquisition, structure, or functional allocation of their language codes" (Cooper, 1989, p. 45). Similarly, Bull (2013) described language planning as the attempts to create a particular linguistic situation within a country. Such attempts may be both formal and governmentally sanctioned or informal. Efforts in the former category typically manifest themselves in language policies. This section also reviews the relevant literature on policy implementation theories. Before turning to such theories, however, it is necessary first to examine the concept of language policy in more depth.

The term "language policy" has been defined in various ways. Relatively neutral definitions come from the work of Phillipson and Skutnabb-Kangas (1996, p. 434), who referred to it as "a broad, overarching term for decisions on rights and access to languages and on the roles and functions of particular languages and varieties of language in a given polity" and Tollefson (2000, p. 13), who stated that it refers to a wide range of "governmental and non-governmental actions to influence language acquisition and language use". From a more critical stance, Shohamy (2006, p. 45) described it as "the primary mechanism for organizing, managing and manipulating language behaviors", encompassing both overt and covert approaches. She also described language policies as falling in the midst of the "manipulations and battles between language ideology and practice" in a context in which language is used "to promote political, social, economic and personal ideologies" Shohamy (2006, p. xv).

As such definitions suggest, language policies have attracted much scholarly interest and controversy; an overview of the history and development of language policy research is given in Section 3.2.1, alongside details of key studies and debates in this field. That is followed (in Section 3.2.2) by a review of the literature focused on language policy and planning in the GCC area, with a particular focus on Saudi Arabia. Throughout these sections, the focus is on language policy and planning generally (issues related to language policy and planning in education specifically are covered in Section 3.4, which focuses particularly on studies of EMI). Finally, Section 3.2.3 examines the literature related to policy implementation theory, exploring the gaps that exist between policy intentions and practice.

3.2.1 The history of language policy research

Tollefson (2013) divided research on language policy into three periods. The first, or neo-classical, period began in the 1960s and was informed by a positive perspective on language policies in terms of their capacity to improve communication, national cohesiveness, and socio-economic equality (Tollefson, 2002). Describing the perspectives that informed research in that period, Majhanovich and Deyrich (2017) explained that "for some, language is not just a vehicle contributing to active democratic citizenship, but more importantly represents an asset in terms of human capital; this perspective holds that knowledge of certain languages will enhance possibilities of employability in the labour market." Such positive perspectives continue to be reflected in recent research as well, for example the work of AlBakri (2017), who discussed the potential for language policies to help to revitalise previously marginalised languages. Similarly, Jain (2017) commented on the perceived advantages of imposing or encouraging the use of uniform languages in terms of facilitating communication, improving education, and generating economic growth.

The second period of language policy research, according to Tollefson (2013), began in the 1990s and was influenced by critical applied linguistics. From this period on language policy research became increasingly informed by historical-structural approaches and critical theory which interrogated "the processes by which systems of inequality are created and sustained" (Tollefson, 2006, p. 43). Critical research on language policy has critiqued the mainstream approaches to this subject on the grounds that they were apolitical and, therefore, insufficiently concerned with the relationships between policy and power structures (Tollefson, 2006). In contrast, critical research has been concerned with the ways in which language policies, including decisions concerning mediums of instruction, perpetuate inequality in the interests of established elites. Thus, research in that vein focuses on the ways in which language policies are ideological tools that serve to create marginalisation and lead to socio-economic inequality. It is informed by the perspective that the creators of such policies use them to further the interests of the already powerful through either coercion or consent (Fairclough, 1989), and it seeks to investigate the impact of the policies on those who are typically excluded from influence over the policymaking process. In a similar vein, Tollefson (1995, p. 2) analysed how the people responsible for language planning control "both tangible economic resources and intangible resources such as language and discourse", giving them an ideological power that enables them to project their "own practices and beliefs as universal and common sense".

Tollefson (1991, p. 2) also presented a nuanced picture of how English can be both a "tangible economic resource" and at the same time a reinforcer of "relationships of unequal power", potentially "block[ing] full and open access to education and employment" for certain groups within society (Tsui & Tollefson, 2009, p. 286). Similarly, Taylor (1998) commented on the tendency, even in democratic societies, to seek to exclude others as a means of protecting the

established system and increasing their own power. Such exclusion can take a variety of forms which leave the excluded groups as resident aliens unable to fully participate in society. These issues particularly affect immigrants, people from indigenous communities or those from other ethno-linguistic groups whose languages have not been selected to be the official language in the state in which they live. Expanding upon that point, Hunt (2012, p. 98) wrote that "the micro context has a reflexive relationship with the society in which it is embedded, and criticality also engages with power at societal and global level. The use of English in global institutions, media, the Internet, international business and leisure illustrates that English is not a value-free tool, but complicit in the deployment of power globally and locally."

In a similar vein, Skuthabb-Kangas (2006) wrote extensively about how planning and policies that impose a language of power violate the rights of those people who do not have sufficient command of that language by rendering them unable to participate fully in the society in which they live. Such people are marginalised because the language that they have learnt at home is not used in environments such as school or work, rendering it difficult for them to participate in society or access the services to which they are entitled by right (Shohamy, 2006). Similar problems can also exist when a language has not (yet) been designated an official language in a particular country but is already associated with power, prestige and privilege. The most widespread example of this phenomenon is the use of English in many countries where it is increasingly controlling access to prestigious employment opportunities and becoming a requisite for functioning in the upper echelons of society (Shohamy, 2006). While acknowledging the importance of English language knowledge for "increasing opportunities in the global environment", Shohamy (2006, p. 142) also described English as representing "a form of inequality, creating a world division between those who know it and those who do not, and it

often becomes a threat to local languages." See Sections 3.7 and 3.8 for further discussion of perspectives on the problems associated with the use of English in educational contexts specifically.

Within the field of applied linguistics, the work of Pennycook (2001) has been particularly committed to critiquing such policies in ways that are intended to inspire change. He advocated taking a "problematizing stance" based upon "a view of language that is not merely a reflection of society or a tool of ideological manipulation but rather a means by which social relations are constructed… [taking] on board lessons from poststructuralist thinking about power and language, and… [working] toward a more contextual understanding of power relations." (Pennycook, 2001, p. 45). Pennycook (1994) identified TESOL English as a driving force of globalisation and the diffusion of American culture internationally. With a similar focus on the relationship between language policy and the spread of the world's dominant language, Tsuda (1994 as cited in Phillipson and Skutnabb-Kangas, 1996) divided approaches to such policy into two opposing paradigms: diffusion of English and ecology of language. The former identifies itself with internationalisation, globalisation, and modernisation and promotes monolingualism. The latter identifies itself with diversity, equality, and human rights and promotes multilingualism. which in turn advocates foreign language learning that will enable people to respect foreign people and cultures.

From a similar perspective, Phillipson (1992) explained the English language's preeminent position internationally (which he termed "linguistic imperialism") with reference to the broader concept of cultural imperialism and the West's hegemonic dominance in the military, economic and cultural spheres. Such was the importance of linguistic imperialism in Phillipson's (1992, p. 65) theory, that he identified it as connecting all other forms of imperialism (including

educational imperialism) because “language is the means used to mediate and express them.” Phillipson’s arguments have been critiqued on the grounds that they focused too much on structural factors and did not pay sufficient attention to reciprocity in the learning of English or local agency (Pennycook, 1994).

Such critiques led to the third period of language policy studies, which began in the late 1990s and gathered momentum in the new millennium (Tollefson, 2013). This period has been characterized by research that has built upon the historical-structural approaches but views them as having focused too narrowly on top-down decisions, without taking sufficient account of the way in which policies are implemented or resisted when applied on the ground within local communities or educational institutions (Tollefson, 2013). For example, Schiffman (1996) made a distinction between covert and overt language policies, a distinction that implied the need to go beyond formally stated language policies to understand what practice on the ground looks like. Taking account of distinctions between official policy and practice, Spolsky (2004) identified three levels of language policy: belief (i.e., underlying ideologies), practice (i.e., how policies are, or are not, implemented) and management (i.e. specific acts of managing language behaviour in particular contexts). Adding further nuance to such distinctions, Da Costa et al. (2020, p. 1) discussed the “multiple levels (societal, institutional, and interpersonal) at which such policies are enacted” (see Section 3.2.3 for more on policy implementation).

Building on such positions and arguing against the tendency to impose language policies that marginalise the languages of “others” within a society, Shohamy (2006) highlighted the importance of linking groups together at local levels through mutual understanding, the inclusion of languages and the recognition of diversity as a resource in the interests of creating strong political units that are best placed to achieve their full potential. Such aspirations suggest the

need for democratic language policies that are built from the bottom up, taking account of "learning and study about 'the others', following the complementary approaches of negotiation, representation and participation" (Shohamy, 2006, p. 154).

Much of the research in this field has focused on groups who speak minority languages within a given polity (such as those from established minority ethno-linguistic groups or recent immigrants) or whose native language differs from that of the people in power (which covers cases in which the majority of a country's population speak a different language than the dominant group). Examples of such work include that of Shohamy (2006), who has connected language policies promoting the learning of a standard, and supposedly correct, version of a language with "nationalist ideologies so that these dominant languages have become integral parts of national agendas while at the same time other languages have become marginalized and denigrated. Language, then, has been manipulated to serve the agendas of the national and collective groups (Shohamy, 2006, p. 28)." Explaining the problems of marginalisation associated with this, Shohamy (2006, p.147) argued

> Local languages are considered parochial in a world that is global; those who lack the knowledge become its new victims, the new underclass, and their participation and representation are minimized. This creates situations in which speakers of hegemonic languages are in power, while speakers of other languages are marginalized and excluded. Rights associated with language are still not viewed as legitimate human and personal rights and result in situations where those who do not possess knowledge of the power language cannot fully participate in the society, leading to a policy of exclusion.

Although these concerns are relevant in the context of the present study, they do not come from research that specifically addresses the situation that is developing in the GCC area, where

speakers of the native, majority language across the region (Arabic) are potentially facing marginalisation within their own countries as key areas of language policy place increased emphasis on English, creating additional advantages for speakers of that language. Recent language policy research in the Gulf specifically is the subject of the following section (3.2.2).

3.2.2 Language planning and policy in the GCC area

Despite what they characterise as a surge in interest in LPP internationally, Hopkyns and Elyas (2022) identified a lack of studies focusing on the Gulf area specifically. Nevertheless, numerous studies have examined the language planning and policy decisions of various governments in the GCC, with a particular focus on the ways in which English has been promoted. Various justifications have been offered for such decisions (Masri, 2019) including the potential that widespread English knowledge across a country has to forge economic and educational connections with the international community (Badry, 2012). For example, Al-Mubaraki's (2011, p. 415) examination of the national and global challenges facing Saudi Arabia's education system took a relatively positive perspective on globalisation, portraying it as an inevitable reality and highlighting the potential of internationalised higher education to foster knowledge-based economies that will address the inequalities between developed and developing countries, stressing that "not just industrialized countries but some developing countries are taking advantage of these global trends". According to Onsman (2011, pp. 502–503), much of the analysis of the impact of globalisation on higher education in the Gulf has been based on "the assumption that globalisation is irresistible, and that the internationalisation of Higher Education is immutably linked to the phenomenon."

However, critiques of the region's language policies seem to have become substantially more common since Onsman (2011) made that observation. Such critiques have focused on their

detrimental impact on Arabic and the extent to which they promote inequality in the interests of established elites (Phillipson, 1992; Kirkpatrick, 2011; Troudi, 2009). McLaren (2011) accused governments across the GCC region of undermining Arabic against their own best interests by channelling their countries' linguistic and cultural futures towards English. Still, Hopkyns and Elyas (2022, p. 18) identified a gap in terms of work focused on what they termed "a deeper exploration of language ideologies and the role of the symbolic power that lies beneath language policies and the resultant effects on identities". Other researchers, such as Hillman et al. (2021), have also identified the same gap.

Hopkyns and Elyas's (2022) own work provides a significant overview of relevant literature on LPP in the Gulf context, emphasising both the strength of the push to introduce and integrate English and the force of the pro-Arabic backlash. According to the authors, the former is driven by neo-liberal LPP, while the latter is well-intentioned but misguided. Into that latter category, Hopkyns and Elyas (2022) put such movements as BilArabi, which aims to promote and preserve Modern Standard Arabic (MSA), the UAE's Arabic Language Charter (introduced in 2012) and Saudi Arabia's plans for accredited centres and programmes for teaching Arabic to non-native speakers (Al Shammari, 2022). What all such initiatives have in common, however, is their focus on preserving a supposedly pure version of Arabic and positioning it as a competitor to English. Instead, Hopkyns and Elyas (2022) argued that "a more effective and less divisional way forward is to support and endorse authentic glocal and translingual identities by encouraging a blurring of the boundaries between languages in multiple domains leading to language sustainability." Such approaches would appear to reflect more naturally the ways in which languages interact through processes of adoption and adaption that alter both. These issues

concerning translingual identities and translanguaging practice are discussed in more detail in Section 3.6.2 of this literature review.

Barnawi and Hawsawi (2017) have also been significant critics of language policies in the Gulf region. Writing about Saudi Arabia specifically, they described how language policy reforms promoting English have accelerated in response to the 'Arab Spring' scenarios, the global financial crisis of 2008 and its impacts on global/local labor conditions, the birth of ISIS … [and] tumbling oil prices" (p. 200) but criticised such policies on the grounds that they "embed" issues related to "the unequal ownership of English, neocolonialism, commercialization, and discourses of Western hegemony" (p. 215). From another perspective, Onsman (2011) criticised conceptions of globalisation that presented it as a single pathway to Western, free-market capitalism and praised Saudi Arabia's attempts to balance its strategic ambitions of improving the quality of its higher education in line with international standards whilst also striving to maintain its own cultural traditions. One specific contentious issue that he highlighted in that context was the use of EMI, which is the subject of Section 3.4 of this chapter, but before turning to that, it is necessary to review the relevant literature on education policy implementation.

3.2.3 Education policy implementation

Policy implementation has been defined as the processes that take place between the creation of a new policy and the impact that it has in practice (O'Toole, 2000). The apparent simplicity of that definition, however, masks various academic debates about how precisely to describe policy implementation. The traditional "policy cycle" perspective perceives implementation as one of a series of separate, sequential stages (Brewer & DeLeon, 1983). According to that perspective, implementation is simply a question of the people charged with executing a given policy

discharging that duty, with the assumption made that failures in implementation merely require a better set of instructions from policymakers (Viennet & Pont, 2017). That top-down perspective on policy and its implementation has been challenged by research that focuses on the iterative and political nature of policy implementation, emphasising the influence of a broader range of actors on policy. Such perspectives tend to not see implementation as merely a stage following policy creation but rather as an integral part of the overall process (Mason, 2016). For example, Bell and Stevenson's (2015) model highlighted the multidirectional nature of interactions between policy direction and implementation. Such "bottom-up" perspectives reflect the reality that decisions about implementation are left to the people charged with enacting the policy, leading to variability of practice (Hess, 2013). In that context, policymakers have identified the need to focus more on implementation to avoid reform processes that are only half done or even counterproductive (Wagstaff, 2013). Adams et al. (2001) distinguished between different policy categories by using different terminology. In their categorisation, rhetorical policy is the overarching statements made in, for example, the speeches of senior politicians, enacted policies are the laws or official statements that govern how institutions and individuals are to act, and implemented policies are what the enacted policies end up as after they have been translated by the practice of the diverse actors involved in their delivery.

Viennet and Pont (2017) identified the complexity of policy implementation in education specifically, highlighting the various reasons that can prevent such policies from being effectively implemented. These included neglecting to focus sufficiently on implementation when planning a policy, failing to realise the importance of engaging staff in the change process, and insufficiently adapting processes to meet the constraints of governance systems (Viennet & Pont, 2017). That complexity is compounded by the fact that education systems are diverse and

involve a wide range of stakeholders with a variety of different, and often passionately held, opinions about what education should look like. Viennet and Pont (2017) also emphasised the importance of placing any policy implementation process in its broader context, taking account of both the multiple levels of actors and the diverse range of societal factors that can influence the process. Viennet and Pont (2017) specified four dimensions that influence policy implementation – its design, the extent to which stakeholders are inclusively engaged, the institutional, societal and broader policy environment in which it is being implemented, and the coherence of the implementation strategy – each of which is worthy of some further definition. Design in this schema refers to how a policy is framed and the relationships that it suggests between its approach and the issue that it is setting out to address. Stakeholder engagement covers working with both institutions and individuals and recognising their centrality to the process of implementation (while also being aware that the interests of different stakeholders may compete with each other). The broader environment encompasses other aspects that impact implementation, including other relevant policies and societal constraints (which could be both formal and informal). Finally, the implementation strategy is the plan that should (in theory) be followed to transform policy into reality.

Hess (2013) identified education policymakers' general lack of consideration for how policies would be implemented, identifying, in particular, the failure to ask questions about teachers' capacities to deliver new requirements. The introduction of new policies is often also blighted by issues faced on any change project, including communication challenges, resource shortages and a lack of compliance amongst either the implementers or the objects of the policy. Such resistance may be based on a lack of understanding of the policy or a rejection of its aims or means (Fullan, 2015). In contrast, effective implementation is, according to Datnow and Park

(2009), the result of bringing together the influence of various actors to pursue shared goals in ways that are sensitive to the context in which those goals are being sought.

All the issues discussed above regarding the nature of policy implementation and the challenges encountered on that path are highly relevant to the current study. However, this study is distinguished from much of the literature on policy implementation in that it focuses on a case in which the policy in question is unwritten (and, therefore, has no implementation plan). As recommended by Viennet and Pont (2017), the present study focuses on the perceptions of stakeholders in the policy implementation process as those perceptions significantly influence how the policy plays out in practice. As the policy that is the subject of the present study concerns STEM education specifically, the next section of this chapter looks briefly at what the literature tells us about language use and literacy in the context of science teaching and learning specifically.

3.3 Science learning and teaching

Taking account of the present study's focus on STEM programmes, this section of the literature review examines the concepts of literacy and scientific literacy (Section 3.3.1) and considers the role of language in science learning (Section 3.3.2) and classroom interactions (Section 3.3.3).

3.3.1 Literacy and scientific literacy

Before discussing the concept of "scientific literacy", it is important to define the term "literacy". Montoya, 2018 describes literacy as "the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society."

Although literacy rates are low across Arab states generally, relative to the rest of the world, Saudi Arabia has a high adult literacy rate of 94.4% – rising to 99.2% amongst young people, i.e., 15–24-year-olds (Montoya, 2018).

As the above definition suggests, literacy is not just reading and writing, it also includes speaking, listening and the ability to understand "scientific and technical knowledge, legal information, culture and the media" (EFA, 2006, p.16). In that context, Urquhart and Weir (1998) distinguished between the minimal levels of literacy required for simple reading and writing and the functional literacy needed to deal with more complex processes such as understanding, interpreting and interacting with data. Their definition of literacy, therefore, encompasses reading, writing, interpretation and numeracy.

Literacy has many benefits for both the individual and the society and can open doors for social and economic development. It also helps to inform individuals about potentially life-changing opportunities regarding issues such as education, health and financial status (EFA, 2006). Literacy can be associated with high self-esteem, confidence and increased income. Literacy in one's mother tongue seems to be particularly valuable in terms of its impact on people's ability to benefit from education and its capacity to drive social development. Raza et al., (2015, p. 122) highlighted the following advantages of developing mother tongue literacy: "increased access [to education] and equity (also related to gender); improved learning outcomes; reduced repetition and drop-out rates; socio-cultural benefits, and lower overall costs." Similarly, Wedikkarage's (2010) study in Sri Lanka identified mother-tongue literacy and teaching sciences in local languages as a crucial factor influencing other human development indicators related to infant mortality and disease control.

The development of literacy may depend on the language(s) used in a country's education system. For example, if a foreign language that is not native to most of the students is used in the education system that will affect the pace at which they develop literacy (Nomlomo, 2007). As discussed in Section 3.1, internationalisation is one of the forces driving the use of English in STEM institutions in Saudi Arabia, which might, in turn, limit access to scientific knowledge for those individuals who lack or have limited literacy in English.

The Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA) framework defines scientific literacy as "the ability to engage with science-related issues, and with the ideas of science, as a reflective citizen" (OECD, 2019, p. 15). The benefits of scientific literacy include being able to participate successfully in modern society and using scientific techniques and knowledge to guide decision-making from the individual through to the governmental policy level (Ogunniyi, 2005). One basic, but essential, aspect of such literacy involves learning the highly specialised and complex vocabulary of science, which encompasses many words that are either altogether unfamiliar or used with different meanings in scientific contexts (Monk & Dillon, 1995; Puhl, 2000). Scientific literacy also requires the ability to understand, interpret and create such forms of knowledge presentation as tables, diagrams, graphs and other forms of pictorial representation of data.

According to Harlen and Qualter (2004), the concept of scientific literacy can be divided into four elements: concepts, processes, attitudes and understanding. Concepts allow students to understand new experiences by connecting them to that which they already knew. Processes encompass the skills (both physical and cognitive) that allow people to generate and analyse data to create meaning. The attitudes element covers individuals' drive to learn and their belief in their own ability to do so. In addition to an individual's skills and drive, numerous factors at an

education systemic level may contribute to the development of scientific literacy, including curriculum, the teaching and learning process (encompassing the environment that the teacher creates in the classroom), and the medium of instruction used in science teaching (Nomlomo, 2007). The latter is discussed in more detail below.

3.3.2 The role of language in science teaching and learning

According to Einstein (2002 as cited in Nomlomo, 2007), literacy and scientific literacy are interdependent. The former gives students the means to clarify and communicate their scientific ideas while the latter provides a purpose for the former. Therefore, the stronger one's skills are in one area, the stronger they will be in the other (Einstein, 2002 as cited in Nomlomo, 2007). Given that interdependence, it is unsurprising that Lemke (1990) concluded that learning depends on one's ability to understand the disciplinary language in which the knowledge is construed. However, even if someone is studying science in their first language, the language aspect of disciplinary learning can be problematic and multifaceted (Duff, 1997; Met and Lorenz, 1997). When students are taught science in a second language, their ability to explore abstract concepts might be further hindered by the additional language-related challenges that they face. That can create a situation in which students who experienced EMI at a later stage of their education can be disadvantaged relative to their peers who have more extensive experience of EMI (and, hence, a better command of the English language). Students in the former category may, therefore, underperform their peers even if they have higher levels of science content knowledge. In that context, Ogunniyi (2005) commented on a survey of South African school pupils who were unable to explain their knowledge of scientific concepts when asked to describe them in English. Such findings pose questions about how students can achieve scientific literacy when they do not fully understand the language in which they are being taught science.

Language is used in many ways throughout the scientific process of gathering and analysing information to reach conclusions; one way in which language is used that is particularly relevant to the present study concerns classroom interactions, as described in more detail below.

3.3.3 Classroom interaction

Described by Ellis (1992, p. 2) as "the fundamental fact of pedagogy", classroom interaction offers students the chance to become involved through their inputs in negotiating the learning process. Ellis (1992) divided such interactions into three categories depending on whether they related to core, framework or social goals, where the first refers to the purpose of the lesson, the second to the requirements for organising the lesson, and the third to personal purposes like exchanging greetings. Irrespective of whichever goal they are related to, such interactions are, of course, influenced in the EMI context by the fact that most students are engaging with their teacher and peers via a language that is not their L1. Shrum and Glisan (2000) identified the ways in which such interactions can be effective in an EMI context, highlighting the importance of comprehensible input, the creation of a non-threatening interactive environment (which encourages interactions between students), the facilitation of opportunities for the whole class to participate in the negotiation of meaning, and the connection of interactions with learning goals.

Even when teachers strive to create such positive environments, certain challenges are likely to be encountered when dealing with classroom interaction in an EMI context. Such challenges can be divided into two categories, those related to the teacher and those related to the students. In terms of the former, the teacher may struggle to communicate in English, creating misunderstandings during interactions (Nomlomo, 2007). In the latter category, students' struggles with the language may lead to misunderstandings and also to anxiety that discourages them from contributing in class. It is important to stress that the silence that results from such

anxiety may be a result not of a lack of content knowledge on behalf of the student but rather a result of their lack of confidence regarding expressing themselves in English. This phenomenon was observed in Tsui's (1996) study of students in EMI programmes in Hong Kong.

Ellis (1992) identified three phases that typically characterise classroom interactions – initiate-respond-feedback. In the sort of traditional pedagogical styles associated with transmission learning, teachers initiate, students respond, and the teacher then provides feedback. Such interactions, according to Ellis (1992), can inhibit the process of students creating meaning for themselves and developing their understanding of concepts. Tsui's (1996) study in Hong Kong identified students' lack of confidence in the language of instruction as one of the reasons why they were not initiating questions or participating actively in classroom interactions. The same study noted teachers' tendency to direct their interactions towards a select group of students, i.e., those whose language abilities permitted them to respond. It should be noted, however, that both of the studies referenced here, i.e., Ellis (1992) and Tsui (1996), were focused on language learning classes, rather than on the learning of scientific content through EMI. Nevertheless, their findings are still relevant to the present paper because the issues of students' confidence in English and lecturers' preference for focusing on those students with higher levels of language ability both also manifest in EMI classes (as discussed in Section 3.5).

3.4 English as a medium of instruction: definitions

Having looked above at the global spread of the English language, given an overview of the policies that have facilitated it and introduced issues related to language in science teaching and learning specifically, the following sections of the literature review look at one of the main drivers of the spread of English: the increasingly common use of EMI in academic settings internationally. The subsequent sections (3.5 and 3.6) discuss the arguments that have been

advanced in favour of EMI's application (i.e., the perceived benefits of EMI) and examine the ways in which EMI has been implemented within higher education both generally and in STEM programmes specifically. Before turning to those issues, however, the current section (3.4) begins the examination of EMI by defining the concept.

The specific manifestations of language policy and planning in educational settings are discussed extensively in the literature on language in education policy (LEP), which focuses on the ways in which authorities determine which languages are used at different levels of the education system (Tollefson, 2008). As the specific LEP in question here is EMI, it is necessary to define that concept, a task that is not as easy as it may initially sound as even the definition of the term has caused scholarly controversy. Those controversies centre around issues including the extent to which EMI covers language learning as well as content learning and the sort of settings in which teaching can appropriately be described as EMI (i.e., does it also include some contexts in Anglophone countries, where the majority of the population speak English, as well as non-Anglophone settings?) Indeed, every element of the most standard definition of EMI has been problematised as discussed below.

Although EMI is a relatively new concept, it has been variably defined in the literature. For instance, it has been described as "the teaching and learning of content through another language" (Dafouz et al., 2014, p. 224), "a discipline-based late immersion programme without any bridging support" (Kang & Park, 2005, p. 158), an instructional approach where "English [is] used as the language of instruction [and] is not the native language of the students" (Kim & Shine, 2014, p. 42), or simply as a programme where English is "the vehicle of teaching and learning" (Islam, 2013, p. 127). Some of the relatively slight variations in these brief definitions hint at the broader debate around the term EMI, which is explored in more detail below.

A commonly used definition of EMI is that given by Macaro (2018, p. 19), who described it as "the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the populations is not English." As so defined, EMI has been used more or less interchangeably with a variety of different terms, including "English-medium education" (EME) (Earls, 2016; Kirkgoz, 2007), "English medium courses" (Yeh, 2014) or "English medium content classes" (Iyobe et al., 2011). However, some relatively subtle, but not insignificant, differences exist between these terms. For example, while EMI focuses on the teaching and learning aspects of an educational programme, EME refers more broadly to all aspects of such courses (i.e., incorporating their administrative elements and interactions between students in settings outside of the classroom). What all these various terms have in common, however, is that they refer to the use of English as a means of teaching academic content in contexts in which it is not the L1 of the majority of the population. In that sense, EMI (and all the related terms listed above) has "clear differences with English as a subject (EaS), where English is taught as a subject itself" (Galloway et al., 2020). That distinction was emphasised by Coleman (2006, p. 4) who argued that "foreign language learning in itself is NOT the reason why institutions adopt English medium teaching" (emphasis in original). The consequences of these distinct definitions of EMI and EaS appear to play out in practice as EMI lecturers appear to rarely focus on language teaching (Costa, 2013; Jiang et al., 2019).

Based largely on Macaro's definition, Pecorari and Malmström (2018, p. 499) distilled four elements that are typically considered to be the essential characteristics of EMI:

1. English is the language used for instructional purposes.

2. English is not itself the subject being taught.

3. Language development is not a primary intended outcome.

4. For most participants in the setting, English is a second language (L2).

They then proceeded to demonstrate that, despite that apparent clarity, there are still debates regarding each of those four characteristics (Pecorari & Malmström, 2018). For example, one might imagine that the first characteristic is indisputably an element of EMI. However, that definition does not take account of the fact that there are distinctions between full and partial EMI. Galloway et al. (2020, p. 7) defined the latter as "programmes in which materials, assessments, all teaching and learning are partially in the primary language of communication, partially in English" and emphasised that the precise definitions of such programmes vary from setting to setting. However, that definition does not explicitly address the fact that partial EMI can be both planned and unplanned. According to Pecorari and Malmström (2018), unplanned uses of languages other than English in the EMI class have particularly been associated with the terms code-switching and translanguaging. Both of these concepts are highly important in the context of the present study and will be discussed in more detail in Section 3.6.2. But suffice to say for now that the former can be defined as "the use of separate and multiple linguistic codes (or languages)" whereas the latter term refers to "the fluid use of multiple languages as an integrated system of communication" (Galloway et al, 2020, p. 7). Further, the term code-switching carries a certain pejorative connotation, being often regarded as what Pecorari and Malmström (2018, p. 499) termed as "an unfortunate lapse from the prescribed language of instruction" in contrast to translanguaging which is cast as a "pedagogically valuable means of drawing on the affordances of multilingualism". Evidence of the frequent use of code-switching and translanguaging practices in EMI classes (Evans, 2008) seems to confirm the argument of Fenton-Smith et al. (2017, p. 6) that "EMI is a… nuanced concept operating on continua of

usage at varying levels including institutional, course and classroom" and hence a binary distinction cannot be made between EMI/non-EMI.

The second and third characteristics of EMI listed above have also been the subject of a debate concerning the extent to which improving students' mastery of the English language itself is an aim of EMI, alongside its primary objective of improving content knowledge. That debate reflects the fact that different courses classified as EMI do put different levels of emphasis on the importance of English language acquisition as an objective. For example, Taguchi (2014, p.89) stated that the objective of EMI was to "improve students' academic English proficiency", a definition that has similarities to the concept of content and language integrated learning (CLIL), which explicitly has the double objective of improving subject and language knowledge (Galloway et al., 2020). In that sense, Taguchi's definition differs from that of Macaro, which focused exclusively on the aim of imparting content knowledge (through the medium of English). Taguchi's definition does, however, seem to have some alignment with the actual goals of policymakers and the people signing up for EMI programmes, with evidence from Galloway et al. (2020) from an East Asian context suggesting that learning English was the primary motivation of such students. Similarly, Rose et al. (2019, p. 2) discussed the common perception amongst students that EMI "kills two birds with one stone" by enabling the acquisition of content and language knowledge simultaneously. Considering these findings alongside the evidence cited above from the work of Costa (2012) and Jiang et al. (2019) about the objectives of EMI lecturers raises some interesting questions about the discrepancy between what students hope to achieve (language knowledge) and lecturers' reluctance to focus upon the same. Interestingly, Ali's (2013, p. 73) study in Malaysia found that policymakers also "positioned EMI classrooms as a tool to promote students' English language development". Macaro (2018)

acknowledged the evidence that shows that the picture on the ground is more complex than his definition of EMI might suggest, in the sense that some programmes offer dedicated language support in tandem with the teaching of content in English, a feature that has been connected with improved student outcomes from EMI (Doiz et al., 2011). Finally, Pecorari and Malmström (2018) argued that the omission of language learning in EMI definitions may simply result from the fact that it is so obvious an objective that it need not be mentioned at all, with exposure to English assumed to inevitably lead to some improvements in students' abilities to use it (an assumption that remains unproven, according to Macaro et al., 2018). Reviewing the discrepancies between the stated goals of EMI programmes and expectations regarding improved English skills, Pecorari and Malmström (2018, p. 502) suggested clarifying the standard definition of EMI by adding that the term describes "a setting in which English skills are not specified as a curricular outcome, are rarely planned for, and are not systematically taught, but which are nonetheless expected to be acquired." Similarly, Brown and Bradford (2016, p. 330) defined EMI as entailing "the use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English. It may or may not include the implicit aim of increasing students' English language abilities."

Another challenge to Macaro's definition has come from those scholars who have argued that its focus on non-Anglophone countries (i.e., the fourth characteristic of EMI listed above) is too narrow. For example, Pecorari and Malmström (2018) have contended that the definition should be expanded on account of the number of students with English as an L2 studying in countries such as the US, the UK and Australia (a phenomenon that has been driven both by migration and the increased student mobility associated with the internationalisation of education). In this respect, there is evidence showing that factors such as exposure to English

outside of the classroom (Macaro, 2018) and students' L1, among others, might considerably affect EMI experiences and outcomes (Stroupe, 2012). Even in an EFL setting, the lack of exposure to English outside the lecture was a factor that affected the English learning process (Al-Nofaie, 2010). Again, Pecorari and Malmström (2018, p. 503) suggested additional text to add to the definition of EMI to take account of these issues: "EMI involves settings in which English is not an L1 for some participants. The balance and blend of L2s will alter the salience of features associated with EMI." However, Rose et al. (2021, p. 1) argued against that expansion of EMI to include all settings in Anglophone countries on the grounds that doing so would threaten "to conflate EMI-issues with wider internationalisation issues and general educational issues", potentially leading to inappropriate comparisons in research between educational settings in very different contexts. The same authors also referenced the distinction that Hultgren (cited in Coleman et al., 2018) made between non-Anglophone countries where EMI is introduced via a policy decision that marks a shift from what came before (i.e., L1 MOI) and Anglophone countries where EMI is simply the status quo and not an innovation deliberately introduced by policymakers. Hultgren did, however, recognise the additional layers of complexity that come in countries that have no clear majority language (such as Ethiopia and Nigeria) but still put such countries in the category of those that have to make clear policy decisions to adopt EMI. Such issues are important but not entirely relevant to the present study given its focus on a country that clearly has one national language (Arabic), and which has equally clearly made a conscious policy decision to shift from AMI to EMI in higher education.

While acknowledging the various debates detailed above, the present study adopts the definition of EMI proposed by Macaro (2018, p. 19): "the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language

of the majority of the population is not English". This definition was chosen precisely because it makes it possible to differentiate between two types of educational settings: those where content courses are taught to L2 English students in Anglophone countries and those where students receive instruction in English in their own home universities in non-Anglophone countries (Macaro, 2019). Given that the student participants in the present study are all L1 Arabic speakers in a country in which Arabic is the national language, Macaro's definition fits the context well. Further, that context also clearly meets the definition of being non-Anglophone and having introduced EMI through a conscious policy decision that marked a significant shift from the previous L1 MOI status quo. Nevertheless, the debates referenced above about the extent to which instruction is actually in English and how different stakeholders perceive EMI as incorporating the development of English language abilities as a core objective will be revisited in this paper's discussion (Chapter 6) in light of the attitudes expressed by participants from the three stakeholder groups (students, lecturers and managers) represented in this study (Chapter 5). It is also relevant, in the context of considering language learning through EMI, to consider the extent to which the courses examined in the present study meet Pecorari and Malmström's (2018) proposed and, by their own admission, aspirational definition of EMI as "an educational setting in which language learning objectives are in symbiosis rather than in tension with subject content objectives; and in which good planning ensures that the preconditions for success are in place, and that the acquisition of English is incidental, but not accidental" (p.511).

It is also important to note that the differences in EMI implementation referenced above (e.g., full vs the varying degrees of partial EMI) support Coleman's (2018, p. 703) contention that "there is no such thing as a prototypical EMI environment". AlHarbi (2022) described three types of EMI environment, which he classified as student-mobility programmes (i.e. courses in

non-English speaking countries that nevertheless intend to attract a diverse population of international students to study in English), internationalisation at home programmes (in which non-native speaking English students are taught through EMI in their own countries, as is the case in the present study) and HE programmes in Anglophone countries (which, as we have seen above, do not meet some of the standard definitions of EMI). These broad categories speak to the diversity of EMI but also only scrape its surface, in the sense that EMI practice both across and within categories can vary very substantially. Indeed, as Simbolon's (2017) study in an Indonesian university demonstrated, EMI can be implemented in very different ways even by lecturers working within the same institution, which is an important observation to bear in mind when considering evidence from the present study's exploration of different lecturers' practices in the context of EMI within an individual Saudi university.

3.5 Perceived benefits of EMI in HE

Irrespective of how it is defined exactly, there is no doubt that the number of EMI courses within HE internationally has expanded exponentially in recent years (Fenton-et al., 2017; Curle et al., 2018), creating what Macaro et al., (2019, p. 232) described as an "unstoppable train". Attempting to quantify the extent of EMI within international HE, Dearden (2015) estimated that it was permitted in over 78% of public and over 90% of private universities worldwide and found that 40% of countries have official EMI policies. It can be safely assumed that those percentages have only increased in the eight years since Dearden's research was published. However, the availability of robust evidence concerning the extent to which EMI has been implemented varies from region to region, with programmes best documented in Europe, East Asia and the Middle East (Galloway et al., 2020).

Sections 3.1 and 3.2 of this paper described the global context within which that increase is taking place. Closely related to that context is the internationalisation of HE itself, a

phenomenon that Knight (2003, p. 3) defined as “the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education”. Although that definition has attracted criticism because of its lack of precision (Kehm & Teichler, 2007), it is suitable for the current study precisely because it is broad enough to encompass the varied ways in which internationalisation is conceived and implemented in HE practice, which include increased student and staff mobility, transnational education (i.e. where the programme is delivered in a country other than the one where the awarding body is based) and the internationalisation of curricula (typically through the addition of intercultural dimensions) (Galloway et al, 2020). At present, HE institutions generally acknowledge the importance of internationalisation and its possible strong and positive impact on the development, modernisation and quality of education, as well as on raising cultural awareness, the skills of local academic staff and students, the attractiveness of an institution to both local and global scholars and students, and institutions’ profiles and prestige (Coleman, 2006). Such institutions are also often motivated by the possibility of attracting additional revenue by becoming more attractive to international students (Kamasak & Ozbilgin, 2021). Since, in essence, the internationalisation of HE involves “a dialogue with those in other countries” (Yang, 2002, p. 83), policies aimed at internationalising HE institutions go hand in hand with implementing EMI (Shamim et al., 2016). It is also important, however, to remember the complexity of the relationship between internationalisation and EMI, with the latter “simultaneously a driver, reaction and outcome of institutions’ approaches to internationalisation” (Galloway et al, 2020, p. 17). Given that context of internationalisation, it is now necessary to examine how the perceived benefits of EMI interact with it. Overall, major benefits of EMI identified in the literature include improving students’ English proficiency,

increasing staff and students' international mobility, enhancing graduates' employability and providing students with broader access to knowledge in the form of research and teaching materials. Each of these issues is discussed in more detail below.

3.5.1 Improving students' English proficiency

According to Byun et al. (2011, p. 440), "The assumed premises of EMI are that the more exposure students get to English the better they will acquire the language, and yet they will learn the particular academic subject being taught at the same time." The latter half of that statement seems to be more contentious than the former, given the robust empirical evidence on the potential effectiveness of EMI in terms of improving students' command of English (Al-Shehri, 2017; Ali, 2013; Becket & Li, 2012; Chapple, 2015). For example, a study of 63 Spanish students' listening proficiency and grammatical knowledge as evaluated by the Oxford Placement Test (OPT) found that, after one semester of 60 teaching hours, the participants showed a significant advancement in their listening skills, albeit without a considerable improvement in their grammatical knowledge (Aguilar & Munoz, 2014). Similarly, in a study that analysed the IELTS exam scores of 59 female students in the final year of their four-year undergraduate course at a university in the UAE, Rogier (2012) found statistically significant improvements in students' four language skills. However, some researchers have also questioned the impact of EMI on English language abilities. For example, Lei and Hu (2014) recruited 64 EMI students and 72 Chinese medium of instruction (CMI) students to investigate whether the EMI programme at their case university had an effect on students' English proficiency and usage. They found no statistically significant effect of medium of instruction on English proficiency or usage. Of course, such variations in the English language results of EMI programmes internationally could be explained by factors beyond just the MOI, for example, factors such as the specific curriculum being followed, the pedagogical practices being applied,

the quality of the teaching and the students' initial English ability levels may all have affected the students' outcomes.

Interestingly, discussions of the benefits of EMI in the literature do not tend to focus on improvements in English language skills as much as some of the other issues highlighted in this section (below). That discrepancy in the literature can, however, potentially be explained by the fact that many of the commonly used definitions of EMI (see Section 3.4) do not focus on improving English as an explicit aim of such programmes, thus potentially leaving it underrepresented in studies of the subject. As discussed above, such definitions do not position improving English proficiency *per se* as the goal of EMI. Rather, "EMI is seen to give students a double benefit: knowledge of their subject, *plus* English language skills" (Galloway, 2017, p. 1, emphasis added). Similarly, Coleman (2006) argued that "[f]oreign language learning in itself is not the reason why institutions adopt English-medium teaching" (p. 4). It should also be noted, however, that achieving the other benefits, which are each discussed in more detail below, is dependent to a considerable extent on improved English language skills, meaning that that aspect of EMI does play a key role in arguments about its benefits even when it is not explicitly mentioned.

3.5.2 Staff and students' international mobility

A related driver of EMI in HE institutions is that it enhances students and lecturers' mobility; by attracting talented students and staff, institutions seek to strengthen their profiles (Galloway et al., 2017). Owing to the mobility afforded by EMI, students can more actively participate in exchange programmes or study abroad (e.g., Maiworm & Wächter, 2002; Hellekjaer & Westergaard, 2003; Lehikoinen, 2004). UNESCO (2019) statistics record that there were over 5.3 million international HE students in 2017 (compared to just 2 million in 2000, an increase of

165%). Obviously, such study opportunities can become possible only when university courses are taught in an internationally known and spoken language, such as English, and this is particularly true with respect to those countries whose first language is not commonly taught or used elsewhere. Accordingly, there is a broad consensus among researchers that EMI is a better way to prepare local students for international study. Saudi Arabia is not an exception in this regard. Kaliyadan et al.'s (2015) study of Saudi medical students identified the advantages accruing from improved English in terms of access to further studies in Western countries, which is becoming an increasingly popular option for Saudi students. According to Dr Jasser Al Hrabash, Assistant Deputy Minister of Education, in 2017 alone, about 3 million Saudi students applied for scholarship grants to study abroad (Alghamdi, 2017). The ever-growing number of students willing to take part in such programmes can be attributed to the increasing number of scholarships funded by the Saudi government (Taylor & Albasri, 2014).

3.5.3 Graduates' employability

Enhancing graduates' employability is an important goal of policymakers, employers and graduates themselves. Previous research has consistently revealed that graduates' lack of English proficiency is among the major reasons underlying unemployment issues. For example, according to a 2016 survey conducted by the Malaysian Employers Federation, over 90% of respondents agreed that graduates need to enhance their English skills to avoid being marginalised in employment (Farhan, 2019). Similarly, Serasinghe (2012) highlighted that, in some cases, Sri Lankan graduates who have completed their tertiary education in Sinhalese (L1) are marginalised in employment. Therefore, EMI has been widely implemented to address concerns regarding graduates' employability in both national and international markets. Many HE institutions internationally share the belief that, along with improving students' English skills, the interaction with other students from different countries afforded by EMI can enhance

students' intercultural competence and, consequently, their learning experience (Galloway et al., 2017). Such competence is considered to be important in terms of securing employment in the globalised market (Wijewardene et al., 2014). From a broader perspective, Ranasinghe (2012) argued that English proficiency is not only a way to obtain better employment opportunities but also a means of accessing power and privilege in society.

To date, support for the argument that EMI enhances graduate employability has been reported in numerous studies. For instance, a survey by Çağatay (2019) found that 87.1 % of the respondents believed in the capacity of EMI to help them acquire better jobs. Similar conclusions were drawn in several other studies (e.g., Doiz et al., 2011; Galloway et al., 2017; Macaro & Akıncıoğlu, 2018; Coleman, 2006; Turhan & Kırkgöz, 2018). However, some studies reported questioning of the beneficial impact of EMI on graduates' employability (e.g., Brown, 2014). For instance, Kaneko (2013, cited in Brown, 2014) found that Japanese students did not perceive EMI as a strong predictor of better employment opportunities as only 15% of the students believed that EMI would help them in obtaining a well-paid and international job. Similarly, interviewed Chinese students and lecturers reported that their day-to-day work required mainly Chinese, meaning that EMI graduates would not have decisive advantages in the job market (Pang et al., 2002). Of course, such variability can partially be attributed to the diverse characteristics of the job markets facing graduates in different countries. For example, neither Japan nor China's job markets are as dominated by (English-speaking) expatriates as those of Saudi Arabia and other countries in the GCC (see Section 3.1.2 for more on this).

3.5.4 Access to research and teaching materials

The fourth key driver of EMI is that it helps students to keep up with the most recent publications and newest scientific advancements. In fact, the quantity of research and content

materials published in English far exceeds those available in any other language. According to Weijen (2012), approximately 80% of all journals are published in English, and researchers more readily publish their findings in English than in their native languages (Weijen, 2007). Scientific research, specifically, is even more likely to be in English, with over 90% of published papers in the language that has been described as the lingua franca of science (Hamel, 2007). The same trend applies to class materials and textbooks. Various studies have identified a lack of L1 resources as a key reason for EMI, including Hamid et al.'s (2013) study in Bangladesh, Başıbek et al.'s (2014) work in Turkey, and Kim et al.'s (2014) research in South Korea. Summarising the findings of such studies, Macaro et al. (2018) stated that the lack of L1 resources appeared to be a particular issue in science and technology subjects.

In the Saudi context specifically, Al-Jarf (2008) argued that one of the main reasons why Saudi universities have shifted to EMI teaching of science subjects, such as medicine, pharmacy, and engineering, is the lack of specialized materials in Arabic. In a case study on a sample of students at a Saudi university, Al-Jarf (2008) found that the students believed it to be easier for them to read textbooks in English as they found technical terms and explanations in English to be clearer than in Arabic. In students' perceptions, English is a way to avoid the terminological issues that emerge when different terms in Arabic varieties are used to refer to the same scientific notions (Al-Jarf, 2008).

3.6 The implementation of EMI

As the above sections on the definition of EMI and the perceptions of its advantages have shown, EMI is a broad term that is open to various interpretations. It is unsurprising, therefore, that the literature shows that EMI has also been applied in a broad range of ways in HE settings. Galloway et al. (2020) recognised the diversity of EMI implementation across HE internationally

and attributed it to the varying degrees of influence of four different forces in a range of contexts: the factors driving EMI, the existence or otherwise of EMI policies, students' English levels and the support available to them, and the influence of the curriculum (which, at least partially, determines the extent to which EMI is implemented in full). Each of these four forces is considered below, alongside an analysis of what else the literature tells us about the implementation of EMI and the factors that influence its differing manifestations. This section concludes with a more detailed consideration of one of the ways in which EMI can be partially implemented: translanguaging.

3.6.1 Factors influencing the implementation of EMI

In the first category, the factors driving EMI, Galloway et al. (2020) highlight histories of colonialism and modern-day globalisation. The former category encompasses the many contexts in Asia and Africa, in particular, in which English was historically imposed as the language of power, a status that it retains even long after independence (Probyn, 2001; Ali, 2013; Evans & Morrison, 2018). In other countries that do not have the same colonial histories, the growth of EMI is linked to globalisation and the internationalisation of education (see Sections 3.1 and 3.2 for further discussion), although even the absence of the complications associated with a colonial past does not mean that EMI in such contexts is unproblematic as it is still associated with contemporary power dynamics and perceived as a threat to local languages and cultures (see Section 3.8) (Doiz et al., 2011; Hu & Lei, 2014; Aizawa & Rose, 2019). However, despite identifying that these different forces (colonisation and globalisation) influence the implementation of EMI, Galloway et al. (2020) do not specify how that influence manifests in different practices within HE institutions and classrooms. However, some other sources do report the significant difference that students in former British colonies are likely to have had more substantial exposure to English during their primary and secondary education relative to their

peers in countries whose encounters with the language are more recent or less deep (Manan et al., 2017; Sah & Li, 2018). Nevertheless, it is also important to remember that there is not necessarily a clear-cut distinction between colonialism and globalisation as countries that were subject to the former remain also subject to the latter as the phenomenon can equally impact countries irrespective of whether they have a colonial history.

The second factor influencing EMI implementation relates to policy and specifically whether or not such policies are set from the top-down (i.e., by national governments) or created from the bottom-up (i.e. by individual HE institutions). In the latter category, policies are sometimes driven by high levels of international student mobility, which encourage (or require) universities to use English as a lingua franca (Coleman, 2006). Again, it is important to remember that there is not necessarily a clear-cut distinction between top-down and bottom-up contexts as forces from both directions can influence EMI policies and their subsequent implementation. The existence of policies can determine such aspects of EMI implementation as the extent to which it is full or partial by proscribing the way in which programmes should be taught or the languages used in teaching and learning materials. The extent of EMI implementation also depends to some extent on the sort of students that universities are attracting through their policies, with lower-ranked institutions more likely to use partial EMI as a way of attracting local students, while their higher-ranked equivalents apply full EMI as a means of drawing in international students (Lin, 2019). A related factor that is of particular significance for the present study concerns the impact that a university's status (private or public) has on its implementation of EMI. Perhaps unsurprisingly, Dearden's (2015) global survey found EMI to be more common in private universities than public ones. Another important issue related to EMI policies is the extent to which they define specifically the scope of EMI and detail how it should

be applied in various contexts. The work of Barnard and Hasim (2018) has shown how the implementation of EMI at university level varies considerably in the absence of a clear policy (an issue that is of particular relevance in the context of the present study).

The third factor influencing EMI implementation is students' abilities in the language. Interestingly, Galloway et al. (2020) also mention the related issue of lecturers' language capabilities but do not include that as part of the factors influencing implementation. Instead, they focus on the students, emphasising that some may be encountering EMI for the first time when starting a course in English at a university (Macaro et al., 2019). Unsurprisingly, research, such as Lin and Morrison's (2010) study in Hong Kong, has shown that students who have been through EMI secondary education have higher English levels than their counterparts who have been educated in another language. In the European context, Wächter and Maiworm's (2014) research has shown how institutional decisions regarding the implementation of EMI have been partially influenced by the extent of students' English skills. Students' language abilities have also been connected to features associated with certain EMI courses, such as requirements to pass pre-admission English tests and the provision, or otherwise, of transitional and/or ongoing language support. Macaro (2018) identified the following four models of EMI language support: the preparatory year, concurrent support, selection and the ostrich model. The first (the preparatory year) refers to the provision of a compulsory year of intensive English classes prior to starting university, such as the PYP that is required in Saudi Arabia. The second (concurrent support) refers to students taking English for academic purposes (EAP) or English for specific purposes (ESP) classes alongside their content-focused lessons (the fact that such classes are "alongside" distinguishes them from CLIL). The third (selection) refers to students having to pass English tests such as IELTS or TOEFL before starting their course. Finally, Macaro (p. 233)

uses the term “the ostrich model” to refer to programmes in which “managers and teachers simply bury their heads in the sand and pretend that [language-related] problems … do not exist or will go away if they are ignored.” For example, Rose et al. (2020) reported on Chinese lecturers who assumed that students who had chosen EMI courses must have no problems with the English language and, consequently, needed no extra support. Such assumptions, erroneous as they undoubtedly are, could hardly be made in the Saudi context, where EMI is not a choice.

Commenting on the advantages and disadvantages of the first three models, Galloway et al. 2017 identified the preparatory year as a potential means of addressing issues around access and inequality (by supporting students with lower English levels to be sufficiently prepared for EMI), despite some evidence questioning the effectiveness of such programmes (West, 2015; Macaro et al., 2016) and other concerns about the costs for students of funding an additional year of study (an issue that does not, however, apply in the context of state universities in Saudi Arabia). The concurrent model eliminates those additional costs and has been supported as an effective method of implementing EMI by the findings of various researchers (e.g., Jiang et al., 2019). However, other studies have identified the support provided as insufficient for students with low initial English levels and highlighted students’ complaints about the unsuitability of the generic content that EAP courses tend to offer, with some calling for more targeted ESP classes internationally (Galloway et al., 2017) and in Saudi Arabia (Khan, 2020). Finally, the selection model could address issues around students having sufficient levels of English competence for the rigours of EMI courses, but it leaves unanswered questions about what constitutes a sufficient level, how that should be assessed, and whether that assessment should be tailored to the language requirements of specific subjects.

Finally, the fourth factor influencing EMI implementation is the curriculum used and the extent to which it mandates full or permits partial EMI (see Karakas, 2016, for an example of the former and Jiang et al., 2019, for an example of the latter). How exactly partial EMI is implemented varies widely across countries and institutions. In some places, courses are bilingual with, for example, materials in English and teaching in the L1 of the majority of the students (see, e.g., Mazak & Herbas-Donoso, 2014). In other places, partial EMI is defined by the percentage of the course taught in each language used (Sahan, 2020) or by permission to switch codes fluidly (Chou, 2018). All of these points are important and show the diversity of EMI application, however, by focusing on factors such as students and curriculum, Galloway et al. (2020) downplay the roles played by lecturers in EMI implementation, including the extent to which it is constrained by their abilities and the decisions that they make in their classes regarding which language to use and in what circumstances; lecturers are, of course, not merely the implementers of proscribed policies and set curricula but also active agents in the implementation process whose own beliefs, abilities and pedagogical styles play major roles in determining how that process plays out. This is consistent with Macaro's (2020) observation that most L1 usage appears to be in an ad hoc way, based on lecturers' preferences rather than on the systematic application of a set of principles, a practice that Macaro cautioned against in his work with Tian and Chu investigating EMI universities in China on the grounds that it limits students' opportunities to develop the communication abilities and academic skills in the L2 that they may need to use in contexts outside the classroom (Macaro et al., 2018). The work of Bravo-Sotelo and Melita (2021) in a state-run university the Philippines used lesson observation and recording to show how lecturers employ L1 for a variety of purposes, such as simplifying content and increasing engagement with students through jokes.

3.6.2 Code-switching and translanguaging

As mentioned above, the partial implementation of EMI often manifests in code-switching or translanguaging. As shown in Section 3.4, both these terms refer to using more than one language in an EMI class. However, there is a crucial distinction between them in that translanguaging refers to "the ability of multilingual speakers to shuttle between languages, treating the diverse languages that form their repertoire as an integrated system" (Canagarajah, 2011, p. 401) whereas code-switching describes alternating between two languages that are perceived as autonomous. Goodman and Tastanbek (2021) argued that code-switching represents a switch from a monoglossic to a dyglossic conception of language whereas translanguaging represents a further shift to a heteroglossic (or holistic) perception, which does not perceive the languages used as separate, compartmentalised entities but rather as overlapping and interconnecting. Given the tendency of some studies to view code-switching pejoratively and translanguaging positively, some scholars have argued for the use of the value-neutral term "L1 use" (Macaro et al., 2018, p. 3). However, the present study maintains the use of code-switching and translanguaging on account of the distinctions highlighted above in terms of attitudes towards L1 use, attitudes that can be seen to manifest in different approaches to the implementation of EMI.

Translanguaging can be translated into pedagogical practice in different ways depending on a lecturer's "translanguaging stance" (García-Mateus, 2020). Such stances, according to García-Mateus (2020, p.16) must be "grounded in uncovering… the ways in which language, bilingualism and multilingualism have been used… to minoritize and racialize conquered and colonized populations". Panagiotopoulou et al. (2020, p. 2) emphasised the importance of the connection between translanguaging, inclusion and social justice, describing it as "central to the

present and the future of education". Supporting such claims for the importance of translanguaging, various studies have identified benefits associated with it. For example, Goodman and Tastanbek (2021) described three benefits of translanguaging in a range of educational contexts: first, it can act as a scaffold; second, it can bridge students' worlds inside and outside the classroom, thereby increasing their chances of academic success; third, it can build dual language abilities and boost individuals' bi-cultural identities.

Supporting the first of the three claimed benefits identified above, Muguruza et al.'s (2020) study of a class at a Basque university concluded that translanguaging approaches address the comprehension challenges that have blighted attempts to introduce more extensive EMI programmes. As evidence, they cited students' positive perspectives on translanguaging and increases in their English test scores. They also speculated that translanguaging improves students' abilities to learn the course content, stating that further empirical work was required on that issue. Their study was limited by its focus on a single lecturer. Nevertheless, other studies in EMI classrooms have drawn similar conclusions (Hu & Lei, 2014; Jang, 2017; Marshall, 2020).

Supporting the second of the benefits identified by Goodman and Tastanbek (2021), Karlsson et al. (2020) claimed that it facilitates the process of making meaning, enabling students to better understand the content of lessons with reference to their previous experiences. Weaving such connections between scientific content and students' lives outside school by explicitly creating a hybrid space has been shown to beneficially impact learning in science lessons (Tan et al., 2012; Lemke, 2012). Karlsson et al. (2020) concluded that translanguaging classrooms create a third space in which students' linguistic and cultural backgrounds can facilitate their participation in the co-construction of scientific knowledge through a process that the researchers described as a "linguistic loop" (p. 2064), in which "students often express scientific concepts

and words… in their second language, while explanatory, descriptive and interconnecting words phrases used to tie semantic relations are often expressed in the student's first language" (p. 2058). Although these conclusions suggest a significant benefit of translanguaging (and are focused on science specifically), it must be noted that they were generated by a study focusing on a single primary school in Sweden, suggesting that they may not necessarily apply to EMI programmes in HE contexts internationally.

Supporting the third benefit identified by Goodman and Tastanbek (2021), Tian (2022) found that creating translanguaging spaces in a Mandarin-English dual language bilingual education programme while maintaining the language-minoritized space and privileging students' use of Mandarin was a balancing act. Nevertheless, that study found that students were able to build cross-linguistic connections and become more aware of their bi/multilingual and bi/multicultural identities. García-Mateus and Palmer (2017) also found that translanguaging provided a fair and empowering educational environment, particularly for minoritized students. They added that translanguaging strategies prompted greater metalinguistic awareness and played a role in developing bilingual identities. Other studies that have identified the benefits of translanguaging in terms of encouraging participation and promoting social justice and equity include Garcia Mateus and Li (2014), Woodley (2016) and Tai (2021).

Despite the claims of the research reviewed above, others have advised caution regarding drawing conclusions about the benefits of translanguaging in EMI contexts. For example, Galloway et al. (2020, p. 41) contend that the studies published to date have only been "useful in terms of describing how the L1 is used, they have not offered conclusive evidence in terms of the effectiveness of translanguaging as an EMI pedagogy or how L1 use might improve learning outcomes". This is evident from the results of the studies referenced above which focused on

translanguaging's impact on students' identities which, while potentially very important for self-development, is not an issue traditionally measured as a learning outcome. Galloway et al. (2020) also highlighted the need for further research to determine the optimal levels of L1 usage as an aid to content comprehension in EMI classes, although it could be argued that such a search will be extremely difficult given the very varied English language abilities of students even within some individual EMI classes let alone across different settings and countries (Peng & Xie, 2021). Other studies have gone beyond the caution expressed by Galloway et al. (2020) to identify the potential negative effects of translanguaging, focusing particularly on the extent to which it excludes those international students who do not share the L1 that is being used by the majority of their classmates (Clark, 2018; Włosowicz, 2020). It has been suggested that L1 usage may undermine the L2 acquisition benefits associated with EMI, although that does not appear to be a concern reported by either lecturers or students on such courses, which possibly reflects the lack of emphasis on English learning in the conceptualisation of EMI (see Section 3.4 for the debate on that issue). It is also important to note that research has identified various challenges associated with the implementation of translanguaging, which are discussed in detail in Section 3.7 when considering stakeholders' perceptions of the challenges associated with EMI generally.

Finally, in this section on the implementation of EMI internationally, comment must be made on the relative dearth of research investigating the extent to which L1 continues to be used in supposedly English-only settings in HE compared to studies focused on primary and secondary school education (Macaro et al., 2018). Some of the university-focused studies that have taken place include Tarnopolsky and Goodman's (2014) research in Ukraine, which identified the use of L1 for specific purposes such as classroom management, building rapport and increasing understanding by explaining terminology in more detail. The latter was also the

most common use of L1 identified by Costa's (2012) study at an Italian university. In a science-specific context, Mazak and Herbas-Donoso (2014) identified three types of translanguaging practices in a Puerto Rican university, which they attributed to English's position as the lingua franca of science: using English for key scientific terms when lecturing in Spanish, mixing Spanish and English in teaching materials, and using Spanish to discuss texts that were written in English. Similar usages were reported in Wang and Curdt-Christiansen's (2019) study that focused on a Chinese bilingual university and identified the translation of technical content as the main reason for using L1. They also noted examples of the simultaneous use of L1 and L2 to create meaning, the use of one language to summarise teaching in the other, and the usage of L1 to provide locally relevant examples. Only a relatively small number of studies have gone beyond identifying the types of L1 usage to measure the extent of such usages in EMI classes, but their conclusions suggest, perhaps unsurprisingly, that there is a significant diversity from institution to institution. For example, Rose et al. (2020) found L1 usage to be common in Chinese EMI classes, especially for classroom interaction, whereas Macaro et al. (2018) calculated that 99.37% of lecturer talk was in English at a leading university in the same country. In the Saudi context specifically, the "overwhelming majority" of lecturers in Alfehaid's (2018) study claimed to exclusively use English in their teaching, with only a minority admitting to the occasional use of Arabic. Alfeheid also noted through observation of classes that code-switching was much more common at the start of the course relative to the later stages. In contrast, Shamim et al.'s (2016) lesson observations on a PYP found that while the lecture presentations (which had been developed by the subject coordinator for all staff to use) were mainly in English, the majority of teaching and learning took place in Arabic, this included explaining concepts, giving instructions for tasks and checking that students had understood content (much more evidence on

the varied implementation of EMI in Saudi Arabia is reviewed in Section 3.7.3 on stakeholders' views).

This section has reviewed evidence for the usage of translanguaging and the advantages/disadvantages associated with it. Further consideration of stakeholders' attitudes towards it and the challenges associated with its implementation are given in Section 3.7. Before turning to that, it is necessary to look at the literature about MOI in science learning specifically, examining evidence related to the usage of both L1 and English.

3.6.3 Mediums of instruction in science learning

Interestingly, it has been noted in the literature that developed countries that are characterised by high levels of scientific and technological advancement tend to use their native languages as the medium of instruction for science education, whereas most developing countries employ a foreign language for that purpose (Skutnabb-Kangas, 1999). Soepadmo (1981) (as cited in Nomlomo, 2007) connected those decisions with the increasing of developed countries' advantages in the sciences as the understanding of students in developing countries is hampered by problems related to language. O-saki (2005) emphasised the potential that using L1 in developing countries had to integrate modern science with indigenous knowledge in ways that would be mutually beneficial. Comparative studies of school-age students have lent strength to arguments about the advantages of teaching science in pupils' L1. Surveying a range of such studies across Africa, Nomlomo (2007, p. 130) concluded that, "[Use of] the learner's mother tongue appears to enhance better understanding of science."

In contrast to the evidence presented above, regarding improved outcomes in science learning related to the use of L1 as a medium of instruction, various studies have found evidence that EMI acts as a barrier to such learning (Brock-Utne, 2004). The work of Mwinsheike (2003)

highlighted that the use of English in Tanzanian schools was impeding learning generally and science learning specifically. Similarly, Senkoro (2004, p. 44, as cited in Nomlomo, 2007) argued, “It is next to impossible for one to inherit a philosophical and moral construction of the world, and to be empowered so that one can form and manipulate concepts if all these are delivered through a medium that one has not fully grasped and does not fully understand.” All the above-referenced studies show that difficulties with the English language were not limited to the pupils as their teachers also struggled. However, it should also be noted that those studies were all focused on the school (rather than university) level. It is also important to bear in mind that problems related to the language of science can occur even when the L1 of both the teacher and the st udent is used as the medium of instruction (Nomlomo, 2007).

3.7 Stakeholders’ perceptions of EMI

Having reviewed the ways in which EMI is being implemented internationally, it is now necessary to examine what the existing literature tells us about stakeholders’ perceptions of it and the factors that influence those perceptions. This section focuses on evidence from previous studies regarding the three groups of stakeholders that are the subjects of the present study: students, lecturers and managers. For the students, Section 3.7.1 discusses the findings of previous studies on their perceptions, both positive and negative, and the influence on such perceptions of factors including the students’ level of education, field of specialisation, nationality, gender and prior EMI experience. With regards to lecturers, Section 3.7.2 reviews what past research has said about their stated views on positive and negative sides of EMI and discusses how they see their roles in EMI classes alongside the findings of previous research on the impact of lecturers’ age and level of training on their views. Section 3.7.3 examines the research focused on the perceptions of students and lecturers in Saudi Arabia specifically.

Finally, Section 3.7.4 focuses on what current research says about the perceptions of EMI of the most under-researched group of stakeholders: university managers.

3.7.1 Students' perspectives

According to available research, students' perceptions of EMI can vary considerably, from largely positive to largely negative. At the edge of the former end of that spectrum, it is not uncommon in the literature to find students expressing the opinion that EMI is essential in HE. For example, Earls' (2016) account of the growth of EMI in Germany synthesised research from other studies and quoted students' supporting EMI in the context of globalisation. In a context closer to that of the present study, Khan (2013) found that Pakistani students deemed EMI essential and connected it with modernisation and the advancement of a progressive agenda nationally. Focusing more on the advantages of EMI to the individual, Turkish students in Bozdoğan and Karlıdağ's (2013) research identified benefits including improved English and, consequently, increased access to better jobs. Similarly, students in Ellili-Cherif and Alkhateeb's (2015) study in Qatar argued that their career prospects would be improved by better knowledge of English, something that they specifically connected with its status being higher than that of Arabic. A Saudi-focused study (Al-Masheikhi et al., 2014) found that 45% of students at a college of science argued for the importance of using EMI to study science on account of its role as the lingua franca of science and technology. However, a not insignificant 30% of the respondents disagreed with that perspective. The above is only a small sample of the very many papers that have examined students' overall attitudes towards EMI, but it is a sample that is representative of what Macaro et al. (2018) summarised as some of the main benefits of EMI from the student perspective: i.e., improved personal and national prospects in a context of globalisation and internationalisation. As discussed in Section 3.2, various researchers would

argue that such positive perspectives are attributable to students' unwitting acceptance of hegemonic discourses concerning the supposed necessity of EMI. However, such critiques are perhaps guilty of downplaying the extent to which students are capable of objective assessments of the benefits of increased expertise in English for their future careers.

On the other hand, some research has discussed the overall negative perceptions related to EMI. For example, Macaro et al.'s (2018, p. 53) systematic review highlighted the fact that "a number of deep concerns have been expressed by … students … in virtually all studies consulted". First and foremost, amongst these concerns are issues related to English language abilities. Indeed, Macaro et al. (2018) noted that students "overwhelmingly … report insufficient levels of [English language] proficiency" For example, the Korean students in Cho's (2012) study claimed to only be able to understand around 60% of their lectures. Similarly, students in Qatar expressed the view that they were learning less from EMI than they would have from AMI programmes (Ellili-Cherif & Alkhateeb, 2015). Other studies with similar findings include Kang and Park (2005), Bozdoğan and Karlıdağ (2013), Islam (2013) and Khan (2013).

Other studies that connected students' reports of limited English language proficiency with poor performance in EMI classes include Aizawa and Rose (2018), AlBakri (2017), Arkın, (2013), Griffiths (2013), Mouhanna (2016) and Solloway (2016). Specifically, students have reported experiencing difficulties in comprehending lectures and materials in EMI classes due to the use of unfamiliar specialized terminology (Al Bakri, 2013; Kim, 2011). As noted by Hewson (1998, p. 318), "specialized terminology, which is not necessarily congruent between the two languages, poses considerable problems for the teacher and significant learning difficulties for students." Limited ability in English was also noted in Ismail's (2011) study where students complained of difficulties in comprehending lectures. More specifically, students reported that

they had to translate the texts first in order to understand their content (Bakri, 2013; Vu & Burns, 2014), which is a challenging and time-consuming task (Kırkgöz, 2007).

A particularly problematic area for students in EMI classes is writing, which is "arguably the most important language skill at university because students' grades are largely determined by their performance in written assignments, tests and examinations" (Evans & Green, 2007, p. 8). Yet, writing is not a natural skill and requires years of training (Irfan, 2019). The lack of appropriate training in English writing frequently results in students' failure to meet university expectations. For instance, in Irfan's (2019) study, Pakistani university students reported experiencing difficulties in academic writing and expressing themselves accurately. Specifically, Irfan (2019) also noted that most EMI students are not trained to plan, draft, structure essays, or avoid plagiarism. Similarly, in a longitudinal study on students' perceptions of EMI, Evans and Morrison (2011) found that students perceived writing to be the most challenging aspect of their university study. Specifically, the most problematic areas for the students were using proper academic style and appropriate expression of ideas. The students also highlighted difficulties with vocabulary and grammar and complained that, in evaluations of their university assignments, EMI lecturers were more concerned about the content of their assignments than about grammatical accuracy and stylistic improvement. In line with the latter finding, the results of Hyland's (2013) study on students' perceptions of lecturer feedback also revealed that EMI lecturers rarely provide accuracy-related feedback on students' writing. This is consistent with the evidence that will be reviewed in the following section (3.7.2) on lecturers' attitudes to their roles on EMI programmes.

An and Macaro's (2022) study of classroom interactions focused on a high school EMI setting in China, but it is still of interest in the context of the present study because it addresses

the question of interaction in a context in which lecturers and students did not share an L1. The researchers concluded that students "tended to prefer a classroom environment in which some L1 was permitted, or even encouraged, in order to facilitate their understanding of complex science constructs (p.1)."

The importance of classroom interaction can be understood in the context of Vygotsky's (1987) sociocultural theory (SCT) which describes how interactions initiate cognitive developments that later become internalised. His emphasis on the social character of learning informed the socio-constructivist vision of students as active players in knowledge construction and the use of dialogue-based pedagogies in science in particular (An & Macaro, 2022). Three aspects of interaction that have been identified as particularly important in the context of L2 development are comprehensible input, output and corrective feedback. Inputs and outputs become modified through the process of negotiating meaning, which was identified by Long's (1996) interaction hypothesis as being an especially important component of learning to master L2.

Interaction and the negotiation of meaning are key components in the learning process, and when using a language other than students' L1, interaction is diminished and students are not able to participate, with a consequent negative impact on their understanding and performance. Given the importance of interaction to both L2 acquisition and content learning more generally, it is unsurprising that much recent literature has focused on the nature and quality of interactions in EMI classes (An & Macaro, 2022). Lee's (2014) study in a Korean university showed that students' struggles with English and the institution's focus on lectures as a teaching method led to low levels of interaction, which undermined the learning process and discouraged students from seeking clarification when they did not understand. Other studies (e.g., Pun & Macaro,

2019; Evnitskaya & Morton, 2011) have identified how these challenges can be overcome when lecturers make more use of a wider range of their students' linguistic resources (e.g., use L1 to engage with them). An and Macaro (2022) highlighted a lack of research examining students and lecturers' attitudes to L1 usage in EMI settings in which lecturers do not share an L1 with their students.

Finally, it is important to note that some studies showed that students were critical of the English proficiency of their lecturers, stating that that negatively impacted their experience of EMI (see, for example, Hahl, 2016, a study that is also discussed in the following section from the lecturers' perspectives, and Aguilar and Rodríguez, 2012). A related issue that has attracted relatively little attention in the EMI literature concerns students' preferences for native or non-native English-speaking lecturers (NESTs and NNESTs). Few studies have investigated this issue (e.g. Karakaş, 2017; Jieyin & Gajaseni, 2018), showing that there is a need for more in-depth examination of this topic within the EMI field, especially since most of the language and content lecturers will be NNESTs. The findings of these few studies varied with some showing preferences for NNESTs and others for NESTs. For example, Inbar-Lourie and Donitsa-Schmidt's (2020) study conducted in Israel found that 55% of students agreed that the English lecturer in an EMI course should be a native speaker of English. The remaining 45% either disagreed (23%) or were undecided (22%). Participants who preferred NNESTs provided the reason that they believe NESTs might not know their L1 well, which they considered important. It was observed that students with a lower self-assessed English proficiency level showed a preference for NESTs. In Turkey, Karakaş (2017) found that students overwhelmingly preferred non-native English lecturers in content courses for a deeper understanding of the subject content and better communication between students and lecturers. The variability in the literature on this

topic suggests a range of views among students regarding how important it is for a teacher to be a native speaker. This potentially reflects the importance of subject knowledge in EMI courses (as the goal is not only language acquisition), meaning that many students may prefer a non-native speaker who has better subject knowledge. Different views may also be related to students' different levels of English. It could be hypothesised that more advanced students tend to prefer native speakers, as they can understand them when they are talking about content and take advantage of the lecturers' native speaking abilities to further improve their own language abilities. In contrast, students with less advanced levels of English may prefer non-native speakers as they can, if they share an L1 with the students, potentially use a wider range of linguistic resources to help the students overcome language-related barriers to content comprehension. Further research including students with a range of ability levels is required to examine such questions and hypotheses in more detail.

Related to the language proficiency issues discussed above, students have also reported a number of affective challenges related to studying through EMI (Vogel Schwabe, 2016; AlBakri, 2017; Masri, 2020; Kudo et al., 2017; Djafri & Wimbarti, 2018; Pascoe et al., 2020). For instance, in a study on English-speaking anxiety in EMI, Kudo et al. (2017) found that students encountered five types of anxiety: speaking confidence, fear of negative evaluation from students, fear of negative evaluation from lecturers, communication anxiety with students, and communication anxiety with lecturers. Responses indicated particularly high levels of anxiety associated with speaking confidence. This challenge affected the students' abilities to interact in EMI lectures. The authors believed that this challenge stems from the insufficient English level of the students. Rathore and Pancholi (2013) explored the effect of MOI on students' anxiety at a lecturer training college in India. They compared students who studied in the medium of Gujarati

(GMI) and their EMI counterparts. The findings revealed that EMI students suffered from more anxiety than GMI students as they were found to face challenges with expressing themselves in lectures and ask for repetition from lecturers. In addition, student-lecturers in the GMI college were more confident when delivering lessons and better able to interact and discuss academic and personal problems without being nervous. The previous study with the greatest relevance to the present study is Rafada and Madini's (2017) mixed-methods research focusing on the PYP at a Saudi university, which revealed that 55% of the 116 students completing the researchers' questionnaire experienced anxiety related to contributing to class discussions.

Nevertheless, such evidence should be balanced against the findings of studies that have shown how the affective challenges associated with EMI decrease over time. For example, Noriko's (2017) study of a Japanese EMI programme found that, with time and with students getting used to using English, anxiety levels decline. However, students with high anxiety levels tended to remain anxious throughout the semester. Further, research such as Noriko (2017) that focuses on improvements over time does not take account of those students who drop out of EMI courses altogether on account of the affective challenges such courses pose. Overall, it appears that, given the evidence about the connections between a student's emotional state and their capacity for learning (e.g., Pekrun, 2014; England et al., 2017, Downing et al., 2020), the question of the affective impact of EMI is under-researched.

The paragraphs above have provided an overview of attitudes towards EMI amongst students. However, the literature also has much to say about their views on specific aspects of EMI. Given that EMI can be and is implemented in different ways (e.g., full and partial), it is also important to consider students' attitudes to various types of EMI. Looking at attitudes to EMI as if the term represented a monolithic set of practices risks missing important variations in

student attitudes based on the style of EMI being applied in their country, institution or individual classes. In that context, research on student attitudes to translanguaging (as an example of a type of partial EMI) are particularly significant as a recent body of research posits that translanguaging practices offer potential positive solutions to the challenges associated with EMI. Supporting that positive perspective on L1 use, the students in Macaro et al.'s (2018) study in China expressed overall support for EMI but argued that L1 should be used to overcome problems with content comprehension, a practice that apparently only happened rarely according to the students surveyed. Similarly, Qiu and Fang's (2019) research (also in China) found that students' prioritization of content over language learning meant that they prefer lecturers who teach the former effectively irrespective of their language skills.

However, despite such generally positive perspectives, some studies have revealed a reluctance to embrace translanguaging on the part of students (e.g., the work of Wang and Curdt-Christiansen, 2019, on a Chinese–English bilingual HE programme). Similarly, a study by Moore (2017) focusing on an EMI programme in a Japanese university found that students were using their L1 in classes while still expressing support for their institution's policy that mandated the exclusive use of English. Summarising the findings of such studies, Galloway et al. (2020, p. 41) argued that "despite using the L1 themselves, some … students may be hesitant to support translanguaging pedagogies or bilingual EMI policies." Indeed, it appears that the majority of previous studies suggest that EMI students argue in favour of English-only instruction. Kuteeva (2020) found negative attitudes towards translanguaging amongst international students in Sweden (who did not share the L1 of the majority of their peers) in a study that identified the risks of disadvantaging such students and concluded by questioning "whether resorting to the local language in a linguistically diverse EMI setting is always pedagogically sound" (p. 297).

Similarly, and unsurprisingly, Kim et al.'s (2014) analysis of attitudes towards the use of L1 (Korean) in EMI classes revealed support from Korean students, particularly when difficult concepts were being discussed, whereas international students reported feeling frustrated and avoiding interaction at such times. Even in a non-linguistically diverse setting, which is relevant to the present study, college students at a Qatari University commented that using Arabic in EMI classes might be challenging and confusing (Ellili-Cherif & Alkhateeb, 2015). However, Belhiah and Elhami's (2015) study of attitudes towards EMI in universities in the UAE reported that "a large majority of students and lecturers were in favour of the use of Arabic conjointly with English for instructional purposes" (p. 20). Similarly, Ahmadi's (2017) focus groups with 11 students in Qatar revealed that they would prefer AMI to EMI at the undergraduate level.

Various factors have been reported to affect students' perceptions of EMI. One is their level of education. For instance, in a survey of students enrolled in a Swedish university, Bolton and Kuteeva (2012) found that, compared to undergraduate students, their postgraduate counterparts were more confident and expressed higher levels of satisfaction with EMI. Interestingly, the difference in students' perceptions could be attributed to differences in the learning environment of the two groups of students: since undergraduates would typically study in large lecture halls, while postgraduate students would do so in smaller groups with a more interactive environment, postgraduate students could have felt more comfortable and used English more frequently. Similar differences between undergraduates and postgraduate students were also observed in a study conducted by Bolton et al. (2017) in Singapore. Interestingly, postgraduate students in that study reported more difficulties in their writing than undergraduates, a perception that was echoed by their lecturer's evaluations of the two groups' abilities. Bolton et al. (2017) attributed this difference to the fact that most postgraduates were

international students (mostly from China, India and Indonesia) whereas most undergraduates were Singaporeans who typically have relatively higher levels of English.

Another factor that was found to affect students' perceptions of EMI is their major (Bolton et al., 2017). However, previous findings on the actual impact of this factor are not consistent. For instance, in Bolton et al.'s (2017) study, students majoring in engineering and science reported experiencing more difficulties in EMI programmes when compared to students in humanities and business departments (31% and 25% vs 19% and 10%, respectively). In contrast, another study of Swedish student participants (Bolton & Kuteeva, 2012) found that students enrolled in humanities programmes were less likely to favour the current or future introduction of EMI compared to their peers majoring in sciences. The authors tentatively attributed this finding to the fact that science departments generally tend to attract higher-achieving students (including students with high language abilities), who do not face as many problems as low-achieving students or those with less English proficiency. Another possible explanation provided by the authors was that, while science subjects are generally less linguistically demanding, the humanities tend to be more dependent on language. Accordingly, science students, in that institution, tend to perform better in EMI programmes than their peers from humanities departments.

The third factor that has been reported to influence students' perceptions of EMI is students' nationality and L1. For instance, a study on 89 Japanese students and 26 international students (of whom 42% were L1 English speakers from the US, UK, Australia and Canada), (Chapple, 2015) established that international students found the EMI content courses unchallenging and time-wasting while Japanese students reported the opposite, noting that the classes were either 'very' or 'extremely' difficult; significantly, 34% of Japanese students failed

their EMI exams. In another relevant study that involved a survey of 249 Korean and 61 international students from non-English-speaking countries and interviews with 23 Korean and 9 international students, Kim et al. (2014) found that international students were more positive towards the activities in EMI classes than Korean students.

The fourth factor reported in the literature to have an impact on students' assessment of EMI is gender. Aiming to explore the general tendency of female students to be more motivated to learn a new language than their male counterparts (Macaro, 2018), MacMullen (2014) explored the difference between Saudi female and male students' perceptions of the PYP offered by their university. In line with the researcher's expectations, a significantly larger proportion of female students (82%) than male students (69%) found their student learning support programme helpful. While the same gender-specific pattern was replicated in Hengsadeekul et al.'s (2014) study conducted in Thailand, the authors additionally reported an interesting nuance that female students experienced a higher level of anxiety in EMI settings, since the latter pattern is not consistent with Macaro's (2018) findings that lower anxiety levels are associated with stronger EMI preference, more research in this area is needed.

The fifth factor that had been reported in the literature to influence students' perceptions of EMI is the MOI used during their pre-university (school) education. Although this factor seemed to have a strong effect on students' judgements of EMI and on their performance (e.g., Frenette & Chan, 2015; Javed, 2016; Green et al., 2017), very little research has been done to investigate it. Indeed, Macaro et al. (2018) specifically identified that the impact of private versus state school education on EMI students in HE has been insufficiently explored. Of the research that did touch on this issue, Javed's (2016) study of Pakistani first-year undergraduates discussed how the MOI used at the students' schools affected their transitions to EMI

programmes at university, concluding that state school graduates struggled with EMI programmes substantially more than their privately educated peers. Similarly, Sultana's (2014) work in Bangladesh concluded that first-year students who had been educated in Bangla-medium state schools had more negative attitudes towards EMI than their peers who had been educated in private EMI schools. Such students also experienced academic and social disadvantages that contributed to negative feelings towards their courses and themselves, which contributed to their further marginalisation. Specifically, they felt unnoticed by their lecturers and found interaction in class difficult. Similarly, other studies have found that students from non-EMI school backgrounds reported feelings of frustration on HE programmes conducted in English when faced with group discussions, writing, oral presentations, understanding and interpreting lectures, fast or heavy accents and specialised vocabulary (see Huang, 2012; Evans & Morrison, 2011; Sultana, 2014). Interestingly, and in keeping with the general trend of students being largely positive about EMI as a policy irrespective of the personal challenges that it poses to them, Yeung and Lu's (2018) research in a Chinese university found that state school students discussing their problems with EMI were critical of the quality of education offered at their schools rather than the EMI policy on their HE programmes. Recognising that HE EMI "cannot be considered in isolation from what has come before", Macaro et al. (2018) have called for more studies that look at students' experiences in secondary school and their subsequent transitions to tertiary education. The present study aims to partially fill the identified research gap regarding the types of schools attended by students in their pre-university education (and the MOI used in those schools).

3.7.2 Lecturers' perspectives

Like students, lecturers tend to have a broad range of perceptions of EMI, ranging from largely

negative to largely positive. According to Macaro (2018), EMI lecturers can be broadly categorised into the following four types: (1) “active promoters,” i.e. EMI lecturers who willingly participate in training programmes or attain a good level that might qualify them to train their peers; (2) “consenting participants,” i.e. lecturers who recognize the changes and are prepared for changes in their roles; (3) “passive victims,” i.e. lecturers who are against EMI implementation but experience difficulties going against the rules imposed by institutional managers, and (4) “resistance fighters,” i.e. lecturers who are against EMI implementation and explicitly refuse to implement it. In part, this ambivalence towards EMI may be attributed to the complexity of lecturers’ situations in EMI settings. On the one hand, most lecturers acknowledge the utility of EMI in terms of the availability of teaching and learning materials, internationalising higher education institutions, and providing students with the skills required to compete in the globalised world (Macaro & Han, 2019; Jensen & Thorgersen, 2011). On the other hand, lecturers also have concerns regarding students’ low English proficiency levels and their own lack of competence in teaching students using their L2 (Airey, 2011; Borg, 2016; Simbolon, 2016).

Among the studies that revealed lecturers’ generally positive appreciation of EMI is Corrales et al.’s (2016) research that focused on a sample of participants in a programme at a Colombian university (one departmental director, two professors and 27 students). The researchers’ combination of interviews, questionnaires and class observation revealed that lecturers believed EMI helped students to use English in authentic communicative situations, enabling them to become more confident and creative when using the language. Another positive aspect of EMI noted by content course lecturers is related to the availability of course materials. For instance, in a case study that involved lecturers from a private university in Bangladesh,

Islam (2013) found that lecturers preferred EMI because of the availability of English textbooks and other teaching and learning materials. A further advantage of EMI noted by lecturers is related to better employment opportunities for students. In this respect, Mouhanna (2016) reported that faculty at an Emirati university believed EMI plays an important role in providing students with more opportunities to pursue postgraduate studies and improved employment prospects, both in the UAE and abroad. In terms of the perceived positive effect of EMI on the institution itself, the faculty interviewed by Mouhanna (2016) viewed EMI as a key factor facilitating their university's internationalisation and helping it to be recognised as a trustworthy academic institution and attain a higher global university ranking. These results are consistent with Earls' (2016) findings on the perceptions of EMI among German lecturers. From a different perspective, there is evidence showing that EMI lecturers evaluate positively the capacity of EMI to improve both lecturers' and students' English skills. One relevant investigation in this respect is Borg's (2016) study that involved EMI lecturers at a university in Iraqi Kurdistan. Interestingly, most lecturers at that university found it easier to explain academic concepts in English, rather than in Kurdish or Arabic. Since the students at the university were both Kurdish and Arabic native speakers, many EMI lecturers believed that English was the best medium to explain complex concepts to students with different L1s.

However, along with the positive perceptions of EMI outlined above, available research also highlights that the implementation of EMI in higher education institutions can be associated with a number of difficulties on the lecturers' side. Foremost amongst these are lecturers' concerns about students' English-language abilities, which are a common theme running through EMI research almost irrespective of the country in which the study takes place (Jewels & Albon, 2012). Borg's (2016) study in Iraqi Kurdistan, for example, revealed that three-quarters of the

lecturers surveyed believed their students' abilities were barely above primary school level. In Korea, one sample of lecturers suggested that one-third of their students lacked the abilities required to benefit from EMI (Kim & Shin, 2014) and another study of lecturers identified students' English levels as the main impediment to content learning (Choi, 2013). Rogier's (2012) work with lecturers in the UAE revealed that they identified specific weaknesses in their students' academic writing and listening skills. Even in some European contexts, studies have revealed that lecturers deem students' English proficiency as inadequate to access EMI courses (Doiz et al., 2011). Concerns have even been expressed by lecturers teaching EMI on courses in countries where English standards are typically assumed to be extremely high, e.g., Sweden (Airey, 2011). Finally, on the subject of how students' English-language abilities develop over time, some lecturers have contradicted the literature that suggests that such abilities gradually improve until students are able to benefit from EMI, arguing that the initial negative consequences of transition from L1 to L2 language instruction have a permanent impact (Dearden & Macaro, 2016). The concerns expressed by lecturers regarding their students must, of course, be viewed in the context of the natural tendency of people to blame others in the event of their own failings. Nevertheless, the consistency with which such views are expressed, and the fact that they are often supported by the students' own testimonies regarding their English-language abilities, allows us to conclude that, at least, some of the lecturers' criticisms are justified.

Another related downside of EMI frequently mentioned by lecturers is the need to modify EMI course content to fit students' level of English (e.g., Kilickaya, 2006; Breetvelt, 2018; Hu, 2019). In this respect, lecturers sometimes described their EMI classes as less precise and shallower, arguing that they needed to skip some content covered in English textbooks as it was

above students' level of English proficiency. EMI lecturers have also reported experiencing limited ability to engage in verbal interaction with their students (Blattés, 2018; Arkın, 2013). As a result of these linguistic limitations, content course instructors indicated that their teaching quality was lower in EMI (Yeh, 2014). Specifically, EMI lecturers reported slowing down the rate of delivery, simplifying content and sentence structure, adjusting teaching methods, avoiding answering or asking questions, skipping difficult material, and less interaction with their students (Bakri, 2013; Briggs et al., 2018; Mouhanna, 2016; Yeh, 2014).

Another common theme (related to the language issues discussed above) that has emerged in previous accounts is that many lecturers have concerns about their role in EMI classes (de Oliviera, 2016). For instance, content course lecturers interviewed by Corrales et al. (2016, p. 331) reported not correcting students' language mistakes or explicitly focusing on language because they believed that they were "not language teachers". The same understanding of the lecturer's role in EMI classes was replicated in several other studies (Airey, 2011; Aguilar & Rodríguez, 2012; Costa & Coleman, 2013; Kerklaan et al., 2008). For instance, in a study on EMI classes in Spain, Doiz et al. (2013) found that, most of the time, the linguistic aspects are neglected in an EMI classroom. The two main reasons for this neglect are lecturers' lack of qualifications in teaching English and their lack of time to provide language-related explanations. In most cases, lecturers expect students to have the necessary English competence to focus on the content (Airey, 2013; Soren, 2013; Ali, 2013; Rogier, 2012). In a large-scale study on EMI lecturers from 55 Asian countries, Dearden (2015, p. 28) found that EMI content lecturers "firmly believed that teaching English was not their job" and that it was the students' responsibility to improve their language skills. A similar conclusion was reached in King's (2014) study in the UAE, which analysed 45 content lecturers' perceptions of EMI. Such

attitudes are to some extent unsurprising given that the qualification for teaching on an EMI course is typically simply subject matter expertise – additional training and certification are normally not required (Macaro et al., 2019). That same study revealed a theoretical openness on the part of EMI lecturers to receiving relevant training but different opinions about the form that such training should take and a lack of willingness to expend resources and time on earning appropriate certification.

A few exceptions to the general rule regarding the lecturers' perceptions of their roles described above come from studies such as Fujimoto-Adamson and Adamson (2018) in Japan and Roothoft (2020) in Spain. What those two studies had in common, however, was that the lecturers had relevant experience and/or training that enabled them to support their students' language development in an EMI context. Indeed, the Japanese study was an autoethnographic one in which the lecturers/researchers were moving from teaching EAS to EMI, therefore they were experienced with CLIL pedagogy and using scaffolding techniques to take account of different levels of L2 ability and encourage participation in classes. The lecturers/researchers also recorded feeling open to translanguaging precisely because they perceived the primary aim of EMI to be content (rather than language) learning. Galloway et al. (2020, p. 42) described the lecturers as "language-aware and sensitive to language-related issues in EMI … [which is] … not typical of university content lecturers using EMI". Similarly, those lecturers from Roothooft's Spanish sample who had received training in CLIL pedagogies saw their role as having a dual content and language focus and used terms like "scaffolding" to describe their pedagogical practices in an EMI context. Both of these studies, however, are notable for their small sample sizes, with the former focusing only on two lecturers and the latter only including five lecturers who had undergone CLIL-related training (out of a total sample size of 59). Taken together,

these studies constitute what Galloway et al. (2020, p. 43) described as “preliminary evidence (although limited) to suggest that professional development programmes could promote language-aware teaching practices in EMI contexts, thus potentially contributing to the integration of content and language in HE”.

Given students’ struggles with English, it is unsurprising that many lecturers admit to resorting to L1 when required. However, as with the students, research reveals a variety of attitudes to such practices, including positive (e.g., Romanowski, 2020; Alzhanova, 2020) and negative (Schissel et al., 2021 Doiz & Lasagabaster, 2017) views about their impact. For example, Chang’s (2019) study in Taiwan showed that translanguaging was being employed reluctantly by lecturers who were otherwise committed to the monolingual ideology of their institution; in other words, they had not adopted what Garcia-Mateus (2020) called a “translanguaging stance” and were only using L1 because they perceived it to be a sort of “necessary evil”. Similar findings were generated by studies of the attitudes of educators in other HE contexts internationally. For example, Doiz and Lasagabaster’s (2017) work on EMI programmes at a Basque university showed that most lecturers believed that English should be the only language used in their classes. Daryai-Hansen et al. (2016) concluded that monolingual ideologies are widespread and highly influential on the thinking of both educators and students in their study of EMI classrooms in Danish universities. Tsokalidou and Skourtou (2020) identified the challenges of implementing translanguaging in the face of monolinguistic and monocultural paradigms.

Lecturers also commented in various studies about L1 usage in EMI classes disadvantaging international students, including the work of Karakas (2016) in Turkey and Roothooft (2020) in Spain. Hahl et al.’s (2016) study of a lecturer training programme in Finland

revealed another aspect of this issue as lecturers reported using L1 to make up for deficiencies in their own English levels and being dependent on Finnish students to translate for their classmates from other countries. The lecturers interviewed reported that the classroom power dynamics resulting from that dependency made them feel uncomfortable and negatively impacted their professional identities. Issues with lecturers' English language abilities leading to L1 usage have also been highlighted in other studies such as Wang and Curdt-Christiansen (2019).

On the other hand, lecturers in some studies have expressed positive attitude towards translanguaging in EMI classes and shown awareness of the benefits associated with it. For example, Romanowski's (2020) study in Poland found that lecturers generally expressed positive attitudes towards using translanguaging in their classes and were aware of the fact that the students learned faster and deeper if they are allowed to compare and contrast their first and target languages, with such practices accelerating the acquisition of content. Alzhanova (2020) conducted a study in Kazakhstan that found a similar trend among teachers. All the participants except one reported use translanguaging practices during their lectures. However, their perspectives on translanguaging as well as their practices differed depending on the grade they taught. Lecturers who taught lower grades felt more positive about using translanguaging, while lecturers of the higher grades mostly tended to use an English-only approach because students' English proficiency levels tended to be higher as they moved through the programme.

One further difficulty mentioned by EMI lecturers is the longer time needed to prepare EMI classes. For instance, in a study that surveyed Swedish lecturers, Airey (2011) reported that the lecturers complained about spending extra time translating terms and phrases and planning in more depth than they would in L1, without an equivalent decrease in their teaching load. Similarly, in Cho's (2012) study on university lecturers in Korea, more than half of Korean

lecturers stated that it took longer to prepare for EMI classes than for classes in Korean.

One additional group of challenges in EMI classes comes from limited resources and the need for training (Dang et al., 2013; Huong, 2010; Manh, 2012; Vu & Burns, 2014). For instance, in a study on the implementation of EMI in Asian countries, Baldauf et al. (2011) concluded that one of the main reasons for EMI failure is the under-resourcing of EMI programmes and their insufficient funding. Similarly, Wijayatunga (2018) argued that a major challenge in the implementation of EMI is the lack of training opportunities for the faculty. In Wijayatunga's (2018) study, lecturers who were interviewed reported having no systematic training opportunities to improve their subject knowledge and English language skills. Specifically, almost 60% of the interviewed lecturers believed that managers were unwilling to allow lecturers to go through training, while 73% of the lecturers believed that the offered training programmes did not provide sufficient support for the effective delivery of EMI classes. Finally, problems with inadequate teaching resources arising from insufficient investment in education and difficulties in accessing online resources were also reported by Dearden (2014) and Goodman (2014). Although the Saudi education system has been extensively invested in, the lack of EMI-specific training for lecturers is an issue in that context (for more discussion of Saudi-specific issues see the following section, 3.7.3).

Finally, many EMI lecturers also share the view that teaching in English, rather than in their L1, can degrade their teaching performance. For instance, in a report by the British Council/ West (2015), university lecturers believed they could make their classes more engaging by teaching in their L1 (Turkish), mentioning that EMI slowed down the pace of learning content and reduced their flexibility. Likewise, in Airey's (2011) qualitative study, which documented the experience of training courses for EMI lecturers, participants gave mini lectures in their L1.

The following week, the lecturers gave the same lectures again but in English. Both lectures were videoed and commented on by the lecturers themselves and the whole course cohort in an online discussion. In addition, twelve of the lecturers were interviewed and lecturers reported that a switch to EMI resulted in a change in their pedagogical style. For example, when using English, the lecturers reported using fewer examples, jokes and stories.

Among the factors that can affect lecturers' perceptions of EMI, an important characteristic identified in the literature is the lecturers' age. For instance, in an online survey that explored Danish lecturers' attitudes towards EMI, Jensen and Thøgersen (2011) found that younger lecturers were more likely to have a positive attitude towards increasing the number of EMI programmes, a prospect that older lecturers viewed less favourably. The authors attributed this finding to the fact that a younger generation of lecturers would typically have a higher level of English proficiency. Based on this conclusion, the authors argued that, as the older generation is replaced by the younger one, attitudes to EMI can be expected to become more positive. Similar age-related findings were reported in the Chinese EMI context (Hu, 2009). However, Hu (2009) attributed the observed difference between older and younger lecturers to the fact that EMI offered significant promotion opportunities to younger lecturers.

Another important factor that was reported to determine lecturers' perceptions of EMI was their prior professional training in EMI (Roothooft, 2020). However, the role of this factor is not sufficiently explored, as many studies revealed the lack of EMI lecturers' training (Airey, 2011; Simbolon, 2016). For instance, in a study that addressed this issue in China, Macaro and Han (2019) found that, while lecturers generally had a positive attitude to EMI certification and professional development programmes, few institutions made the completion of such programmes a priority or a requirement. Accordingly, only a third of study participants (33.1%)

reported that they had been involved in any pre- or in-service EMI training. At the same time, most lecturers interviewed in Macaro and Han's (2019) study believed they would benefit from EMI certification and training, which in that study referred to a different specialised training and professional development to help EMI lecturers to improve their knowledge, competence and skills.

3.7.3 Studies of students and lecturers' perspectives in Saudi Arabia

Most of the studies to date in Saudi Arabia have tended to focus on the views of both students and lecturers. Therefore, for the purposes of this literature review, those two groups are considered together in this section (the much more limited number of studies focusing on the views of managers are covered in the following section, 3.7.4).

The number of studies of students and lecturers' attitudes towards EMI in Saudi Arabia has increased significantly in recent years in line with the changing policy environment described in Chapter 2. A relatively early example of such a study is the work of Hasan and Abdalaziz (2012), who used a semi-structured questionnaire to examine the views of female pharmacy students in Saudi Arabia on EMI and found a preference for Arabic language education on account primarily of the "harmony between 'thinking and speaking' that is created with the use of 'familiar' language (p.429)." The researchers recommended reforming what they described as the "diabolical situation" of EMI HE programmes by permitting bilingual education which "allows teachers and students to interact naturally and negotiate meanings together, creating participatory learning environments that are conducive to cognitive as well as affective development" (p.432). The same researchers argued in favour of such approaches on account of the fact that they make it easier for lecturers to assess learning and identify additional support required. They also identified barriers that could prevent such an approach from being applied,

such as the implementation of bilingual policies, the requirement to create bilingual teaching and learning materials, and the need to train staff to deliver bilingual education effectively.

Al-Kahtany et al. (2016) used a questionnaire to investigate the attitudes towards EMI of 702 students and 162 lecturers on science programmes at the King Khalid University in Saudi Arabia, finding that the latter group were strongly in favour of the policy while the latter wanted English to be used only when absolutely necessary (e.g., when equivalent Arabic terminology was lacking). The authors claimed that difference was probably attributable to the lecturers being "mere agents of the so-called 'linguistic imperialism'", who are "blinded by the hegemony of English". However, they do not (perhaps cannot) offer proof that that is the case, nor do they explain why that hegemony should affect the lecturers more than their students. They do, however, identify other factors beyond linguistic hegemony that could compel decisions about EMI, stating that the use of English as the MOI of Saudi higher education could not be changed without "enriching the linguistic capability of Arabic". They also argued that the continued use of EMI was in line with the language's ever-increasing prominence in the fields of science, politics and economics and the preferences of both Saudi policymakers and lecturers.
On those grounds, the researchers recommended that the solution should be a "critical deconstruction of existing policies and practices," which would inform recommendations for a new Saudi HE language policy. Although providing detailed descriptions of what such a policy should look like was beyond the scope of their paper, they did recommend as a first step that the reality of English and Arabic being used interchangeably in classes should be acknowledged. They attributed differences in the extent to which Arabic and English were being used in classes to teachers' preferences and relative abilities in the two languages. They recommended following the acknowledgment of the reality of the current situation with the development and

implementation of policies that recognise the status of Arabic alongside English and that work to both upgrade the status of the former while improving students' knowledge of the latter through ESP programmes.

Shamim et al. (2016) focused on the PYP at Taibah University, engaging with seven lecturers and 19 students to gauge their views on EMI. In keeping with Al-Khatany et al.'s (2016) findings, the lecturers were found to exhibit overall positive attitudes towards EMI. However, Shamim et al.'s study also found that that attitude was shared by those students with higher levels of English proficiency. In keeping with all other studies of the subject, the researchers found evidence of challenges linked to the students' generally low levels of English ability, which required lecturers to simplify the content of their classes by using Arabic. The study also concluded that the PYP's curriculum was too similar to that of the Saudi high schools from which the students had just graduated, meaning that they did not benefit from it. Significantly, however, the author did not distinguish between the different curricula of private schools, which tend to be delivered through EMI, and those of state schools, which use AMI. Indeed, most of the studies that have looked at EMI in Saudi Arabia have failed to acknowledge the distinction between private and state schools in terms of MOI. A typical example of this lack of nuance comes from the work of Ryhan (2014, p. 141), who wrote "Arabic is the medium of instruction in all the schools and colleges up to the secondary level, hence all the subjects are taught in Arabic language only."

Shamim et al.'s (2017) study of a PYP at a public Saudi university showed a preference on the part of both lecturers and students for EMI on account of instrumental needs. Unsurprisingly, that preference was stronger amongst students with higher levels of English proficiency, with one of the students in the lowest group for English abilities stating, "It is not

fair to study in English during preparatory year because it will determine our fate. I have been studying hard during secondary school to enter the medical faculty and when I came here everything disappeared because of English" (p.40). Despite the general preference for EMI, the students involved in the study faced challenges with such programmes on account of their low levels of English, with a majority unable to read the course textbooks. Interestingly, the researchers recorded that both the coping strategies used by students and the support provided by their institution (e.g. simplifying lesson content) negatively impact content learning. Student interviewees reported that they were simply learning the English terminology for concepts that they had already learnt in Arabic at high school, suggesting that the programme was failing to advance students' content knowledge. Similarly, the lecturers reported feeling frustrated by the need to continually translate content into Arabic so that students could grasp that which they already knew. The lecturers interviewed for Shamim et al.'s (2016) study expressed dissatisfaction with the PYP because it failed to sufficiently focus on the scientific English that students required for their subsequent studies. Interestingly, the students echoed that specific critique but expressed overall satisfaction with the PYP on account of how it improved their English for everyday life (suggesting that they perceived improved English as one of the benefits of studying on an EMI programme). Shamim et al. (2016) also argued that EMI in the Saudi university that they studied was creating an exam-oriented approach to learning with little time available for discussion and developing deeper understanding of the scientific concepts being taught. They attributed that to the problems caused by students' low levels of English proficiency. Critiques of the PYP itself were echoed in various other studies focused on EMI in Saudi Arabian universities (such as Al-Adwani & Al-Abdulkareem, 2013; Tawalbah, 2014; Alblowi, 2016; Muhammad & Abdul Raof, 2019).

Alfehaid's (2018) study of a PYP at a large state university in Saudi Arabia found that both staff and students reported having positive attitudes towards EMI, with the latter group reporting improvements in their general linguistic skills and their receptive skills specifically. However, the students in the study were also found to face linguistic challenges related to EMI and, in some cases, problems related to lecturers' low levels of language abilities. These challenges and problems were reported to impact on students' abilities to learn the content of their courses. Understanding the perspectives of stakeholders can help to improve EMI courses, both in terms of pedagogical practices and, subsequently, outcomes (Alfehaid, 2018). Alfehaid (2018) also identified a lack of research on the views of students and lecturers in Saudi HE on EMI. Exceptions to this rule include Al-Jarf's (2008) study which focused on female college students. Significantly, 96% of her 470 participants stated that they considered English to be superior to Arabic on account of its global status. The vast majority of the students (86%) also considered Arabic to be the best language for teaching social science and humanities, with English generally viewed as the best language for science. Just over half (51%) of the students in Alfehaid's (2018) study reported having no problems with their courses on account of their English levels. However, it is important to remember that these were PYP students following a programme that Alfehaid criticised for too closely mirroring the high school English curriculum. Therefore, the students' reports regarding not struggling with the content of that course may not be evidence that the same students would not face problems with EMI when studying post-PYP.

Again, Alfehaid did not distinguish between state and private school graduates when reporting results, therefore leaving readers uncertain about potentially significant distinctions between the two groups in terms of challenges faced. However, a comment from one of the students interviewed for the study interestingly revealed an awareness of the inequality that

stemmed from using AMI at (state) high schools and EMI at university: “I know that studying science subjects in English is an important thing. Nevertheless, it is not fair that students are taught all subjects in Arabic at school and then in English at the university” (p. 100). Significantly, one-third of the students in Alfehaid’s (2018) study reported experiencing fear of making mistakes and/or anxiety when required to speak in English. It was not reported whether the students reporting that included a disproportionately high percentage of state-school graduates. Finally, some of the students in Alfehaid’s (2018) research reported problems with understanding the accents/pronunciation of their lecturers.

Al Zumor (2019) used a questionnaire to investigate the attitudes of 264 EMI students of computer science, engineering and medicine at King Khalid University. The study found that the use of English “has a seriously negative impact on the scientific content comprehension and assessment of a majority [78%] of the students” and blamed it for creating affective challenges (such as anxiety, frustration and embarrassment) that undermine the achievement of intended educational outcomes. 87% of the students felt that they would do better if assessments were in Arabic. However, despite accusing EMI of depriving “the students of their basic rights to effective understanding, communication, interaction, discussion and inquiry,” (p.74) the study fell far short of recommending that the policy should be scrapped, preferring instead to call for a better quality of English education in the PYP and investigations of the possibility of introducing more bilingual education.

Kaliyadan et al.’s (2015) study of Saudi medical students highlighted the link between their scores in English assessments and in the summative aspects of tests of their content knowledge although this link was, perhaps unsurprisingly, not as strong for assessment components that permitted students more time to prepare, such as written assignments and

presentations. Finally, AlHarbi (2022) studied the EMI-related attitudes of five lecturers and four students on a statistics course at a public Saudi university, finding that there was both an alignment between policies and language goals/ideologies but also a clear lack of the support required to enable stakeholders to perform effectively in a context that required the use of English.

3.7.4 Managers' perspectives

Relative to students and lecturers, there are very few studies focusing on the perspectives on EMI of a third important group of stakeholders: managerial staff in universities. The extent of that discrepancy is somewhat surprising given that such staff have responsibility for both setting policies and overseeing their implementation. Understanding their perspectives can help researchers to identify why EMI policies are being introduced and offer alternative views on the benefits and challenges associated with implementation. Integrating the perspectives of managers into research also offers valuable opportunities to triangulate data about what goes on in EMI classes because although they are not, obviously, as involved in the teaching and learning process as lecturers and students, their oversight, supervisory and quality assurance responsibilities should give them insights into how courses are being delivered. Therefore, the present thesis makes an original contribution to the field of English as a Medium of Instruction (EMI) research by focusing on the experiences and views of an often-overlooked stakeholder group: university managerial staff. By exploring the unique perspectives of this group, this study aims to provide a more comprehensive understanding of the challenges and opportunities associated with implementing EMI in higher education. Through this original contribution, the study aims to enrich the existing literature on EMI and provide insights that can inform policy and practice in the field of internationalization in higher education.

The gap in research on the views of managers within HE institutions on language planning and policy has been highlighted by Fenton-Smith and Gurney (2016) who attempted to contribute to filling that gap with their study which interviewed ten lecturers from universities across Australia who had responsibility for programme development. The researchers found that most university staff do not believe that students' basic literacy and skills in the language of instruction (i.e. English) should be a concern for them (despite the influx into Australian universities of students who have an alternative L1) as they perceive such issues to be the responsibility of secondary schools. Fenton-Smith and Gurney concluded by arguing that the present situation could be improved by the formulation of "coherent university-wide language policies, formulated by decision-making bodies representative of a variety of stakeholder groups and sensitive to program implementation needs at the micro level." Although this conclusion is relevant to the present study on one level, it is important to remember that it comes from a context that does not fit the definition of EMI chosen for this study because Australia is a country where English is the L1. Including it in this literature review, however, is justified on account of the general dearth of research engaging with people in managerial roles across HE programmes on issues related to language policy and planning.

Partial exceptions to the general lack of research engaging with policy-making staff at universities around EMI issues come from the work of Hu et al. (2014) in China and Ali (2013) in Malaysia. The former did not engage directly with managers but compared lecturers' stated beliefs with university policy documentation regarding EMI and found similarities in terms of shared expressions of belief in the potential of such instruction to increase social mobility and international career prospects. Ali's study, meanwhile, revealed different understandings of internationalisation between the lecturers and university policymakers, with the former holding

what was described as “a silent understanding” of the concept (i.e. that EMI was permitted despite the absence of any official policy contradicting the formally established commitment to the use of Bahasa Malaysia as the language of instruction). Similarly, Huang (2012) interviewed three administrators, four lecturers, and twenty-four students as part of a qualitative study of a university in Taiwan in which students took discipline-specific courses in English and general courses in Chinese, a model that was designed to facilitate their transition from L1 MOI at high school to EMI in HE. The university administrators interviewed by the researcher were strongly in favour of keeping as much content in English as possible (in contrast to the views of the students and lecturers who preferred more of a balance with Chinese). To implement their policy, the administrators communicated rationales for it and established incentives and monitoring systems. The latter category included random checks on course content, with lecturers required to write reports justifying any instances of code-switching that were identified by the checks. The administrators expressed satisfaction with the socio-cultural results of the EMI programme (e.g. they claimed to feel that it was helping students to develop into global citizens) but not with the academic outcomes (as they felt the students still struggled to produce work of sufficiently high quality in English). The administrators attributed the perceived deficiencies of the programme to a lack of funding, arguing that more money was required to enable them to recruit better lecturers (and thus also attract students with higher English levels). The enthusiasm for EMI reported by managers in that study was echoed by their counterparts in a study focused on Egyptian universities (Sabbour et al., 2010). Such stated enthusiasm is unsurprising given managers’ responsibilities for setting (or at least enforcing) such policies, coupled with an understandable reluctance on their part to criticise their employers.

The previous research with the greatest relevance to the present study is the work of

Alshareef et al. (2018) who examined the perspectives of decision-makers on the use of EMI in university medical programmes in Saudi Arabia through interviews with stakeholders at the ministerial, regulatory and university levels. Unfortunately, their paper does not always divide the responses from the stakeholders into those three groups, making it difficult to identify whether a participant being quoted is from central government or an individual university. Nevertheless, the findings clearly showed the stakeholders' overall support for EMI for reasons that included the availability of learning resources and access to employment opportunities: as one respondent put it, "International exams are all in English, interviews are all in English, the international research, on which we depend daily, is in English" (p.311). Reflecting their managerial responsibilities, the participants also identified economic reasons for choosing EMI, such as access to a cheaper English-speaking workforce and avoiding the requirement to expensively translate resources into Arabic.

Despite their overall enthusiasm for EMI, six of the eight participants in Alshareef et al.'s (2018) study also identified some downsides, foremost amongst which was the issue of communication with patients (i.e. the challenges that newly qualified doctors may face when trying to explain medical issues to patients who only speak Arabic). Some of the participants also mentioned concerns about the additional academic burden being placed on students who were required to use L2 for HE study, especially those who had not benefitted from expensive EMI education prior to university. Finally, one participant mentioned that EMI was a "threat" to the Arabic language and culture, stating "I feel ashamed of the status of the Arabic language (p.311)." The participants were also reported to be generally supportive of the hybrid use of English and Arabic, with some suggesting that basic lectures could be delivered in Arabic and clinical lectures in English. Six participants expressed support for teaching communication skills

to medical students in Arabic (at least partially).

Summarising the value of their study, Alshareef et al. (2018) identified four main contributions. First, EMI appeared to have been selected for HE medical courses without significant debate. Second, a broad consensus exists on the suitability of English for such purposes, although this co-exists with a desire to move towards an Arabic curriculum in future. Third, participants generally felt that Arabic should be used partially in current courses (particularly for teaching communication skills). Fourth, stakeholders recognised the need for nationally, and indeed internationally, coordinated efforts to make the use of AMI for medical programmes feasible. The researchers also concluded by calling for more studies that examined the views of managers, students and lecturers on the use of EMI in Saudi Arabian HE, a challenge that the present research aims to meet.

3.8 Social and cultural challenges associated with the implementation of EMI

The sections above have detailed the advantages and challenges of EMI from the perspectives of three key groups of stakeholders. However, as those stakeholders' focus is inevitably primarily on what happens in EMI classes, the issues discussed above tend to fall into the two related categories of learning and affective challenges. However, there is another group of challenges related to EMI that are not necessarily always clearly perceptible from the perspective of the individual in class; these challenges relate to the social and cultural impact of EMI. Of course, as individual members of society, students, lecturers, and university managers can and will have perspectives on such challenges. But as such challenges can also be identified by others, social and cultural challenges are presented in this section separately from the learning and affective challenges discussed in the previous section (i.e., a distinction is made here between challenges that primarily manifest in classes and those that manifest in society more generally).

The three social and cultural challenges associated with the implementation of EMI can be grouped into three broad categories (1) threats to culture and national identity, (2) social divisions, inequality and human rights, and (3) impact on languages and domain loss. First, as mentioned in Section 3.2, many concerns have been voiced about threats to culture and national identity connected to the domination of English as the primary language of instruction (Vu & Burns, 2014). In terms of the cultural threats potentially posed by EMI, the introduction of English-only instruction in higher education institutions in some countries has been seen as a threat to local culture. This view on EMI is particularly pronounced in Saudi Arabia, where EMI has been seen as "a threat that may lead to a cultural catastrophe" (Phuong & Nguyen, 2019, p. 88). According to Tamtam et al. (2012), threats to language and culture can be augmented by the negative influence of internationally trained lecturers. To facilitate the shift from AMI to EMI and to mitigate these threats, some researchers have argued for the implementation of a bilingual education policy. For instance, Belhiah and Elhami (2014, p. 21) advocated for a policy where English is seen as an "ally" to Arabic and "neither displaces the mother-tongue nor poses a threat to national identity and heritage".

Second, with regards to the impact of EMI on social divisions, inequality and the violation of linguistic rights (Kloss, 1971, as cited in May, 2015).AlBakri (2017) argued that EMI can have a disempowering influence, along with a negative psychological impact, on students with insufficient English language skills, thereby aggravating inequality in students' access to higher education. Similarly, Shohamy (2006, p. 146) wrote, "when the language that is used as the medium of instruction differs from the known language, the implication is that it is more difficult for students to acquire academic knowledge." AlBakri (2017) also questioned the positive impact of EMI on graduates' employability, arguing that, regardless of the primary

language of instruction, students should be offered equal opportunities to access knowledge and feel comfortable about learning in their own language. Bringing that argument further, Skutnabb-Kangas (2004) argued that students have the right to study in a known language and failing to offer that opportunity violates their rights, a position that was supported by Martín Rojo and Mijares (2007, as cited in Sayahi, 2015) who compared the impact of a change of MOI in one's country to that of emigrating to a new country with an unfamiliar language (without having actually left home). Hultgren (2014) highlighted fears expressed in Denmark that the shift towards more use of English in academic contexts would cut sections of the population off from access to the results of research, potentially threatening democracy. Commenting on medium of instruction policies specifically, Tsui and Tollefson (2009, p. 113) argued that such policies "[determine] who will participate in power and wealth". Tollefson (1991, p.8-9) stated that "language is a means for rationing access to jobs with high salaries. Whenever people learn a new language to have access to education or to understand classroom instruction, language is a factor in creating and sustaining social and economic divisions". Similarly, Kioko (2015) advocated for L1 instruction, emphasizing that all students should have access to such education. According to the author, L1 education "enables more flexibility, innovation, and creativity in teacher preparation", and "creates emotional stability which translates to cognitive stability" (p.1). Likewise, Albakri (2017) argued that the quality of education is "inevitably compromised if education is provided in a second language" (p. 123). Nevertheless, such arguments are swimming against the tide, both internationally and in Saudi Arabia specifically, as an increasing number of courses at both school and university levels are delivered through EMI. In that context, academic arguments about the advantages of L1 education, such as those reflected above, appear to have barely reached the ears of policymakers.

Evidence from the literature (e.g., Dearden et al., 2002; Sullivan et al., 2014) supports the contention that EMI exacerbates social divisions by highlighting the differing experiences of state and private school graduates on EMI programmes in HE settings (in cases where state school students have been educated in their L1 and private school students in English). For example, Javed's (2016) study in Pakistan found that state school graduates reported facing more challenges with managing the academic workloads of an EMI programme, completing tasks on time, asking questions and seeking clarification in lectures. Such students also required more hours of outside university tuition to complete their allocated tasks. Javed (2016) further argued that because students from private/elite schools are more likely to be from higher socioeconomic status backgrounds they receive extra attention and perform better at the university than students from lower socioeconomic status, who might face greater "performance shock" (p. 34) even if they were at the top of their classes at state schools. Similarly, Huang's (2012) study in Taiwan and Evans and Morrison's (2011) research in Hong Kong found evidence that students with no EMI experience at school faced more difficulties adjusting to EMI programmes at university compared to their peers from other school with EMI experience.

Finally, the third group of social challenges of EMI is related to its impact on other languages and their potential "domain loss" (Bot & Hulsen, 2002; Cook, 2003). Here, domain loss is defined as a situation when an entire academic discipline is "no longer … available in L1 at a national level" (Wilkinson, 2013, p. 12). Hultgren (2014) gave an even broader definition of the term, saying it refers to when a language "may lose status or functionality or be marginalised in the university domain or eventually disappear entirely". According to Phillipson (2009), many languages are currently experiencing such loss of domain, particularly in research and scientific publications, business, tertiary education, and international relations. According to Macaro

(2015), using EMI to teach science subjects will lead scholars and publishers to stop writing and publishing in their native languages, which will eventually lead to those languages' losing their status as science languages. Macaro et al. (2018, p.67) argued that evaluating the impact of EMI on L1s internationally will require "evidence both from a sociolinguistic perspective (do the speakers of that L1 report feeling disenfranchised, their language devalued or threatened?) and from an educational literature perspective (to what extent is the availability of materials and resources diminishing in the L1 as a result of EMI in general and in HE in particular?)." Hultgren (2016, p.156) was critical of the concept of "domain loss" in the Danish context however, arguing that it was "dubious" in that it was linked to romantic nationalist ideologies that assumed that there was a "one-to-one correspondence between nation state and national language".

Concerns about the adverse impact of EMI on national languages have been articulated with regard to both European languages (Wilkinson, 2013; Airey, 2004; Hultgren, 2014) and those from other language families (e.g., Kirkpatrick, 2011). For instance, based on the evidence that six out of eight government-funded higher education institutions in Hong Kong officially use EMI, Kirkpatrick (2011) argued that this weakens the status of the Chinese language. Similar concerns have been voiced in relation to the standing of Arabic in Arabic-speaking countries (Troudi & Al Hafidh, 2017; Al Bataineh, 2020). For instance, in a mixed-method study using questionnaires and in-depth interviews that focused on 200 beginner lecturers' perceptions of the use of English in higher education in Kuwait, Al-Rubaie (2010) noted that the "participants associated Arabic with religion, history, and local traditions, while English was linked to technology and science" (p. 263). In addition, the study participants referred to the English language as "the instrument for academic studies and professional promotion, and the marker of social prestige, freedom, and trendiness" (p. 262). Similarly, in the Saudi context, EMI has been

seen by many scholars as a way to create linguistic-cultural dualism between English "as a symbol of technology and modern life, travel, and employment" and Arabic as an "educationally marginalised" language that represents "tradition, religion and even worse, backwardness" (Habbash & Troudi, 2015, p. 62), which degrades Arabic to a "second-class" language. In this respect, Albakri (2017, p. 53) argued that "[t]he effect of EMI on the national language should not be taken lightly. If English is seen to serve global needs while the use of Arabic becomes restricted to local use, then Arabic will be inevitably side-lined". From a similar perspective, Raddawi and Meslem (2015, p. 85) argued that bilingual education instead of EMI might "help preserve Arabic, and potentially make speakers of Arabic believe in their mother tongue".

As a result of these trends, there have been many concerns about domain loss in the Gulf countries. For instance, Qatar launched an ambitious educational reform initiative, Education for a New Era (EFNE), in 2001 to create standard-based curricula in four areas (Arabic, English, mathematics, and science) with English as MOI in mathematics, science, and technology in schools. This plan and the decision to implement it came at a time when Qatari society was starting to express worries regarding three aspects of the socio-cultural transformations that the country was experiencing. First, the growing number of expatriates was perceived to be affecting Qatari culture and the Arabic language. Second, the use of colloquial Arabic in domains such as media and education had decreased the value of standard Arabic for younger generations. Third, the spread of English had increased feelings of insecurity about the Arabic language and was seen as symbolising a return to the colonial era when the English ruled. Once the plan was implemented, serious issues were found regarding the new policy's top-down nature, the lack of improvement in student performance, the perceived threat to the Qatari Arab cultural and linguistic identity, and how the dominance of English in education has resulted in Qatari

students' insufficient mastery of Arabic (Mustafawi & Shaaban, 2019). Consequently, to amend the situation and preserve the role of the Arabic language, the Qatari government decided to switch from EMI to AMI (Mustafawi et al., 2022).

Focusing on Saudi Arabia specifically, Barnawi and Al-Hawsawi (2017, p. 199) argued that language education policies in KSA were being driven by global changes and that those policies risked "[jeapordizing] classical Arabic and national cultural identity" if they were not guided by a strategic plan based on Saudi Arabia's local conditions. The same authors also reported that studies of policies promoting English education in Saudi Arabia consistently report the concerns of stakeholders on the grounds that "such acts could form overindulgence of English Education, commercialization, Westernization, colonial remnants, and diminishes of local language and knowledge, to name a few." Interestingly, when giving examples of the stakeholders who feel this way, the authors focus on staff and parents but make no mention of the students themselves, but it can be assumed that this is just an oversight on their part, given the findings of studies such as Barnawi and Al-Hawsawi (2017) and Louber and Troudi (2019) which show that some students share the sort of concerns listed above. Barnawi and Al-Hawsawi contrast those concerns and the lobbying work of Islamic activists with what they characterise as the aggressive projection and imposition of English by "business friendly government, neoliberal universities, and corporate bodies, in collaboration with international institutes," (p. 201) who aim to "shape public thinking about its supposed merits in local capacity building." Concerns regarding the marginalisation of Arabic and creating a disconnect between the students and their native culture have been reported in various studies (e.g. Al-Jarf, 2008; Belhiah & Elhami, 2015; Al-Kahtany et al., 2016).

Barnawi and Al-Hawsawi (2017, p.217) speculated that EMI at Saudi universities "may lead to a loss of intellectual engagement and knowledge production in Arabic". They further criticized the top-down nature of approaches to English-language education in KSA and the accompanying ongoing importation of services and products from the West, which they described as creating "a vicious cycle of dependency, self-doubt and tensions with regard to focusing on small problems (e.g., searching for the best methods of EFL teaching and piloting commercial international textbooks, etc.) while the whole house is on fire (p.218)." They conclude by calling for a uniquely Saudi English language education policy that is based upon local needs first and "negotiate[s] the link with the international framework second (p.219)." Barnawi and Al-Hawsawi (2017, p.215) refer to an earlier study by Barnawi (2012) which they describe as "a comprehensive study of the pedagogical effectiveness of the CEFR in the Saudi context" (despite the fact that it only focused on one university). Nevertheless, Barnawi's conclusion that there was no evidence of the framework impacting pedagogical effectiveness may be applicable in other contexts as may his criticisms of EFL teaching that "forcibly transplants inappropriate Western pedagogies into the Saudi context" as part of a generally disconnected and fragmented implementation programme.

Discussing the dominance of English in Saudi HE, Barnawi and Al-Hawsawi (2017, p.217) stated that academics in Saudi Arabia face significant pressure to publish their work in the highly rated, international journals indexed in the Institute for Science Information (ISI) as a way of earning recognition for their knowledge of their field. They argued that this raises the question of whether staff in Saudi universities are currently in a position to intellectually match their peers from the top-performing universities in North America and Europe and queried whether such pressure may undermine their professional identities.

One of the potential solutions to the EMI-related challenges described above might be the use of translanguaging. Despite the general positivity amongst many researchers regarding the potential of translanguaging to address some of the linguistic and social challenges related to EMI, others have identified the potential of pedagogical practices associated with translanguaging to further marginalise already minoritised language communities if they fail to take account of the complexities of the context within which they are being applied. Making that point, Garcia Mateus (2020, p.12) argued that translanguaging can be "simultaneously an instrument of oppression and liberation", referencing the fact that some students can still be excluded in diverse classrooms when their peers are permitted to use a language with which they are not familiar. Similarly, Charalambous et al. (2020) focused on using translanguaging in education to promote social justice in a context of insecurity, specifically the situation of migrant Turkish-speaking children in Cyprus. Their case studies identified the challenges that conflict can pose to using translanguaging as a pedagogy of social justice, leading them to conclude that it must take sensitive account of the constraints that stem from the cultural, historical, discursive, and ideological contexts in which classroom interactions take place.

Another possible solution that might be helpful to address some of the challenges related to EMI is increased collaboration between content lecturers and language specialists. The collaboration could take different shapes for example, the co-teaching, co-planning and co-designing of courses (whether English or content focused) and giving feedback (Alhassan et al., 2021). Some researchers are calling for more of this type of collaboration to help achieve the goals of EMI programmes. For example, in Turkey, Macaro et al. (2016) explored the possible benefits of content lecturers and language specialists participating in collaborative planning projects. They focused on the lexical content and level of all the written and spoken texts to be used before,

during and after each lecture. They also provided the Collaborative Planning Tool (CPT) as framework to be used by the nine pairs of collaborating English and science lecturers who were willing to participate to help them develop their discussion. This tool included prompts and questions that could boost the discussion and reflection on the language and content. Eight out of the nine pairs found the CPT to be useful to give them a structure and as a starting point. The lecturers also reported having a better understanding of the language issues that the students had after they participated in the experiment. The language lecturers also reported acquiring greater insights into technical language used in the content subject. Finally, all participants were positive about continuing collaborative planning. In the same context, Turkey, Ozer (2020) investigated the views of 102 content lecturers using a survey and found that lecturers believed that such collaboration is necessary and helpful, especially those who felt that their English language proficiency was low. Saarikoski and Rauto (2008) found that when content and language lecturers joined in designing tailor-made, pre-sessional language courses, students benefited because the language lecturers familiarised them with what they were going to cover in the following content lectures. Consequently, the students reported increased self-esteem and also found it easier to do tasks and assignments. Similar findings about the positive attitudes towards the potential and expected benefits of such an approach were reported in Belyaeva and Kuzenestova (2018) and in Kir and Akyüz (2020). However, even though this approach is expected to be useful for content lecturers, language specialists and students, some researchers have cautioned that such collaboration might be hindered by factors including "scepticism, reservation, and resistance from the side of the subject specialists as well as the perceived differences in status and perceptions of each party regarding the relationship between them" (Alhassan et al., 2022, p. 4). They give the example of content lecturers expecting EAP lecturers

to fix all the problems students have and to effectively prepare students for their content courses. They argue that even though these expectations might seem “normal”, it is very hard for the EAP lecturer to fulfil them alone. This is the trend in the literature, which reveals that the development of English courses, even those intended to help in EMI settings, was solely the responsibility of the language lecturers. However, recent research has recognised that content lecturers are important actors whose content knowledge can inform the English courses to better prepare the students (Pawn & Ortloff, 2011). These studies call for a shift in responsibility and joint efforts to prepare the students, efforts that may not yet be evident in reality in many contexts.

The previous studies examining the implementation of EMI and its social and cultural challenges offer valuable insights and evidence about the impact on students from diverse educational backgrounds. These studies shed light on the varying experiences of students from state and private schools, suggesting that state school graduates may encounter more difficulties and inequalities when accessing and succeeding in higher education through EMI.

It is important to approach these findings with caution and avoid generalizing them too broadly. The studies highlight the presence of social and cultural challenges associated with EMI, but the extent and nature of these challenges can vary across different educational systems and cultural contexts. Factors such as the quality of English language instruction, available resources, and support mechanisms can significantly influence the experiences of students from state and private schools.

While the studies contribute to our understanding of potential barriers faced by students, it is crucial to critically assess their methodologies, sample sizes, and the specific contexts in which the research was conducted. These considerations help avoid overgeneralization and ensure that the findings are appropriately contextualized.

Furthermore, concerns about domain loss in specific countries like Qatar and Saudi Arabia underscore the broader social and cultural challenges associated with EMI. Domain loss refers to the potential erosion of cultural and linguistic identity when English becomes the dominant language in educational and professional domains. However, it is important to recognize that the extent of domain loss and its impact can vary across different regions and societies.

To advance the existing knowledge on this topic, future research could focus on exploring context-specific strategies and interventions to address the social and cultural challenges related to EMI implementation. This could involve the development of inclusive language policies, targeted teacher training programs, and the creation of educational resources that consider local conditions and promote equitable access to education.

In summary, the previous studies provide valuable evidence regarding the social and cultural challenges associated with EMI implementation, specifically concerning the differing experiences of students from state and private schools and concerns about domain loss. However, caution should be exercised to avoid generalizing these findings beyond the specific contexts in which the research was conducted. Critical assessment of these studies, while considering contextual factors, can contribute to the development of informed education policies that strive for a balanced approach, respecting cultural identities while acknowledging the significance of English as a global language.

3.9 Learning strategies to address linguistic challenges in EMI classes.

While EMI can offer several important benefits to students in terms of their prospective employability and quality of their education, studying in an EMI environment, as discussed in Section 3.7.1, is associated with several challenges for students. From the students' perspectives, the most important among those challenges are related to language difficulties (Pun, 2019; Evans

& Morrison, 2011). This section of the literature review examines the strategies that EMI students employ to adapt to their new learning environment (Pun, 2019; Evans & Morrison, 2011; Paaxton, 2009; Yu et al., 2021). In the remainder of this section, I will briefly review previous research on the definitions and classifications of learning strategies (Section 3.9.1) and EMI students' use of cognitive (Section 3.9.2), technological (Section 3.9.3) and social strategies (Section 3.9.4). Finally, the section concludes with a discussion of the research focused on EMI students' usage of learning strategies in the specific context of Saudi Arabian universities (Section 3.9.5).

3.9.1 Definitions and classifications of learning strategies

The concept of learning strategies has been variably defined in the literature by different researchers (Oxford, 1990; 1986; Gu, 2003) at different times (Cohen, 1998, 2003). For instance, while Griffiths (2015, p. 426) defined learning strategies as "actions chosen by learners for the purpose of learning or regulating learning", Oxford (1990) defined them as steps taken by students to improve their learning. Alternatively, Rubin (1987, p. 19) defined strategies as "any set of operations, plans, or routines used by learners to facilitate the obtaining, retrieval, storage, and use of information", while Wenden and Rubin (1987) described them as a variety of methods used by students to solve problems in their learning process. These various definitions, however, focus on strategies for learning generally and do not reference the strategies used by students to overcome the challenges of learning in an EMI context specifically.

Attempting to theorise the concept of learning strategies, Oxford (2003) argued that a learning strategy can be considered helpful if it fulfils the following three conditions: (1) the strategy relates to the given task; (2) the strategy suits the learner's learning style; and (3) the student can successfully use the strategy and combines it with other strategies. If these conditions

are met, learning will become “easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations” (Oxford, 1990, p. 8). Accordingly, employing appropriate learning strategies can improve students’ skills and ability (Rastegar & Karami, 2013).

To date, several classifications of learning strategies have been proposed. For instance, O'Malley and Chamot (1990) argued that learning strategies can be classified into the following three types: (1) metacognitive strategies, i.e. strategies employed to help students recognise how they learn (e.g. reflection, self-questioning, and meditation); (2) cognitive strategies (e.g. repetition, guessing meaning from context); and (3) social strategies (e.g. cooperating with others, asking for explanations). Alternatively, Oxford (1990) proposed to classify strategies into two broad classes: (1) direct strategies (memory, cognitive, compensation) and (2) indirect strategies (metacognitive strategies, affective strategies, and social strategies). According to Oxford (2003), while students use direct strategies to deal with a new language, indirect strategies are used for general management of learning, e.g. self-related, cooperative, and independent learning (Oxford, 2003). Within the broad class of indirect strategies, metacognitive strategies are used to manage students’ learning process by, for example, monitoring mistakes, evaluating task success, or recognising their learning style. Furthermore, affective strategies are used to manage students’ emotions (e.g., anxiety), attitudes, and motivation. Finally, students use social strategies (e.g., asking questions and seeking clarification and help from others) to cooperate to perform tasks (Oxford, 2003). Regarding EMI, various studies in different contexts have identified a number of strategies that seem similar to both EFL stentings and the strategies that students might use even if they were being taught in their L1 (Holi Ali, 2020; Yu et al., 2021). The existing literature does not make specific distinctions between EMI strategies and

other strategies that involve English learning, but it seems reasonable to assume that there will be significant cross-over between the two, given that the improved English language abilities help to unlock students' potential to achieve better outcomes on their EMI programmes.

3.9.2 Cognitive strategies

According to the available literature, students extensively use cognitive learning strategies to cope with the challenges of EMI learning. For instance, in a mixed-method study conducted in a Turkish university, Soruç and Griffiths (2018) found that, in order to overcome vocabulary difficulties, students used strategies such as guessing from the context, using a dictionary, translating, using keywords, and using visuals. However, considering that EMI education involves students speaking English as their L2, the most commonly used cognitive learning strategy used in EMI settings is using students' L1 (Galali & Cinkara ،2017; Chalmers, 2019). For instance, in a study on Chinese EMI students' coping strategies, Yu et al. (2021) found that, since all study participants experienced difficulties in understanding the course materials written in English, using their first language (Mandarin Chinese or Cantonese) was the key strategy that facilitated the study participants' understanding of the course material. Likewise, in a study on engineering EMI students in Oman, Holi Ali (2021) found that Omani students often use Arabic (L1) to avoid communication problems. To be clear, the use of L1 referred to here is when students use it of their own volition as a learning strategy that they have initiated (for example in discussions with their fellow students in class) as opposed to when a lecturer has chosen to code-switch or use translanguaging practices (see Section 3.6.2, above, for more on the latter issue, which is significant but beyond the scope of this section's focus on students' learning strategies).

3.9.3 Using technology and digital tools

Along with relying on L1 to understand the content of EMI classes, a number of previous studies reported EMI students' extensive use of technology and digital tools to facilitate their learning process. In fact, both EMI and technology are considered important issues that influence modern, globalised education. As previously mentioned, EMI has posed a number of challenges for stakeholders and different studies have explored the role of technology and how it can be used in helping EMI stakeholders.

Paliwoda-Pękosz and Stal (2015) examined the use of technology in EMI settings and provided empirical evidence to support the inclusion of digital tools in such settings. In their study, most students believed that technological tools had helped them learn course content and helped create a more interactive and engaging environment where they could share their experience and look for support and interact with lecturers and classmates. Another example is provided by Yu et al.'s (2021) study in China, which showed that most students used a range of tools such as the internet and voice recorders to tackle the difficulties in understanding the materials. Similarly, extensive use of the internet and smartphones, both in and outside of the classroom, was noted by Holi Ali (2020). In addition, in a study that explored students' use of WhatsApp as a platform that could assist in language learning skills, Al Qahtani et al. (2019) emphasised the effectiveness of WhatsApp and its potential role in improving students' skills and language learning at the university level, which, in turn, would better equip them to deal with the demands of learning through EMI.

Tai and Wei (2021) explored how the use of various iPad functions allows the EMI lecturer to create a translanguaging space for supporting multilingual students' learning of new academic knowledge and thus was a strategy that the students resort to when they needed to use

their L1. The study found that the iPad opens opportunities for the EMI lecturer to facilitate content learning, create a technology-mediated space in the classroom which then enables the lecturer to teach content in a more engaging environment for learning where students can be motivated to use the iPad to help them engage in the discussion. Despite the previous studies that reported the positive influence of digital tools in the EMI context, there are still some concerns about the reliability of evaluating the efficacy of these tools in EMI courses since there seem to be little empirical evidence discussing the use of measurement tools for evaluating the effect of such technologies in EMI.

Only relatively few studies have focused on using technology and digital tools in the EMI context. However, there is much research about using technology to teach English in EFL contexts. Although the differences between the two contexts must be considered, the key similarity between the two is that they both require students to improve their English language abilities (at least in cases, such as the current one, in which the vast majority of the students are not already fluent). Among the relevant EFL studies, Golonka et al. (2014) reviewed 350 studies on technology usage in foreign language teaching and learning and found that students and lecturers use individual tools, network-based social computing technologies and mobile/portable networkable devices. The advantages of using these technologies were also identified in the literature. For example, it was found that using digital tools and technology improves students' English proficiency (Hidayat et al., 2022; Shadiev & Yang, 2020). Other studies investigated the effect of using technology as a strategy with regards to specific skills such as speaking (Chen Hsieh et al., 2017), vocabulary and grammar (Persson & Nouri, 2018). listening (Ahmad, 2016; Kodir Al-Baekani & Ridwan, 2018), writing (Kongsuebchart & Suppasetseree, 2018), and reading (Bataineh & Mayyas, 2017). In addition, technology and social media have a central role

in facilitating communication between students and lecturers, increasing students' autonomy (Tsai, 2021), and encouraging students to work collaboratively (Wu, 2018; Golonka et al., 2014). Finally, Kurtz et al. (2019), showed how accessing online test banks helped students to think more critically in preparation for their future examinations.

Even though most of the available research on using technology as a learning strategy in EFL/EMI contexts tends to focus on the positive side, some studies have highlighted the downside of using technology as strategy in tertiary education. For example, Selwyn (2016) specifically discussed the downside of technology in higher education in general. However, that paper does not talk about the academic problems that are linked to technology, such as plagiarism, or other issues such as addiction and cyber bullying. Nevertheless, the paper highlighted some problematic aspects related to using technology as a strategy. For example, technology can act as a distraction, encouraging procrastination, especially when it comes to using social media platforms. Furthermore, if students depend solely on technology, they might face problems such as connectivity.

3.9.4 Social strategies

Along with the cognitive learning strategies reviewed in Section 3.9.2, previous research has highlighted the use that EMI students make of social learning strategies, albeit to a lesser extent. For example, in an analysis of students' responses to challenges in EMI classes at a multilingual university in Rwanda, Kagwesage (2013) found that one of the essential strategies was students' use of a peer support system. In this system, a student who understood the material would explain it to the rest of the class in the absence of the lecturer (naturally, such social strategies typically cross over with the use of students' L1 described under cognitive strategies above). Likewise, in the study by Holi Ali (2020), important ways of coping with the EMI challenges

mentioned by the students included the use of peer and family support as well as external tuition classes. Additionally, Lei's (2008) study explored the writing strategies of two students at a Chinese university, identifying a range of strategies and suggesting that the two students' writing abilities were not limited to themselves but also exist within a sociocultural context. That study utilised activity theory, which is a sociocultural approach to learning. Drawing on that theory, the author showed how students used identical or similar resources differently when addressing the task. The two students were both concerned about teachers' and peers' feedback and used the feedback given to them to help them improve their writing. The two students also used two other social strategies: campus community-mediated and society-mediated strategies (discussing tasks and asking for help from people on campus, peers, and teachers and in the society like former students and uploading essay on blogs to request help and feedback). Bridging social and technological strategies, Ansari and Khan's (2020) research showed how social media can help connect students to social resources and facilitate the creation of networks that are advantageous to their learning.

In addition, the students in Yu et al. (2021) mentioned participation in short-term exchange programmes to English-speaking countries as a way to enhance their proficiency in the English language for EMI studies. Another example was presented in a two- year longitudinal study conducted by Gao (2010), who found that Chinese students who majored in economics and finance and who came to Hong Kong for an EMI university programme mainly used strategies that were socially facilitated by the help of others such as lecturers and parents. However, in that study, the focus was on students' strategy use in English learning for the EMI course instead of content learning, which is one of the main challenges in the EMI courses.

Even though some studies indicated that social strategies were frequently used in EMI settings, several found very little use of such strategies among students. For example, Xiao and Zous (2020) investigated the use of learning strategies among 100 senior EMI education students and found that participants demonstrated a medium-high level in their overall usage of learning strategies. The most frequently used strategies were compensation strategies (which are defined as the strategies used to "overcome knowledge limitations in all four skills" in learning and producing a new language (Oxford, 1990, p. 90), while affective and social strategies were the least used strategies. Finally, some studies (e.g., Jerrim, 2017; Dang & Rogers, 2008) have focused on how the use of external tutoring to support EMI students is a strategy that produces some negative consequences in the sense that it further advantages the already advantaged (i.e. those rich enough to afford it), an issue that is discussed further in Section 6.2.2).

3.9.5 Research on learning strategies in the context of Saudi Arabia

Focusing on the Saudi context specifically, Suliman and Tadros (2011) used a questionnaire to engage with 78 nursing students, looking at the strategies that they employed to cope with EMI. The strategies used were shown to be varied and to change as the programme proceeded. The major strategies that were used were positive reappraisal and planful problem-solving. In addition, the participants seemed to be very religious and attempted to avoid negative thoughts about using EMI, for example, they rated "looking to God for help" as highest. This study argued that the pattern of coping is not constant; rather it depends on the context of an individual stressful situation. The four strategies – positive reappraisal, planful problem-solving, self-controlling, and seeking social support – were rated highest at the beginning of the semester but they were reduced by the middle of the semester, and the two strategies of confrontive coping and distancing increased significantly by the end of the semester. Confrontive coping refers to

using antagonistic methods to change a situation whereas distancing refers to detaching oneself from a situation in an attempt to downplay its importance. The study concluded by arguing that students, lecturers and management shared responsibility for helping the former group minimise affective challenges and maximise learning.

52% of the students in Alfehaid's (2018) study of a PYP in Saudi Arabia reported seeking help from their peers when they could not understand lecture content (interestingly, this slightly contradicts the same study's finding that 51% of students reported no problems with understanding classes on account of their English and also suggests that 100% of the students who did struggle turned to their classmates for support as a coping strategy). Seeking peers' assistance was more popular than translating words into Arabic (a strategy that 45% of students claimed to use) but much less popular than guessing words' meaning based on context (71%).

Kaliyadan et al. (2015, p. 143) called for more attention to be placed on identifying and improving students' language learning strategies in their study of the PYP at a Saudi medical school. They concluded that "more integrative English language training combining reading, writing, speaking and listening skills in authentic medical contexts will be important in ensuring the students actually transfer the benefit of language training to their academic performance. Using role-plays and scenarios similar to actual medical consultations would go a long way in improving relevant medical communications skills in English." The researchers also recommended the imposition of more stringent language tests (such as TOEFL and IELTS) to determine entry to Saudi medical schools alongside the provision of more language support for students in the form of such initiatives as debating societies, book clubs, refresher courses, reflective essays and incentives such as offering extra credits to attendees at additional English classes outside of term time.

3.10 Research gaps

As this literature review has demonstrated, there have been studies of EMI using a broad range of methodological approaches in a very wide range of contexts. The frequency of such studies has only increased in recent years in line with the accelerating international trend towards EMI education. However, the review has also shown that the ostensibly simple term EMI actually refers to a contested and complex phenomenon and covers a wide range of different practices across the contexts in which it is being implemented. Bearing that in mind, more studies are required to fill gaps in the literature relating to the full range of contexts in which EMI is being implemented and the different ways in which it is taking place.

Saudi Arabia, as this review has shown, is an EMI context that is both relatively under-researched and also particularly interesting due to certain characteristics that distinguish it from elsewhere. For example, unlike many countries, EMI in Saudi Arabia has not been associated with the internationalization of education in the sense of attempting to attract more foreign students to the country's universities. Further, Saudi Arabia represents a context in which the overwhelming majority of students share the same L1 (Arabic), thus making it potentially fertile soil for developing translanguaging approaches.

Many of the studies in Saudi Arabia to date have had significantly quantitative components, and the present study attempts to redress that balance through its qualitative approach, exploring in detail the implementation of EMI in a Saudi university and the perspectives of stakeholders on that process. Further, studies in the Saudi Arabian context that have explicitly addressed issues such as the influence of students' previous education (i.e. AMI at government school or EMI at private school), the perspectives of managerial staff, and the potential of translanguaging approaches have been particularly scarce. Finally, research on

learning strategies in Saudi Arabia have tended to focus on the PYP rather than on the EMI courses that follow it. The present study addresses all these gaps through its research questions and the methodology used to answer those questions, which is the subject of the next chapter.

CHAPTER 4 METHODOLOGY

The present study explored EMI in Saudi STEM programmes. The study took an interpretative, qualitative approach, incorporating interviews as the main data collection instrument. Data for this investigation was based on interviews with different stakeholders. Based on the gaps identified in the literature review, the aim of the study was to investigate various stakeholders' experiences and perceptions of EMI and examine how EMI affected their educational experience. Another objective was to explore the participants' views of EMI challenges in their context and how they address such challenges. To achieve those aims, the following research questions were formed (again, based on the identified gaps in the literature):

1) How is EMI implemented in STEM programmes in Saudi Arabia?
2) What are stakeholders' perceptions of EMI?
3) What are the pedagogical, social, and cultural challenges associated with EMI in Saudi universities?
4) What learning strategies do students use to address the challenges they encounter in EMI programmes?

Answering these questions should help gain an in-depth insight into stakeholders' experiences of EMI in STEM programmes in Saudi Arabia, which could enable policymakers to consider these views when planning and implementing educational policies in this context and, hopefully, help different stakeholders to have improved EMI experiences in the future.

This chapter begins with a detailed description of the qualitative research framework (Section 4.1), including a discussion of the present study's philosophical underpinnings and the interpretative paradigm that it employs. It then discusses the case study approach adopted (Section 4.2), presents information about data collection (Section 4.3), the participants and the

sampling process used to select them (Section 4.4), and gives further details about the research site (Section 4.5). The chapter then proceeds to describe the semi-structured interviews used to gather data (Section 4.6) and the process for analysing that data (Section 4.7). It concludes by describing the steps taken to ensure the quality of the present research (Section 4.8) while taking account of all relevant ethical considerations (Section 4.9).

4.1 Research framework

Any researcher's decisions regarding the methods that they will utilise in a study are influenced by their ontological stance, i.e., how they view the nature of reality, and their epistemological position, i.e., their perspective on the nature of knowledge (Cohen et al., 2018; Creswell, 2009). Therefore, the methodological approach of the current study is formed by my philosophical view and worldview as a researcher. My philosophical view of the world is based on the idea that social reality is perceived by various people who have diverse perspectives, feelings, and opinions of events and multiple perspectives on any phenomena or incidents (Mack, 2010). As a result, this stance then affects my epistemological beliefs or what one means when they say they know something. Both the ontological and epistemological assumptions together shape what is termed as the paradigm. The interpretive paradigm informed my epistemological assumptions and affects my views of social reality as a construct based on individual interpretation, which means that incidents and events are unique and cannot be generalised and that social reality is subjective. The following section examines the interpretive paradigm in more detail.

4.1.1 The interpretive paradigm

This study was informed by the interpretive paradigm, which is distinguished by its interest in the individual and its central goal of understanding each participant's subjective experience of the world (Cohen et al., 2018). The interpretive paradigm builds knowledge from participants'

experiences and the ways in which they have made sense of the various dynamics that have shaped them within their natural settings (Nomlomo, 2007). This paradigm is characterised by the following three assumptions: first, that social reality is constructed based on individual interpretation; second, that incidents and events are unique and cannot be generalised, and third, that social reality is subjective but that it can also be constructed from the various accounts.

This paradigm also seeks to understand the reality through participants "perceived knowledge" (Carson et al. 2001, p. 6). Therefore, to explore a phenomenon, the researcher has to interact with the participants to understand their point of view. The interpretive paradigm arises from the belief that social realities are different. Hence, the social world has to be explored from within and cannot be observed objectively from the outside to understand a phenomenon in a specific context. In other words, there is no one objective reality but different realities created through individual interactions (Grix, 2010; Mauthner & Birch, 2002). This paradigm also takes into account how participants make sense of the world through their experiences. Therefore, interpretivist studies seek to explore participants' interpretations and how they construct meanings by describing their intentions, beliefs, values and reasons (Cohen et al., 2018; Mack, 2010). Usually, knowledge is obtained inductively to generate a theory in interpretive research (Mack, 2010). According to Nomlomo (2007), this is often achieved by adopting research methods that appear in natural settings, such as observations, interviews, and other qualitative approaches.

Following Henning (2004), I applied the interpretive paradigm by attempting through interviews and analysis to capture the participants' lives and understand the meanings that they attached to their experiences. More specifically, I drew on the interpretivist paradigm in the early stages of my study, particularly during the process of designing and selecting the instruments to

be used in the study and the data collection process. The ontology, therefore, shapes the way that the study was conducted throughout the research, including the analysis and discussion.

4.2 Research approach

This study is based on stakeholders' experiences with EMI. Informed by the interpretive paradigm discussed above, the current study aimed to investigate different stakeholders' perceptions and experiences of the EMI policy in Saudi Arabia. Similar studies of EMI have employed a wide variety of different approaches according to Macaro (2018), who stated that "in all phases of education, no particular design type stands out as being the one most adopted by researchers in order to explore the research questions." To achieve the aims of the present study, I focused on a case study of one Saudi government university and concentrated on students majoring in sciences. Gall et al. (2002, p. 433) characterised a case study as the "most widely used approach to qualitative research in education". The present study is qualitative on the grounds that such an approach is the "method of choice when researchers seek to understand processes, events, and relationships in the context of the cultural and social situation" (Sullivan & Ebrahim, 1995, p. 196).

Yin (1981, p. 59) defined the case study as a research strategy that can be distinguished from an experiment or history in its attempt to examine "(a) a contemporary phenomenon in its real-life context, especially when (b) the boundaries between phenomenon and context are not clearly evident". The case study approach is consistent with both the interpretive paradigm and qualitative design in a number of aspects, such as triangulation, studying the phenomena in its natural setting, small sample size, and the focus of investigating the phenomena from multiple perspectives to capture its complexity (Simons, 2009). Similarly, Merriam (1988) outlined how a case study results in an "intensive, holistic description, and analysis of a single entity,

phenomenon, or social unit being studied". The case study design is very appropriate for inductively generating a new hypothesis or identifying new variables, whereas quantitative research is less strong in that area. Researchers using the case study approach are not restricted to pre-existing/determined, well-defined datasets or quantified variables (Yin, 2009 as cited in Starman, 2013). This study is, indeed, interested in what the participants share instead of depending on preconceived ideas. Because it explores interesting aspects of educational activities, programmes, institutions, or policies, a case study focused on education can inform the debates of lecturers and theorists and the decision-making of policymakers (Bassey, 1999). Such studies seek to describe how it feels to be in a specific situation to catch the close reality, "rich details" and "thick description" (Merriam, 1988).

Another aspect that characterises the case study approach is triangulation (i.e. employing different data collection methods within one study) (Yin, 2009; Heigham & Croker, 2009). This approach accepts that various variables may be operating simultaneously in a single case. Thus, to be able to catch the effects of those variables, more than one data collection instrument is needed. However, in the case of the current research, due to circumstances beyond my control (COVID-19), the observations and document analysis that were initially planned got cancelled. The case university was shut down, and it opted for online learning to protect both students and lecturers. Likewise, the documents I intended to use were not available online. My initially planned visits to the Ministry of Education to access them were not possible during the pandemic., despite those setbacks, this study employed a different type of triangulation, which is the triangulation of participants. Data from three sources: students, lecturers, and administrators/policymakers were collected and compared as part of that triangulation process.

The current study fits the conditions of case study design. First, through the interpretive approach, it aimed to understand multiple social realities through participants' eyes. Second, the current study did not intend to manipulate the stakeholders' behaviours. Instead, it looked to understand their lived experiences and provide them with an opportunity to express their views. A case study design provides an appropriate method to investigate stakeholders' experiences since it enables the researcher to collaborate closely with the participants, which in turn helps the participants to speak about their personal experiences, views, and beliefs, consequently, enabling the researcher to understand their behaviours and attitudes (Lather, 1992).

while case studies provide in-depth understanding of a specific phenomenon or context, they are also associated with several limitations. firstly, the generalizability of case studies is often limited due to their focus on a single case or a small number of cases. to mitigate this limitation, researchers can use purposive sampling to carefully select cases that represent a range of characteristics and contexts and triangulate their findings with data from other sources. secondly, case studies are prone to researcher bias due to the subjective interpretation of data. to address this, researchers can use multiple data sources and triangulation to verify the findings and interpretations of data. additionally, researchers can employ a reflexive approach to critically reflect on their own biases and assumptions. thirdly, case studies can be resource-intensive and time-consuming. researchers can mitigate this limitation by carefully selecting cases that are representative and relevant to the research question. they can also use multiple sources of data, such as interviews, observations, and documents, to gather rich and comprehensive data while minimizing the need for extensive fieldwork (Wikfeldt, 2016).

By focusing on one university in Saudi Arabia, this study provides an account of the complexities and challenges experienced by different stakeholders in that context. This study did

not intend to generalise its finding to the broader population. Instead, following the interpretive perspective, it sought to understand the uniqueness of specific contexts, which may not have been possible if other methods had been employed. Of course, the intention was still that the findings would have some relevance to other contexts but, following Thomas (2010, p. 576), the idea was that such relevance would come from the production of the "exemplary knowledge… that can come from [the] case… rather than [from] its generalizability".

4.3 Data collection

As mentioned previously, the majority of the data used in the present study were collected via semi-structured interviews. In general, interviews are the most commonly used data collection instrument in qualitative research (Dörnyei, 2007; Kvale, 2007). There are several advantages that differentiate interviews from other methods. First, interviews can provide richer and more detailed data than other data collection methods, such as surveys. Second, unlike more formalised data collection techniques or approaches that presuppose the participation of several participants at a time (e.g. focus groups), semi-structured interviews allow a researcher to interact with the study participants in a more relaxed atmosphere (Boyce, 2006). Third, interviews allow one to investigate implicit aspects that are relevant to the studied topic, such as respondents' attitudes and emotions (Wellington & Szczerbinski, 2007). In this respect, Seidman (2006, p. 9) noted that

> [a] basic assumption in in-depth interviewing research is that the meaning people make of their experience affects the way they carry out the experience …. And the purpose of in-depth interviewing is not to get answers to questions, nor to test hypotheses, and not to "evaluate" as the term is normally used. At the root of in-depth interviewing is an interest

in understanding the lived experience of other people and the meaning they make of that experience.

Furthermore, semi-structured interviews provide access to past incidents that the researcher would not be able to observe otherwise (Scott & Usher, 2011) and give respondents a chance to be heard and share their own perspectives about the phenomenon under study (Wellington, 2015). In the present study, semi-structured interviews were conducted with each participant individually to allow them to freely share their personal stories and experiences in a more private, stress-free environment. The choice of that format, i.e., one-to-one interviewer/interviewee interaction, was based on my assumption that some of the respondents would have felt uneasy sharing their personal stories or feelings about EMI in a focus group in the presence of their peers, especially when discussing the problems or challenges they had to face.

In addition to the data generated by the semi-structured interviews, I gathered, examined and analysed various relevant documents as follows: the textbooks (in English) that the university requires for each course, one rubric of an oral examination (presentation) for group work, a range of teaching materials (such as lecturers' slides and the game that one lecturer used to help encourage and motivate students to learn), two lecturers' syllabuses to show how their courses were organised, students' notes and the materials that they use to try to help them on their EMI courses.

4.4 Participants

Since this is a qualitative investigation that aims to gain an in-depth understanding of the participants' lived experiences, practices, and behaviour with regards to EMI, the initial decision

was to recruit a small but very diverse sample. According to Staller (2013, p. 407), sample size "matters in an objectivist's epistemological framework because you need large enough numbers for statistical power during analysis". In the present study, similar response patterns were identified by the second round of interviews. At that point, additional coding becomes unnecessary, and enough information has been gathered to both complete and replicate the study (Fusch & Ness, 2015).

However, a considerable effort was invested into getting a very diverse sample of participants. Specifically, respondents for the interviews were recruited using the so-called maximum variation sampling technique (Creswell, 2009). By definition, this sampling technique "only investigates a few cases, but those which are as different as possible to disclose the range of variation in the field" (Flick, 2009, p. 123). Creswell (2009) noted that, in a case study, it is preferable to select unusual cases so as to capture multiple perspectives on the research problem. Accordingly, in the present study, I opted to use this technique to ensure the diversity of the sample and to get access to a wide range of perceptions and perspectives associated with EMI.

As previously mentioned, the study participants included students, lecturers, and managers studying and working at the same university in Saudi Arabia. To ensure the recruitment of a diverse sample for each of the groups, I first determined the criteria that had to considerably vary among the participants in all three groups so as to obtain rich data (Patton, 2001). For the group of student interviewees, the criteria that were considered significant variables that may affect the students' EMI experiences were being at different levels (i.e., senior, junior) and previous education experiences (i.e., the type of school they graduated from) (Aizawa & Rose, 2019; Evans & Morrison, 2011). To select participants for the study, I followed a multi-step approach. First, I used the enrolment register to identify students from public and

private schools. Next, I contacted a manager at the university who had access to information about the schools that each student graduated from. The manager then reached out to potential participants from each group. Once the potential participants agreed to participate, the manager provided me with their contact information. I then directly contacted each participant to explain the study and seek their consent to participate. Using this approach, I was able to select a diverse range of participants from both public and private schools, which facilitated a more comprehensive understanding of the research questions. A total of six students were recruited: three students who had graduated from international/private schools and three students who had graduated from government/public schools. Prior school experience was believed to influence students' EMI experience at the university since private and government schools use different languages of instruction, English and Arabic, respectively. Furthermore, I also assumed that students at different levels of their STEM programmes (i.e., junior vs senior students) would have different perceptions of EMI because they would have been exposed to English for different periods. Of note, however, all interviewed students had completed their preparatory year by the time of data collection, so all of them were in the position to evaluate their experience in the EMI classroom and to identify their perceived challenges. Finally, the sample included students majoring in different subjects, such as medicine, applied sciences, and biochemistry. All students were female, since it was a female-only university, aged over 20 years old, and Saudi nationals who spoke Arabic as their L1 since I decided to focus on L1 Arabic respondents and, at the same time, the university only accepts Saudi students (see Table 4).

Interviews were also conducted with five lecturers. To diversify this group of respondents, the recruitment criteria involved the teachers' L1, specialisation (i.e., taught course) and academic degree. First, lecturers' first language — and, thus, their ability to use the students'

mother tongue (Arabic) — was assumed to have an impact on the teachers' implementation of EMI (Mouhanna, 2016). Overall, four L1 Arabic lecturers and one L1 Pakistani lecturer were included in the sample. With regards to the lecturers' area of specialisation, the interviewed teachers were from the range of departments in the faculties of basic science and applied science since this study focused only on STEM programmes. Finally, with regards to their academic degree, two lecturers had PhDs, while three had master's degrees and all of them had pursued their degrees abroad (see Table 5). All interviewed teachers were female.

Finally, three managers — two male and one female, all with PhD degrees and serving as heads of their respective departments — were included (see Table 6). Managers at the studied university usually combine teaching (to a lesser extent than lecturers) and administrative tasks. Accordingly, during the interviews, they were asked questions about their implementation of EMI as both teachers (e.g., in terms of language use in the EMI classroom) and as managers (e.g., with regards to relevant regulations at the university).

Table 4

Students' Demographic Characteristics

Code	Faculty	Age	Gender	L1	MOI at school	School type
S1	Applied science	20	Female	Arabic	Arabic	State
S2	Medicine	20	Female	Arabic	English	Private
S3	Medicine	21	Female	Arabic	English	Private
S4	Biochemistry	21	Female	Arabic	Arabic	State
S5	Applied science	23	Female	Arabic	Arabic	State

S6	Medicine	22	Female	Arabic	English	Private

Note. MOI = Medium of Instruction

Table 5

Teachers' Demographic Characteristics

Code	Faculty	Age	Gender	Degree	L1
T1	Applied science	27	Female	MSc	Arabic
T2	Applied science	30	Female	MSc	Arabic
T3	Science	32	Female	MSc	Arabic
T4	Science	39	Female	PhD	Pakistani
T5	Applied science	45	Female	PhD	Arabic

Table 6

Managers' Demographic Characteristics

Code	Faculty	Age	Gender	Degree	L1	Position
A1	Science	35	Male	PhD	Arabic	Head of the college
A2	Applied Science	39	Male	PhD	Arabic	Head of the department
A3	Science	34	Female	PhD	Arabic	Head of the department

Follow up interviews were conducted with five participants; A1, T1, T5, S1, and S2, I gained valuable insights into the impact of Covid-19 on the EMI programme and was able to crosscheck information gathered from other interviews. This information serves as a strong argument for my thesis, highlighting the importance of Covid-19 in shaping the current state of the EMI programme. Follow-up interviews proved to be an essential tool in this research, allowing me to delve deeper into specific topics and to clarify any ambiguities or inconsistencies that arose during initial interviews.

4.5 Research site

The case university in Saudi Arabia was chosen for the following three reasons:

1) It offers a one-year intensive English programme (preparatory year).
2) Its students are required to study STEM programmes through EMI.
3) It is a public university.

The case university offers different types of programmes for undergraduate and graduate students of both genders. The university is funded by the government and accepts mostly Saudi students, although occasionally they also accept non-Saudis. Staff and faculty are diversified, come from different countries, and speak different languages. The entry requirements at this university are similar to those at other government universities in Saudi Arabia. With regards to proficiency in English, the applicants are not required to pass any English standardised test; however, they are required to pass two tests in Arabic: an aptitude test (Qudrat) and an achievement test (i.e., a multiple-choice test that covers major scientific subjects) (Qiyas, 2019).

Upon admission, all students must complete a preparatory year programme (PYP). During the PYP, about two-thirds (68.75%) of the classes are devoted to English for academic purposes subjects (reading, writing, oral skills and grammar). The remaining subjects are Arabic,

Islamic studies, biology, physics, and chemistry. After the PYP, the students are admitted to the major/department based on their highest GPA, available places and personal preferences. For example, the Department of Applied Science requires students to get 4.50/5 GPA or higher in the preparatory programme, while the Medical School asks for 4.80/5 GPA. Therefore, if a student's GPA is 4.88/5, s/he may apply to both schools and state his/her preferred choice.

4.6 Semi-structured interviews

The initial plan was to conduct the interviews for this study face-to-face. However, due to the restrictions related to the COVID-19 pandemic and the university's decision to go online in March 2020, I had to conduct the interviews online through Zoom. Prior to arranging the interviews with all study participants, I conducted a pilot interview with one student to help me find out which questions were perceived as unclear or complicated and evaluate the average length of an interview to be able to inform the participants to make their arrangements accordingly. After the pilot study, the wording of some questions was modified so as to make them as straightforward as possible. In addition, some questions were omitted because they were answered in responses to other questions and there was no need to repeat the question in different words.

The interview schedule was refined multiple times after receiving my supervisors' feedback, the results of the pilot interview, and translating the questions into Arabic for the student who asked for her interview to be conducted in Arabic. Since the interviews were semi-structured, I did not strictly follow the predetermined schedule – rather, I was flexible with the order of the questions and asked what was appropriate and relevant during each individual interview. When I finally felt that the schedule was suitable and would help me to obtain the information I needed, the data collection phase was started.

The contact details of potentially eligible participants (with regards to the criteria discussed in Section 4.4) were obtained from a manger working at the university. Before sharing with me such candidate participants' contact data, the aforementioned manager asked each respondent if s/he was willing to participate in the study. Once this willingness was explicitly stated, the manager provided me with their email addresses and WhatsApp numbers. Then, I sent candidate participants an official invitation to participate in the study. The invitation e-mail provided all relevant information about the study's research purpose, topic and methodology alongside further details about participation. Candidate participants were also asked to read and sign two consents forms: one to be interviewed, and the other for the interview to be audio/video recorded (through Zoom). None of the participants agreed to be video recorded. This might be related to cultural and religious reasons, since most of the participants were female, they did not feel comfortable being video recorded. Before the interviews, the participants were also asked to indicate in what language they wanted to be interviewed. All interviewees except for one expressed their willingness to be interviewed in English. The transcript of the only interview conducted in Arabic was translated into English and checked for translation accuracy by a Saudi English lecturer. Once all signed consent forms were received, I arranged for the interviews to be conducted at a suitable time for each individual respondent. An interview schedule was designed for each of the three groups of participants (students, lecturers and managers).

The length of the interviews ranged from 30 to 40 minutes. I started each interview with thanking the participants for their time, introducing myself, asking if they had any questions before we started and, finally, briefly talking about the research. That was followed by reassuring the participants that their identities would remain confidential through using codes when citing their responses in the research findings and by removing any identifying information from their

responses. I also explained that the interviews were not intended to judge the participants' experiences, beliefs, or ideas.

The interview schedule consisted of the following three main parts: background information, main questions, and secondary questions that were mainly guided by the research question (see Appendixes A–C for further detail). Open-ended questions were used to encourage the participants to flexibly address the topics and to provide more detail on the topics as they emerged during the interviews. Finally, open-ended questions were designed to ensure that my own preconceived notions did not affect the participants' responses. Whenever I suspected that the participants did not understand a question, I used examples and prompts to clarify it. I was also flexible in my application of the interview schedule by, for example, adding in additional questions in response to issues raised by participants. At the end of the interviews, I asked the participants if they wanted to add any further ideas, stories, or concluding thoughts to ensure they discussed everything that they had experienced, even if it had not been covered during the interview. Finally, I closed the interviews with words of gratitude and appreciation for the respondents' time and participation and asked them if they would allow me to contact them if I had further questions.

After each interview, I wrote a memo that included my feelings, as well as noted down some information about how the interview went and about the participant. Specifically, I used memos, defined as "the narrated records of the theorist's analytical conversations with him/herself about the research data" (Lempert, 2007, p. 247), to document my thoughts, feelings, and ideas during the interview to remember them later. I also wrote in those memos some of the codes that came into my mind while the participants were speaking (Braun & Clarke, 2006;

Ritchie et al., 2013). For example, when I felt that the participants contradicted themselves or were emotional about a particular topic, I wrote a note in the memo.

The interviews were conducted in two rounds. In the second round of interviews, I went back to five of the interviewed participants to ask them more about their ideas or thoughts that they expressed vaguely or with insufficient detail in the first round. I also recruited a new student participant to help the research to move towards a saturation point.

4.7 Data analysis

The interview data collected in the present study were analysed using thematic analysis. Such a thematic analysis enables researchers to examine, from an interpretive methodological standpoint, the meanings that people attach to their experience and the importance of that experience in their lives. Furthermore, thematic analysis is an appropriate tool to examine how people make meaning out of their experiences and how they construct social reality through meaning-making (Kiger & Varpio, 2020). Specifically, I used the model suggested by Braun and Clarke (2006, 2012). This model provides a flexible approach to analyse collective experience and can be modified according to the needs of a specific investigation (King, 2004). Following Braun and Clarke (2006), thematic analysis unfolded in the following six steps: (1) familiarisation with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the findings. In the remainder of this section, I provide further detail on each of those steps.

To analyse the documentary data for this study, I utilized a coding process. First, I gathered various types of documents including teacher slides, syllabi, and student notes. I then carefully reviewed and identified key themes and patterns in the data. For instance, when students reported that some lecturers deduct marks for grammatical errors, I cross-checked the

syllabus to verify the validity of this claim. I also analyzed the teacher slides to observe how lecturers used both the students' first language and English in the classroom. Triangulating the information from these various sources allowed for a more comprehensive understanding of the research question. The documentary data was a valuable source of information that allowed for a deeper exploration of the research topic. By utilizing multiple types of documents, I was able to corroborate findings and uncover previously unnoticed insights. Nonetheless, this method of analysis also posed some challenges, such as the need to ensure the accuracy and reliability of the data. Therefore, it was essential to be critical and rigorous in the analysis process, and to document the decisions made in the coding process for transparency and reproducibility.

4.7.1 Familiarisation with the data

The familiarisation phase started with transcribing the audio recorded interviews using TEMI software. This software automatically transcribes audio files and offers the choice of including filling words and pauses as well. Since some words and parts of the interviews were not correctly transcribed, I manually revised the unclear parts of the transcripts afterwards. The parts of the interviews that included social talk in the beginning and at the end of an interview were omitted, as their only purpose was to make the participants feel relaxed and talk freely.

The only interview that was conducted in Arabic was first transcribed and then translated to English. The quality and validity of a translation depend on two key elements: the translator's knowledge of the source language and culture and his/her proficiency in the target language (Vulliamy, 1990). Taken that into account, I judged myself to be capable of performing this translation, as I have the same L1 as my research participants and am an English language teacher. While translating the interview transcript, I paid close attention to "cross-cultural meanings and interpretations and […] the problems of meaning equivalence within the research

process" (Temple & Young, 2004, p. 168). When translating the transcript from Arabic to English and translating participants' words when they occasionally switched to Arabic, I focused on meaning equivalence rather than literal correspondences. For instance,"طلعت عيني in Arabic literally translates as "my eye came out" but means "it was very challenging". In this and other similar instances, translation was made based on the intended meaning to make it easier for non-Arabic readers to understand the transcript. To assure the quality of my translation, the transcript was independently translated by another L1 Arabic English lecturer at the university. Keeping in mind the subjective nature of the translation process and the fact that translation its itself is considered a type of interpretation, the two translated versions were compared. The small differences between our translations did not affect the core meaning of the original interview; minor divergences were resolved through discussion.

4.7.2 Generating initial codes

The second step of the interview data analysis was generating the initial codes. Coding is defined as the process that enables a researcher to identify themes in their data by labelling a part of the text with a word or phrase to enable easier recognition of these expressions later (Kvale, 2007). This stage included reading the transcripts line by line to identify key ideas or phrases, followed by sorting the data to search for patterns and starting the coding process. In this process, I grouped segments of texts with similar meaning under the same code. At this stage, almost a hundred codes were identified, such as "advantages of English medium instruction (EMI)," "school experience," "difficulties in speaking," "lack of training," "addressing challenges," and "lecturers' proficiency". In order to identify any relationships or recurrent topics for further investigation, the coding was performed manually using colour coding – i.e., similar themes, ideas and key concepts were each assigned a specific code colour (see Table 7, below).

Table 7

Example of Manual Colour Coding

2	Some of my lecturers are excellent in English, their level is great, and I benefit a lot from them. They speak like native speakers. Others are okay, not very well.	• Lecturers' proficiency
1	When you say okay, what do you mean? Are you referring to the way they give the lecture?	
2	I face a lot of issues with the question format in exams. For example, one of my lecturers used the WH form (Why) in a question and what she actually wanted from us was to write the definition of a certain term. We did not know what to do at the time. Another lecturer copied a question from a slide and then added a random Wh-question form (What). This is why it is very difficult for the students to understand what the lecturer really wants To be honest, in the exams, where problems like this occur, I become very hesitant to ask the lecturers. I feel that the problem is from me, that I did not understand the question or something. But it really helps when a student with high level of English ask for a clarification from the lecturer or point out the mistake.	• Struggles in the exams • Lecturers' proficiency • Not feeling confident enough to question the lecturers' proficiency or to point out mistakes

To triangulate the methodology and add new aspects not covered by manual analysis, the thematic analysis described above was complemented with thematic analysis using the NVivo software (version 12). In this analysis, the transcripts were imported into NVivo12, and initial codes (called nodes in NVivo) that captured the important features within the data were generated (Braun & Clarke, 2006). Each node was then evaluated for its relevance in terms of the research questions and objectives of the present investigation. After developing the potential nodes within the data, all relevant information was organised under these nodes.

Next, through an iterative process, the obtained nodes were refined, organised, and sub-categorised meaningfully into sub-nodes. For instance, within the node “EMI teaching techniques used by lecturers and managers”, there were the following sub-nodes: (1) providing additional

materials, such as lists of key terms translated into the students' L1; (2) organising vocabulary quizzes to help students better memorise the terminology; (3) running an additional (self-evaluation) test before the official exam; (4) using L1 for additional explanation and/or in slides; (5) offering students a flipped classroom (having students complete reading at home and work on solving problems in the lecture); (6) using educational games to motivate students to develop a thematic framework formed by similar ideas clustered in groups and organised in the thematic framework.

Therefore, while most of the coding was performed manually, some NVivo software features were used to create a table of codes. For example, I used NVivo to determine how many people mentioned the code and how many times the code was mentioned across all interviews. Recurring codes and topics relevant to the present investigation were noted. At this point, codes were in the descriptive phase. The aim of that phase was to organise all data, cover it with codes, and ensure that no bias was introduced. Accordingly, at this stage, no interpretation of the coded extracts was performed.

After the first round of coding, I created a list of the existing codes and reviewed it several times by rereading the transcripts. This review resulted in combining several similar codes, removing some irrelevant codes, and renaming others. For example, the codes "slower pace", "the need for more preparation", "spending more time delivering content" and "repeating content" were all combined into one code "the effect of EMI on lecturers' pedagogical practices". Next, the codes were reviewed once more to check their relevance to the research questions addressed in the present study. All less relevant codes were discarded, and only the most relevant ones were retained.

4.7.3 Searching for themes

Following the descriptive analysis and classification of interview data into codes, the next stage was the interpretive analysis that involved comparing the codes across the data and trying to organise them into higher-order themes. Said differently, this stage entailed sorting the different codes into potential themes. Themes are those (typically, but not necessarily, recurring) elements of the accounts given by participants that are perceived by the researcher as having relevance to the research questions. DeSantis and Ugarriza (2000) defined the term "theme" as follows:

> A theme is an abstract entity that brings meaning and identity to a recurrent experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a meaningful whole. (p. 362)

When searching for the potential themes in the data, I looked for the patterns and relationships among the different codes mentioned by different stakeholders. For example, I found that all codes mentioned in the left column of Table 8 could be grouped into higher-order themes (see the right column in Table 8) related to the students' learning strategies in the EMI classroom.

Table 8

Organising Revised Nodes to Possible Themes

Codes	Subtheme
Using the internet (e.g., YouTube), searching for extra material)/ using dictionaries / joining social media platforms (WhatsApp groups/ Telegram), looking for test banks, looking at previous exam questions	Using online resources and digital tools
Seeking help from friends or support from peer/family, forming study group, contacting previous students	Seeking social support
Using L1 to translate the content and understand it	Translation and use of L1

Hiring a private tutor / attending extra English classes at a private institution	Seeking external help
Seeking help from lecturers by asking them to repeat / going to ask them in their office hours / sending lecturers emails asking for clarification	Seeking lecturers' assistance

4.7.4 Reviewing, defining and naming themes

In the final stage of data analysis, I explored different themes by comparing and looking for antecedents and consequences, rereading content, and comparing what the participants said. LeCompte and Preissle (1993, p. 237) described this step as the "time-consuming and laborious process of pulling apart field notes, matching, comparing, and contrasting, which constitutes the heart of analysis". An example of a potential relationship found between two themes is the causation relationship between the students' limited ability to use English and lecturers' different approaches used to implement EMI. For instance, according to the data, the lecturers who taught students with lower levels of proficiency in English tended to more frequently use L1 in the EMI classroom.

In this stage of data analysis, I also compared the responses of various stakeholders in an iterative analytical process intended to identify the similarities and differences among them. After that, I reviewed the themes, defined them, and eventually renamed them to better capture their scope. Additionally, throughout the analysis, I made references to previous research to see how the identified themes cohered or differed from the existing literature generated in different contexts (Tuckett, 2005). As new themes were developed from my analysis, I realised that I had

to expand the literature review to cover some important topics that were not initially considered but appeared to be relevant to my study, such as the topic of the students' preferences regarding EMI lecturers.

4.8 Research quality criteria

Quantitative studies are conventionally evaluated with respect to the generalisability, reliability, and objectivity of their findings. For qualitative studies, however, the key concept is that of trustworthiness. While several criteria and definitions of trustworthiness are available, the most well-known criteria for qualitative studies include credibility (internal validity), transferability (external validity), dependability (reliability) and confirmability (objectivity) (Lincoln & Guba, 1985, as cited in Korstjens & Moser, 2018). In the remainder of this section, I discuss these criteria and how they were met in the present study.

4.8.1 Credibility

Credibility, or internal validity, is based on the idea of truth-value (Dörnyei, 2007). Based on Lincoln and Guba (1985), Korstjens and Moser (2018, p. 121) defined credibility as

> [t]he confidence that can be placed in the truth of the research findings. Credibility establishes whether the research findings represent plausible information drawn from the participants' original data and is a correct interpretation of the participants' original views.

Different strategies can be used to ensure the credibility of qualitative findings, including the researcher's engagement in the field, persistent observation, triangulation and member check. In the present study, the credibility of the findings was ensured by my long-term involvement in the field of EMI education in Saudi Arabia and triangulation of the methods. First, my experience of

working as an English language teacher at an EMI university in Saudi Arabia allowed me to observe the problems students typically encounter due to their low levels of proficiency in English. While my status of an insider can bring certain limitations to data quality (e.g., possible bias), it also offers some advantages, including a good rapport with the participants through having a greater understanding of the studied culture and context (Bonner & Tolhurst, 2002). I took steps to minimise potential bias, such as trying to remain in a neutral position when collecting data, using a system for recruiting that do not involve me directly in the process, and using a critical peer to engage in a peer debriefing process to establish credibility. Janesick et al., (2015) define peer debriefing as an approach undertaken by the researcher to establish credibility which involves engaging in discussion with a trusted, knowledgeable peer about the research in order to receive informed constructive feedback. Furthermore, as discussed in Section 4.2, although the planned observations could not be conducted due to COVID-19 regulations, the data were triangulated by interviewing three groups of respondents (students, lecturers and managers), which allowed me to draw on the stated observations of a range of participants in the classes that I had otherwise hoped to observe. Triangulation through gathering the perspectives of a range of different types of stakeholders is one of the four types of triangulation identified by Denzin (1978) and Patton (1999), who refer to it as "data source triangulation". The other three types are method, investigator and theory triangulation. Discussing source triangulation, Carter et al. (2014) described it as involving collecting data from different categories of stakeholders to validate data by analysing a multiplicity of perspectives as in the present study.

4.8.2 Transferability

Transferability, or external validity, can be defined as the extent to which readers can transfer qualitative findings to other contexts or settings with other participants (Lincoln & Guba, 1985).

In other words, it relates to the extent to which research findings can be applied to similar contexts. As argued by Schofield (2009), to ensure transferability in qualitative research, it is essential to provide a clear and detailed description of the participants and settings to allow others to evaluate whether or not the findings are transferable. Such detailed information and description can help readers to establish the scene around the study and enable them to see the differences between the research context and their own context. Said differently, if there are sufficient similarities between the two contexts, readers may be able to decide that the findings of the research would match or be similar to some extent to what would be found in their own context. To this end, in qualitative studies, it is of crucial importance to provide as much information about the original research context, participants and methods as possible. Based on such information, other research can make what Korstjens and Moser (2018, p. 122) referred to as "transferability judgement". Accordingly, in order to allow readers to determine the transferability of the findings, I have provided a detailed descriptions of the participants and the setting where the research took place (Sections 4.4–4.5), inviting other researchers to judge, based on that information, whether the results of the present thesis would be transferable to other (culturally similar or different) research contexts.

4.8.3 Dependability/confirmability

Following the definition given by Lincoln and Guba (1985), dependability is based on "participants' evaluation of the findings, interpretation, and recommendations of the study" (Korstjens & Moser, 2018, p.121). Furthermore, Korstjens & Moser (2018, p. 121) argued that dependability, also referred to as confirmability, can also be understood as "the degree to which other researchers could confirm the findings of the research study", implying that other

researchers should confirm that qualitative research findings, interpretations and conclusions genuinely stem from the data rather than being part of the researcher's imagination.

The strategy needed to establish the dependability and confirmability of qualitative research findings is referred to as an audit trail. It clearly documents the researcher's steps from the initial research design, methods and data analysis process to the development and reporting of findings. Audit trails enable other researchers to evaluate the dependability of the research findings (Richards, 2003). To ensure the dependability and conformability of the results of the present study, I have provided detailed descriptions of the design, data collection method, interview procedure, sampling, participants and the data analysis process. In addition, as part of the audit trail, an example of an interview transcript is provided in Appendix T.

4.8.4 Reflexivity

Finally, in qualitative studies, it is necessary to evaluate whether sufficient reflexivity was involved in the interpretation of the results. According to Korstjens and Moser (2018, p. 121) reflexivity can be defined as

> [t]he process of critical self-reflection about oneself as researcher (own biases, preferences, preconceptions), and the research relationship (relationship to the respondent, and how the relationship affects participant's answers to questions).

In the present study, I positioned myself as both an insider and an outsider. Gair (2012, p. 137) noted that the idea of the researcher's status as insider/outsider can be "understood to mean the degree to which a researcher is located either within or outside a group being researched". As an insider, I have experience working as an English language teacher in the preparatory programme that prepares students for their subsequent EMI studies at a Saudi university. Therefore, I have

thorough background knowledge of the situation and of the processes that the students go through before they enter their EMI programme. At the same time, I also consider myself as an outsider, as I do not come from a scientific background and my knowledge in the areas of the interviewed students' majors is minimal. Accordingly, I positioned myself in the middle space between those two statuses (Dwyer & Buckle, 2009).

To ensure a sufficient degree of reflexivity during the research process, I kept a diary during all its stages to record my own theoretical ideas, my explicit and implicit assumptions, and how these, along with my values and beliefs, affected the decisions I made throughout this study. For instance, during the interview schedule design, I was unaware that my own preconceived ideas affected how I asked questions. However, on inspecting my memo notes, as well as considering my supervisors' suggestions regarding asking broader, open-ended questions that would allow the participants to openly express their ideas without affecting them with my own opinion, I was able to re-design the schedule in a more objective way. For instance, instead of asking participants about a particular problem associated with EMI, I tried to formulate a general question first, such as asking about their experience and what they thought about it. In subsequent data analysis, I noticed that this strategy paid off as the participants talked more about different aspects of their experience, which was better than focusing on a particular problem. Furthermore, to prevent biasing the respondents during the interview, I avoided showing them signs of approval or disapproval of their answers. Likewise, considerable effort was invested into trying not to interpret the findings in a subjective way. While no researcher can be entirely free from his/her own biases and predetermined ideas, I adopted the practices of reflexivity to minimise such risks.

4.9 Ethics of research

Research ethics are concerned with what researchers should or should not do in their research in order to be sensitive to participants' rights (Cohen et al., 2018). Such sensitivity also helps to improve the quality of the research because participants are more likely to be forthcoming and honest if they are clear about how their rights (to anonymity, for example) will be respected. As argued by Ritchie et al. (2013), researchers should consider ethics throughout all stages of the research process. The present study was deemed to be minimal risk research because the possibility and degree of harm and discomfort anticipated in the research were not greater than those encountered in daily life Specifically, before data collection, I went through the process of receiving clearance from King's College London's research ethics office (see Appendix D) to conduct my research. Obtaining ethical approval was necessary to confirm that my investigation would not lead to negative consequences for my study participants. Since the topic of the present thesis is sensitive – specifically, it discusses and critically evaluates a policy imposed by the Saudi government – it was necessary to strictly adhere to the highest ethical standards and to guarantee that the institution and the participants' confidentiality would be maintained. Accordingly, I provided each participant with a detailed description of the study and what their prospective participation would entail (Creswell, 2014) – see Appendix Q for the corresponding email distributed among the study participants. Furthermore, the consent forms that the study participants had to sign before the interviews (see Appendixes E–G) informed them about the purpose of the study (Krathwohl, 2009). The consent forms contained all information relevant to the study, listed the participants' rights, including the right to withdraw from the interview at any time, and specified that participation was voluntary, optional and free from any type of pressure.

In addition, all participants were provided with my contact information should they need any additional explanation.

Furthermore, to guarantee the participants' anonymity, all interviewees were assigned codes (see Section 4.4) and all information that could identify them was removed from the transcripts. Similarly, the name of the university is not mentioned in the present thesis. All these measures, which were taken to ensure that ethical norms were adhered to and that all interviewees were aware of their rights, helped me to encourage the participants to be open and honest when describing their experiences without being worried that they would be penalised for what they shared during the interviews. Finally, the interview transcripts were stored in a password-protected file. To ensure the participants' confidentiality, all collected raw data and information will be destroyed in five years from the study's completion date. However, anonymised transcripts, and quotes from data in this thesis, will still exist.

CHAPTER 5 RESULTS

As described in the previous chapter, the data for this study were collected through a series of extended, online semi-structured interviews with stakeholders – students, lecturers and managers – at a Saudi university where English was used as the main language for communication. The interviews involved six students, five lecturers, and three university managers from a range of STEM departments. Following Braun and Clarke (2006), analysis of the interview data was complemented by reflecting on teaching material, including curriculum documents and students' notes.

To ensure confidentiality, all interviewees were assigned codes: S1–S5 for students, T1–T5 for teachers/lecturers and A1–A3 for managers (manager A3 also delivered lectures, so her role spanned two categories). Any potentially identifying information in the interviews was either modified or deleted. The findings presented in this chapter draw upon an inductive method of data analysis, based upon the stakeholders' perceptions and experiences. The interview schedule was structured around this study's research questions, and each of the following sections (5.1–5.5) deals with one of the research questions (RQ1–RQ4, respectively).

5.1 Practical implementation of EMI

As discussed in Section 2.2, all interaction among students and lecturers in STEM programmes in Saudi universities is expected to be in English. However, the interview data revealed that this is not the case at the university that is the subject of the present study. In this section, I present the results concerning both lecturers' and students' language choices (English vs Arabic or both) in specific situations in EMI classes. These findings, which relate to RQ1, show how the lecturers interpret and approach EMI differently. Although they theoretically support the benefits of EMI, they prioritise content comprehension over the exclusive use of English in their

teaching. Consequently, those lecturers who share an L1 with the students tend to use Arabic when they deem it necessary. As specified in Chapter 4, Arabic was the L1 for four out of five lecturers and for all six students. The interview data also shows that the lecturers do not feel that they are responsible for improving their students' English proficiency, seeing that as beyond the scope of their role.

The findings in this section are organised into three parts. The first (Section 5.1.1), concerns the actual use of English and L1 (Arabic) in different elements of EMI programmes, examining how the English-language requirement is being applied in the different learning events that make up the EMI programmes that are the subject of this study. The second (Section 5.1.2) looks at the factors determining the extent to which EMI is being implemented, highlighting that the different types of learning events have less influence on that than do issues related to the students, the lecturers and internal policy. Section 5.1 concludes with a summary of some of the key themes emerging from these findings related to research question 1.

5.1.1. Actual use of English and L1 (Arabic) in different elements of EMI programmes

All the lecturers reported predominantly using English when teaching, as required by the university. For example, A3 said, *"All the explanation and lecturing I do is in English. I start by describing the topics I am going to cover. I give definitions, and then I give examples, algorithms that students need to know" (A3)*. She also claimed that she would *"never use Arabic terminology" (A3)* and she did not think her colleagues would do so either. She added that she managed *"[a]ll other official communications like the emails in English as well" (A3)*. It is important to note, however, that A3 was both a manager and a teacher at the university. Her dual role may have made her feel more pressure to fully implement the English-speaking requirement (or, at least, to claim that she did).

A3 also explained that part of her reason for using English terminology was because it was more familiar to her students:

> *[T]hey use [scientific terminology] in English all the time and it is repeated many times: in class, in slides and in the book…* [in science] *new terminology [frequently] appear[s] that do[es] not actually have any equivalent in Arabic… if those terminologies [were] changed into Arabic or translated literally, they will be strange for students, and I ask students to write. (A3)*

The book that she is referring to here is the textbook that is required for the course. Her reference to *"ask[ing the] students to write"* describes a mini-test that she would set the students, asking them to write answers (either on the whiteboard or in their own notebooks) to questions concerning the content she has just covered. Interestingly, she contradicts her previous statement here regarding not using Arabic, suggesting that she may have been deliberately overstating her use of English to show compliance with the university's unwritten policy. Indeed, when pressed further on the subject she admitted that Arabic did occasionally slip into her teaching: *"I am for EMI, but it is not like I plan to use Arabic or something but sometimes it happens accidentally or it is like depend on the situation and at the moment what work[s], but I would not say I rely heavily on Arabic." (A3)*

It is also important to highlight her comments regarding English scientific terminology being more familiar to Arabic students than the equivalent words in their own L1. She went on to give an example of such terminological lacuna by referring to the term *capacitor* (مكثف "mukathaf" in Arabic): *"I have never heard the Arabic word for it, which is (مكثف), until I started to work at the university" (A3).* Further questioning around this issue revealed that she had only heard the Arabic version of the word when one of her students used Google Translate to

discover what it was. The fact that an Arabic native speaker can reach the level of a lecturer without knowing a key scientific term in their L1 seems to be an indicator of the extent to which English has become the international scientific lingua franca.

As mentioned above, A3's dual role as a manager/lecturer may have given her more motivation to fully implement the EMI requirement (or to have claimed to have done so). Nevertheless, the other lecturers (who were not managers) also claimed that they gave all vocabulary and scientific terms in English during their teaching. For example, T5 stated *"terminology are English".* However, four out of the five lecturers also reported using Arabic in different situations, contradicting A3's claim that they would not do so. Furthermore, the only lecturer who did not admit to that practice (T4) did not speak Arabic as her L1. The evidence from the five lecturers relating to their use of Arabic in their teaching is presented below arranged on a continuum from the lecturer who used the least Arabic (T4) to the one who admitted to using the most (T2).

As highlighted above, the teacher who used the least Arabic in her classes was, unsurprisingly, T4, who was not a native Arabic speaker. She said that she exclusively used English for all her interactions with students, e.g. when lecturing or interacting through questions and answers. In addition, all her course materials, slides, and exam papers were also exclusively in English. As she explained, she is *"not familiar with the Arabic language, so the only common language that I can use to communicate with students is in English" (T4).* In her opinion, her students "*were forced"* to use the English language in her lectures, as it was the only *"way to communicate"* when she assigned group work in the lecture. Her choice of words (*"forced"*) suggests that she believed that the students might have preferred to speak in Arabic if that had been an option. She also noted that, while she was not certain about which language the students

used to communicate between themselves during group work, when reporting the results in class, the students had to *"say it in English"*.

Interestingly, this lecturer also noted that she used English exclusively in EMI classes in different educational settings – namely when she was teaching in Pakistan and her students were both Pakistani and international students. She provided the following account of her experience:

> *I knew the language [i.e., Urdu, but] I used to use English only in the lecture because… in Pakistan students are more diverse (T4)*

Although such evidence is not directly relevant to the present study (because it comes from a setting outside Saudi Arabia where the students do not all share the same L1) it is still interesting because it shows the extent to which English is the lingua franca in a range of situations in classes in international contexts where the students have more than one mother tongue. It may also suggest that T4 would use English exclusively even if she could speak Arabic (although that cannot be stated with certainty as the context that she is describing in Pakistan is different in terms of the range of L1s amongst the students, a diversity that does not exist in Saudi universities). Finally, it may be noteworthy that this lecturer's previous experience of using English exclusively with classes of students who do not speak English as their L1 may have prepared her for applying the same practice in Saudi Arabia. However, ultimately, the main reason for her exclusive use of English is likely to be simply her lack of proficiency in Arabic. That conclusion is supported by the evidence presented below, which shows that all the teachers who could speak Arabic did use it to lesser or greater extents in the classroom.

Following T4, the lecturer who claimed to use the most English in her lessons was T1. However, like all her fellow native speakers, she did mention using Arabic to avoid

misunderstandings in the EMI classroom. However, in contrast to colleagues such as T5 (as we shall see below) that was generally not a pre-planned part of her teaching:

> *We are used to explaining to the students in English but speak Arabic as well if they do not understand it, which might be effective in some way, but in another way, it's not. We had our examination in English; our PowerPoint slides were in English, sometimes when we explain it verbally… we use Arabic. (T1)*

The same lecturer also confirmed later in her interviews that she mixed languages because *"students' levels vary [and] this makes it hard for me",* explaining that she switched languages because she prioritises content comprehension: *"my main goal… is delivering the scientific part… I found that using both languages is the most appropriate solution. (T1)* The more spontaneous use of Arabic in T1's teaching seems to fit the definition of code-switching rather than translanguaging (see Sections 3.4 and 3.6.2), in the sense that it is not informed by a "translanguaging stance" that guides the ways in which she uses and permits the use of L1 in her lessons. Interestingly, this lecturer's use of the pronoun "we" when discussing these practices suggests that she believes that her colleagues also applied the same practices that she is describing in the extract above (which is corroborated by the fact that they all gave similar accounts of using Arabic when they felt that it was required).

As discussed in Section 3.3.3, Ellis (1992) categorised interactions in classrooms into those related to core, framework and social goals. The findings presented thus far have related to the former (i.e., those related to the main aim of the lesson). At this point, it is worth an aside about communication related to framework (i.e., class and course management) and social goals before returning to our continuum of the extent to which different lecturers used Arabic in their classes. T1 explained that she would use Arabic to give her students instructions related to

various aspects of course management, such as when explaining instructions for exams or talking about "*an important deadline that students need to meet, my goals and plan for the course" (T1).* T5 also reported using Arabic for course management purposes, i.e., when introducing the course, setting tasks or homework, explaining marking schema, or giving deadlines. As she summarised, *"anything that is not part of the lecture, I prefer it to be in Arabic" (T5).* When asked what specific parts she had in mind, she responded that these included various instances of face-to-face communication when the students came to her office, as she felt that *"they were more comfortable in Arabic" (T5).* This clearly contradicts A3's stated approach of conducting all communication in English and suggests that the lecturers are happy to prioritise the students' comprehension by using the language with which they are comfortable (implying that they are not comfortable in English, an issue that is explored further in Section 5.2.1 where the findings related to the students' views of EMI are presented). All of this evidence suggests the different ways in which lecturers use Arabic: to communicate content clearly, to manage the course and to deal with their students in less formal settings away from the class.

Returning to the list of lecturers in the order of claiming to use most English to least – following T1, the lecturer who claimed to use English the most was T2. However, her testimony revealed an aspect that was not commented upon by any of her peers: switching to Arabic at the request of the head of the department. She explained that:

> *[If] the students know that you can speak Arabic… you receive a pressure that you have to teach in Arabic… [and sometimes] … if you don't accept that… the head of the department, she comes to you and says, 'okay if you can explain things in Arabic, it's better to do so'. (T2)*

This intriguing claim suggests pressure from both below (the students) and above (senior management) regarding the use of English. The suggestion that senior management is complicit in undermining the requirement to teach in English (despite the managers' stated commitment to the principle of EMI, see Section 5.2.2) is significant. However, while the other lecturers referred to pressure from the students to use Arabic, none of them reported such pressure from their heads of department (T1 and T5 were working in the same department). In that context, T2's further comments on her use of Arabic are worth quoting in some detail:

> *To be honest, sometimes we do [switch to Arabic] because we care more about the students' understanding than about the language, we use… And we sometimes face difficulties in the exams …. So, we tend to translate... to be honest, it is not allowed by the department, but we do it anyway. (T2)*

Once again, the use of the pronoun "we" indicates that the lecturer has reason to believe that her colleagues generally apply the code-switching approaches that she is describing. Her repeated use of the phrase *"to be honest"* could suggest that she knows that such practices are not meant to be permitted. Interestingly, the extract above is a contrast with the earlier account provided by the same lecturer (T2) where she reported being pressured by the head of the department to use Arabic and, at the same time, she reported that the use of Arabic in exams is not allowed. These excerpts are examples of a key factor motivating the use of Arabic on supposedly EMI programmes, i.e., facilitating students' understanding despite this being against both the university's (unwritten) policy and their superiors' wishes. The contrast between that policy and what T2 reported regarding pressure from her head of department suggests some inconsistency between overt and covert requirements regarding the use of Arabic, although it is worth re-iterating that the other lecturers did not report the same pressure from above to use Arabic.

An example of the ways in which four of the lecturers mixed English and Arabic in their teaching comes from the interviews with T5 (who comes fourth on the list of lecturers arranged from the one who claimed to use English the most to the one who claimed to use Arabic the most). T5 stated that using both languages was an integral and planned part of her pedagogical approach:

> *I'll give the same information in Arabic and English…. I do not wait until students complain that they do not understand… I have the same slide divided into English and then the translation in Arabic. I use more English with senior classes and less English with first-year students. (T5)*

The above quotation implies that the teacher has experienced complaints from students when trying to teach exclusively in English, prompting her to prepare her content and lessons in ways that incorporate Arabic (i.e., using Arabic on the slides and setting aside time in her lesson plan for explaining things in Arabic as well). In that sense, her approach meets one aspect of the definition of translanguaging discussed in Section 3.6.2 (in the sense that it appears to be a pre-planned pedagogical approach rather than a spontaneous reaction). It is also noteworthy that the lecturer recognised that students' English abilities do increase over the course of the programme, allowing her to switch the balance of English and Arabic in her teaching over time (although her critique of the students on the first year of their degree implies that they have been insufficiently prepared by the PYP for the rigours of an EMI programme).

An interesting nuance concerning the use of Arabic in EMI classes was revealed by the same lecturer who mentioned that she would use it *"to get the attention of students";* feeling that, if she spoke Arabic, *"they would listen to me more carefully" (T5).* She also said that she would occasionally resort to Arabic when she forgot a relevant English term — though she

claimed that such instances were quite rare. Finally, this lecturer also mentioned that she would switch to Arabic in two further instances: when her students explicitly asked her to and when they asked her questions in Arabic. This indicates different ways in which L1 usage can be spontaneously brought into the class even if they were not part of a lecturer's initial lesson plan.

Finally, in the list of lecturers arranged in the order of most to least English usage, T3 reported using Arabic much more frequently than the other respondents: *"I depend on Arabic a lot except for the terminology, of course" (T3).* When asked about the reasons for this switch, she responded that she did not feel *"very comfortable with the language,"* as well as thinking she could cover topics in more depth in Arabic. Student understanding and recall of information presented in Arabic was a further factor. Explaining her teaching practice, she argued that English was *"not our first language,"* and that both teachers and students in the EMI classroom needed support *"to improve the English skills" (T3)*. T3 was the only lecturer who admitted that her use of Arabic was partly motivated by her own deficiencies in the English language, the issue of teachers' English-language training/support needs is discussed in more depth in Section 5.3.3.

Explaining the detail of how she switches from English to Arabic in EMI classes, T3 stated:

> *I start with the term in English. I need to because, if I do not, my students will be in trouble, and they will not know how to answer in the exams. Cytoskeleton—I say it English; then I say the term in Arabic الهيكل الخلوي, and then I give the definition in Arabic* عبارة عن شبكة من الالياف البروتينية تعمل كهيكل داخلي لدعم الخلية al-hīkl al-kẖlwy *[a microscopic network of protein filaments and tubules in the cytoplasm of many living cells, giving them shape and coherence]. (T3)*

This piece of data is an interesting counterpoint to A3's emphasis on only using the English terminology because it would be more familiar to the students. In contrast, T3 goes out of her way to give the term in both languages and to provide an explanation of an unfamiliar term in Arabic. However, the fact that she has to offer such a definition does somewhat support the argument made by A3 that students would not be familiar with the Arabic words for scientific terms.

The findings on lecturers' language choices on EMI programmes were supported by the interview data provided by the students. Specifically, all students (S1–S6) confirmed that they used English to interact with their lecturers in formal situations (i.e., lectures, practical sessions and tutorials,). For example, in the following excerpt, a student explained how she used English to ask and answer questions:

> *In class, if I decide to ask the teacher [I use English], or if the teacher asked me a question, I… answer in English. (S2)*

This clearly corroborates the lecturers' claims that the main language used for core communication (i.e. that related to lesson content) in formal learning situations tends to be English.

Another student reported asking the lecturer for more information in English but added a further interesting nuance (although also in line with the evidence from the interviews with the teachers): *"I sometimes ask the teacher to repeat or to give us more examples. I do that in English unless I ask her after the lecture, then I might do it in Arabic" (S4).* In response to a supplementary question regarding those lecturers who do not speak Arabic, the same student confirmed: *"Yes, I would do it [ask questions] in English inside and outside class" (S4).* This

evidence suggests that the further students are away from formal learning situations, the more they will tend towards the use of Arabic if that is an option (i.e., if the lecturer can speak Arabic).

Furthermore, one of the students reported using English when communicating with lecturers and invigilators during examinations:

> *When we take exams, I use English… to speak to the lecturers [and invigilators] to ask questions. It is more professional. (S6)*

The student elaborated two reasons for using Arabic in such situations, the first is purely practical and the second more interesting in the sense that it is revealing about the student's perceptions of English. In terms of the former reason, the student went on to explain that because the invigilators tend to be *"new people"* she does not know if they will speak Arabic or not, so she uses English. The second reason is revealed by her opinion that English is *"more professional"*, a choice of words that suggests that she perceives English as the language of high-level work This perception can also be connected to the emerging theme from these findings regarding the concept of English as the international lingua franca (not just of science, but of senior level jobs generally).

The exams referred to by S4 above are written examinations (with questions and answers in English). Although the syllabus sample (see Appendix R) does not specify that marks will be deducted for language mistakes, students must use English and will lose marks for using Arabic. In addition, the students must also undertake oral exams (normally in the form of a presentation followed by answering questions) where the same rules apply. However, one student also mentioned occasionally using Arabic during oral assessments:

> *Oral tests are the real struggle … I practice, but I forget [the word in English], so I say the word in Arabic… [sometimes] I accidentally say the word in Arabic or ask [the teacher] in Arabic, so they repeat their questions in Arabic. (S4)*

This evidence of the use of Arabic being accepted by lecturers in formally assessed contexts is an indication of how flexible at least some of the lecturers are about the EMI requirement. Indeed, one of the lecturers agreed that she would tolerate minor use of Arabic in oral examinations (admitting that she could do so because such assessments were not monitored by management). She said, *"I can allow [a] little Arabic especially at question stage…it is not documented so no one would see this".* However, the fact that the student's testimony above is somewhat contradicted by some of the students' fears about losing marks if they were to use Arabic in such assessments suggests that perhaps not all of the teachers are so lenient.

All the students reported speaking Arabic during group discussions and when speaking to each other, regardless of the topic of the conversation (i.e., irrespective of whether the subject was related to their course or not). An interesting nuance in the students' interview data was that, when speaking in Arabic while solving a group task, the students preferred not to be heard by their lecturer; alternatively, in instances when the lecturer approached them, the students reported switching to English: *"I use Arabic in class but… not with my teacher… with my friends… if we discuss the lessons or if I want to talk about my weekend" (S6).* Notably, this is the same student (S6) who reported perceiving the use of English as *"more professional"* in exam settings, here she is keen to maintain the same degree of professionalism in front of the teacher in other formal settings but, at the same time, happy to ignore the requirement to use English in class when only speaking to her peers.

This tactic of switching languages when communicating with fellow students was also noted by S1:

I do not think anyone in the class speaks in English with their peers… even in class discussion[s] [unless]the teacher goes around to listen to us. (S1)

The same student went on to explain that such discussions amongst peers were not that common because of the pedagogical styles adopted by many of the lecturers. She reported that not all lecturers ask the students to have discussions in groups or even pairs, suggesting that some of the teaching approaches traditionally associated with Saudi education are still common in the university despite its attempts to "modernise" through the use of EMI. T3 stated *"sometimes I just need a minute, I hate when students ask me questions on the spot that I have not considered before, so I tell them ask me after the lecture or send me email".* Therefore, it is also possible that the introduction of EMI itself has discouraged some lecturers from making their classes more participatory (in the sense that their own uncertain command of the English language compels them to stick largely to "scripts" in their lecturing, rather than going into potentially uncomfortable territory where they are required to "ad lib" to some extent in response to questions and discussion). Finally, congruently with the lecturers' comments, the students also reported speaking Arabic in informal communication with their lecturers, as well as when contacting with them via email or social media. Generally speaking, however, the stakeholders interviewed did not make distinctions between their uses of English/L1 across the different pedagogic events that make up their courses.

In addition to the students and lecturers, the three managers were also asked about their beliefs about language use in classes. Two of them (A1 and A2) underscored the importance of exclusively using English in the university's science programmes. Specifically, these

administrators stated that English should be the sole medium of instruction in the university's programmes and that using both English and Arabic would adversely affect the students. However, one of the managers raised a concern that that approach might not be possible due to the students' limited English competence:

> *Again, the outcome of the schools is the biggest deterrent to our vision to use English all the time (A2).*

Here, the manager is blaming the schools for not sufficiently preparing students for the rigours of studying in English at university. Interestingly, he made no mention of the role of the university's PYP in that regard, implying that the problem was further down the education system. These issues concerning schools, and the various stakeholders' perceptions of them, are discussed in detail in Section 5.3.2.

Another manager, the head of the college, explained that he encouraged the exclusive use of English, even though he was aware of the challenges that were faced by both lecturers and students. His views around the use of Arabic in and outside classes are given below:

> *[Lecturers] can use Arabic in informal communication or outside the lecture rooms, but for giving the lecture… I usually encourage lecturers to use only English. I am aware, though, that there are some lecturers who use Arabic… (A1)*

This quotation further corroborates the picture painted by the lecturers and the students (i.e., that Arabic is still sometimes used in formal learning situations). Interestingly, these words suggest that the head of the college takes a pragmatic view and exercises a degree of flexibility regarding the EMI requirement – both in terms of saying that informal communication in Arabic is acceptable and even stating that he only *"usually encourage[s]"* lecturers to deliver all formal teaching content in English. His words suggest that he might not enforce English even if

monitoring was not so *"difficult"*. When pressed about the number of lecturers who were using Arabic in lessons, he suggested that only *"the minority… depend more on Arabic"*, which he estimated at 10–20%. The findings presented here suggest that he may have been underestimating the extent to which Arabic was used in classes across the university, given that four out of five lecturers admitted to using the language at least occasionally in their EMI classes (with the only exception being a non-Arabic speaker). However, a larger-scale survey would be required to verify that A1's estimate is an inaccurate as it appears to be.

A1 went beyond his colleague A2 by extending the scope of the blame for the situation beyond the schools by arguing that the lecturers *"need to make more effort".* Specifically, he claimed that the lecturers were not trying hard enough to use English in their teaching due to laziness. In the follow-up interview, A1 was asked how he expected lecturers to make more effort, and he answered:

> *By improving their communication skills and making scientific content in English more fun and enjoyable…giving them techniques or something (A1).*

This suggests that A1 is aware that successful teaching in EMI requires more than just delivering the content in another language (see Section 3.4). However, his vagueness about exactly how teachers should meet the challenge of teaching in another language (*"giving them techniques or something")* is consistent with the fact that the university offers no such support. A1 also commented on the negative effects of such practices in terms of leaving the student unable to answer questions in English in the exams (although he did not show awareness of evidence of students using Arabic in oral assessments).

Another manager, A2, echoed these comments with concerns that using two languages might increase confusion among both students and lecturers and potentially negatively affect the

quality of education provided and students' chances in the international job market. However, she also acknowledged that the current English level of the students made it difficult to stick to one language and that using more English could compromise their understanding of the content. Therefore, she took a more flexible stance, permitting both Arabic and English in the beginning, with a subsequent gradual increase of usage of the latter:

> *I would prefer to be using English only… it will be perfect for both lecturers and students, and students will be able to continue their studies outside and work in global markets; but the reality shows that we cannot. Not with current students' level… I think it is acceptable to use both languages (A3)*

In the excerpt above, manager A3 demonstrates a pragmatic understanding of the dual language issue and barriers to the preferred sole use of English based on the limited understanding of English among first-year students. Her statement that the reality of students' limited abilities in English requires the occasional use of Arabic is corroborated by evidence from the lecturers and the students themselves regarding low levels of fluency and the necessity of using L1 to explain concepts in ways that the whole class can understand. The issue of students' English levels is discussed in further detail in Section 5.3.2.

All the managers claimed to be passionate supporters of the exclusive use of EMI in the university's science programmes. Even though they were aware of some of the challenges to achieving this, such as students' levels of English proficiency, some of them seemed to have unrealistic expectations regarding requiring lecturers to use English only without considering the consequences/feasibility of this approach (or the need to provide further training, an issue which is discussed in more detail in Section 5.3.3).

5.1.2 Factors determining lecturers' implementation of EMI

The variability in the lecturers' EMI practices (described above) raises the following question: which factors affect the extent to which they implement the requirement? In this section, I explore that in further detail, attempting to classify the recurrent themes in the data. To identify those themes, I asked the lecturers what determines their choice of language use.

Based on their responses, the factors can be broadly categorised into the following three groups: those related to (1) the lecturers; (2) the students; (3) internal policy. Each of those groups of factors is explored in more detail below.

The first group of factors that, according to the interviews, influenced the lecturers' implementation of EMI are those related to the lecturers themselves. Among these factors, a central issue was each lecturer's English proficiency and the extent to which she felt comfortable using English while teaching. Here, the lecturers' self-assessments varied considerably. For instance, one lecturer felt confident about her English ability, which led to her using English more frequently in her teaching: *"I have no problem using English for the whole lecture, my English is good, but again I use it for other reasons" (T2).* In the latter part of that quotation, the lecturer was referring to the fact that she used English in other contexts outside classes, thus explaining her level of proficiency.

In contrast, T3 felt less confident in her English and admitted feeling constrained by it when explaining course content to the students. She also perceived teaching in English as *"unnatural"*, adding *"I do not know how to describe [everything in English] but we can all speak Arabic, I am not sure about my English skills, and it is unfair to evaluate students" (T3).* Interestingly, this statement appears to contradict what the same lecturer said earlier in the interviews regarding her belief that English should be the language used to teach science. However, rather than seeing this as a contradiction, perhaps it merely indicates that she finds it

hard to put her principle (that science should be taught in English) into practice on account of her own (perceived) lack of proficiency in the language. Her comment about it being *"unfair"* to evaluate students in English shows awareness that some who have good content knowledge are underperforming on the course because of their lack of expertise in the language of instruction (an issue that is discussed in more detail in Section 5.3).

The second important factor influencing lecturers' implementation of EMI was their L1. As mentioned previously, one of the lecturers (T4) did not speak Arabic so English was the only available option for her:

> *Unfortunately (laugh) they need to deal with me speaking English because… I know little Arabic words. (T4)*

Not having the option to switch to Arabic seems to have been a disadvantage for this lecturer, given that her peers reported that sharing an L1 with their students helped them to better explain complex concepts in their classes and save time, *"sometimes, it takes one or two words in Arabic instead of wasting the lecture time on trying to communicate the idea in English" (T1).* Although that inability to use Arabic should not, of course, attract any official criticism, given the EMI policy.

The second group of factors that influenced the lecturers' implementation of EMI are those related to the students. A key factor in that respect was the students' level of proficiency in English. Two lecturers (T1, T5) mentioned that this determined the extent to which they used English during classes. For instance, T5 talked about how using Arabic is dependent on students' needs: *"it depends on [the] students' level really, [if] you… have a batch of very good students… it is not necessary to use Arabic" (T5).* These lecturers also talked about the ways in which they

assessed proficiency, which included students' abilities to answer questions, the understanding that they showed of the language and their marks for assignments.

Unsurprisingly, all the lecturers shared the opinion that the students with limited English skills were less likely to actively interact in the EMI classes than those with high proficiency in the language. Most of them did, however, acknowledge that students' English tended to improve over the duration of the course. For example, A3 (the manager who also taught) stated, "*Even if they started with very weak English, they improve [by the end of the course]" (A3).* The students' perspectives on whether they improved over time are given in Section 5.2.

Considering the great variability in students' preparedness for EMI, T1 expressed her concern that inequality in students' level of English can result in unfairness when it comes to their grades:

> *Those who have less English are less able to participate…. they might have the right information, but… they are not able to express themselves... [Whereas] those who have good English because their background is so good, they get better marks, because they are more confident, and they get more advantage. It's not completely fair… if someone has the same information… but in a different language, then they [should] be treated equally. (T1)*

This relates to the same issue mentioned above by T3 concerning inequality. Specifically, T1 identified that students from more affluent backgrounds who have access to (private) English education are better able to cope with the demands of the EMI course at university, thus further increasing their advantages. The issue of school background and the EMI course entrenching inequality is discussed in more detail in Section 5.3.2.

The third group of factors that apparently influenced the lecturers' implementation of EMI are those related to university policies. As suggested by the interviewees, some university departments seemed to have an internal agreement on how to implement EMI. Specifically, T2:

> *See, it is complicated… we know they want us to teach in English and it is the law* [i.e., the policy requirement], *but then the coordinator of the course tells us you need to* be *flexible and speak in Arabic as well. The coordinator receives all the complaints from students that they do not understand and sees what happens since she also teaches with us. (T2)*

The above quotation indicates that the course coordinator understands the challenges of implementing EMI in classes and is not only aware of the lecturers' practices regarding using Arabic but actively encourages those practices too. That is also consistent with the already quoted statement from the same lecturer, T2, regarding pressure from the head of the department to use Arabic in classes. Nevertheless, the other lecturers indicated that there was no internal agreement on the ways to implement EMI in their respective departments. Accordingly, the lecturers felt they could implement EMI in the ways they saw fit, under their specific circumstances and based on their detailed knowledge of their students' needs. In the absence of a unified university policy concerning EMI, the "theory" of EMI appeared to be being implemented in different ways dependent on lecturers' different conceptualisations of English-only instruction. For instance, one of the lecturers provided the following account of how she saw EMI:

> *I have never heard about this term before I read about your research, but I know what it means which is using English, right? … changing the language only they used to study in Arabic in school now we use English with them at university. (T5)*

Obviously, it is highly surprising given the requirement for lecturers to use EMI that this lecturer's first encounter with the term was through the present research. It is very revealing that the lecturer conceives of EMI as simply being a change of language, with every other aspect of the course remaining the same. That shows a lack of understanding of the pedagogical changes that are required to implement EMI effectively and suggests the lecturers' lack of training in its application (see Section 5.3.3). T1 also commented on the same issues:

> *I think it [EMI] is switching from the Arabic language to the more popular language in science which is English… But the textbooks… are the same since we used to use English books but speak and explain in Arabic, they have not changed them, just they asked us to speak in English. (T1)*

Clearly, she also believed, like T5, that EMI was just about switching between languages, without changing other aspects of teaching or acknowledging the issues that this switch entailed. The fact that the textbooks were always in English even before the switch to EMI relates to the issue of English being the lingua franca of science and to the non-availability of suitable textbooks in Arabic (see Section 5.2.1 for more findings related to that).

Despite the variability in the lecturers' interpretations of EMI, a common theme that emerged was prioritising the content of the EMI course, rather than the language of instruction. These lecturers mentioned that their main concern was helping students to understand the context, regardless of what language they used to this end. Accordingly, some of the lecturers admitted that they did not pay much attention to their students' language problems, nor did they seek to improve their students' language competence. A relevant account provided by one of the lecturers illustrates this point:

I give my full attention to the course content; I understand the importance of improving students' language... But it is not one of the course goals. (T5)

This perspective is, admittedly, consistent with some of the literature already reviewed that highlighted that language improvement tends not to be an explicit goal of EMI (see Section 3.4). Another lecturer also stated she would switch to Arabic when she wanted the students *"to understand the content" (T1).* Still another said that she would not *"sacrifice students' understanding of the course to stick to one language. I am here to teach science" (T3).* Similarly, a male lecturer in a management position explained that the core of his course was delivering the knowledge that his course was *"not an English class" (A3).* All of these comments provide further support to the previously stated notion that the lecturers did not view an EMI programme as being different from any other course that they had taught previously except in terms of the language used.

That focus on the content of EMI courses, rather than on language issues, was underpinned by several justifications. First, three lecturers (T5, T1, T3) did not believe that they were sufficiently qualified to address their students' language difficulties. That point is illustrated in the following excerpt:

English is not our first language we need training... I am 100% confident about my scientific knowledge, but I am not with my English language. (T3)

As mentioned previously, T3 was the lecturer who was most open about her lack of confidence in English and her need for further training.

Second, some lecturers appeared to be uncertain as to whether their respective departments expected them to work on their students' language skills. For example, T3 also argued, *"I have not ever been told to discuss language issues in my course" (T3).* This suggests

that T3 believes that students should be fully prepared by the end of the preparatory programme and might be resistant to attempts to compel her to include more language content. Her claims that no such attempts had been made seem to be corroborated by the interviews with the managers. For example, when asked to comment on the above quote specifically, A3 replied that students should learn English in *"other places";* he also argued that, as head of the department, he found it difficult to require lecturers to help students with their language. He believed it was *"not their job to do so" (A2).* This reiterates the above-stated issue regarding the perceptions throughout the university of EMI being simply a change in the language of instruction. This issue is also expressed in the syllabus that was examined as part of the present research, which contained no goals relating to language development and allocated no marks for the quality of English used by students.

Third, most of the interviewed lecturers explained their focus on the course content, rather than on the ways of improving the students' English skills, with reference to a lack of time, lecturers' typically very busy schedules, and the large numbers of students in EMI classes. Accordingly, although one of the lecturers (T2) said she would be *"happy to help if those problems are solved"* she also acknowledged that it was *"very hard to do anything regarding the language in the course".*

Finally, it is important to note that one of the factors relating to policy that determined use of English or Arabic in classes was whether the lectures were being recorded or not. As teaching moved online in response to the COVID-19 restrictions, one of the lecturers (T1) reported changing her style so that she was no longer using any Arabic. When asked why this was, she replied, *"it is recorded, and it can be easily watched by everyone, and I do not want to be judged or get into troubles" (T1).* When questioned further about with whom she would get in

trouble, she responded *"people from above",* referring to the head of department and other senior staff. This quotation both reinforces the fact that the lecturers were aware that they should not be using Arabic and adds a further nuance concerning how the increasingly common practice of delivering education online makes it easier to monitor teaching practice and consequently influences lecturers to adhere more closely to policies for fear of being exposed.

5.2 Stakeholders' perceptions of EMI

This section discusses the findings from the interview data related to Research Question 2: "What are stakeholders' perceptions of EMI?" It is divided into two sections – the first of which deals with the views of the stakeholders who are present in classes, i.e., the students and the lecturers (Section 5.2.1), their views are presented together in order to highlight the similarities and differences between the two groups who share the experience of engagement through English in various learning environments. Section 5.2.2 focuses on the stakeholder group that is, normally, removed from direct engagement in such learning environments: university management. The analysis of interview data revealed that all three groups of stakeholders had generally positive perceptions about the implementation of EMI at a Saudi Arabian university generally and in science departments specifically, however, the managers' expressed significantly more positive views than the lecturers (with the students falling in-between). The reasons given for having a positive view of EMI were relatively uniform across the three groups of stakeholders, who largely shared perceptions that it was desirable or, at least, inevitable on account of facilitating access to science learning and future job opportunities. However, some challenges were also reported, regarding issues such as readiness for such programmes and perceptions concerning the impact of EMI on the Arabic language and Saudi culture. The findings related to all of these issues are discussed in the following sections.

5.2.1 Lecturers' and students' ambivalent attitudes towards EMI

The interview data showed that students seemed to hold contradictory ideas regarding EMI, spanning both positive and negative evaluations. As will be explored in more detail below, the students generally voiced positive perceptions regarding the use of EMI. However, they also expressed a range of different, less positive, feelings about EMI. For example, some students complained about the lecturers' use of two languages in classes, claiming it is confusing to use Arabic in the lecture and then conduct the exams in English. Moreover, some students also complained about not being able to use their L1 in academic situations or when working in the field, which can be connected to issues around students wishing to preserve the status of Arabic as a language of the workplace and of science, technology and medicine (see below for further details). The students' responses suggest that they might be caught somewhere between the desire to open up opportunities for themselves by studying in English and the wish to preserve their first language, and the culture and religion with which it is intertwined. All of these ambivalent attitudes are considered in more detail below.

All the students positively evaluated EMI overall. Sharing the view that English is the language of science, they all believed that it, rather than Arabic, was the optimal MOI for their course. The various reasons given in support of this position by the students can be summarised as follows: (1) a shortage of materials and resources in Arabic; (2) the lack of some scientific terminology in Arabic; (3) an inability to communicate with the rest of the world and keep up to date with new scientific advancements in Arabic. A selection of the students' statements regarding these issues are given below. For instance, one of the students said:

> *If you want to study science here or abroad or even just open the internet to learn, it is always in English… So, it does not make sense to study science in any other language, or*

you will not… get… to a higher level… Even if it is hard, it is the only way… I wish they would understand this and start letting us study science in English in schools. (S3)

It is noteworthy that S3 is one of the students from a state school background, where the MOI is Arabic (in contrast to Saudi Arabia's EMI private schools). The "they" referred to in the final sentence of the above quotation are the policymakers responsible for setting the MOI policies for Saudi state schools. The relative advantages and disadvantages of private and state school graduates in an EMI university setting are discussed in greater depth in Section 5.3.2. For now, it is sufficient to note that this student still saw using English as essential given its status as the scientific lingua franca, despite the significant challenges that EMI posed for her.

Another student also spoke about the ubiquity of English in the academic environment, specifically when science was being studied rather than other disciplines:

English… is used everywhere and especially in science, I mean we can study… poetry or history in Arabic, but [for] science, it does not work. If you go to a conference, how are you going to understand… or talk to people?... Even in Saudi… they might use some Arabic, but… all the terminology is in English; you even might not be able to find it in Arabic. (S6)

This quotation again illustrates the extent to which the students accept English as the scientific lingua franca. It also poses the question of where these positive attitudes come from, a question that was partially answered by the interview with S5, who explained that much emphasis is put in the broader culture on the importance of learning English to be successful: *"you can find this everywhere, tv, social media, everyone is trying to attend courses, pass the IELTS or travel to learn; so it is a way to be able to get what you want in life, that's why I like English to be used" (S5).* Given that all the students seem to have accepted this discourse regarding English, it can be

assumed that such messages coming from the media are being amplified by each student in Saudi Arabia.

Finally, S1 made a point regarding research materials and publications: *"We cannot use Arabic now. You will not be able to find any like recent book or article in Arabic; you might find…very few… they are only translations" (S1).* This point can be connected with T1's statement regarding the fact that even before the EMI requirement was introduced, the teaching materials used were in English, evidence of the dearth of such materials in Arabic – a situation that is only likely to be compounded as increasing numbers of Arab countries move to EMI for university-level science programmes (see Section 3.2.2).

Similar to the students, all the lecturers reported having a positive perception of EMI and believed that English should be the MOI in any scientific programmes in Saudi Arabian universities. Some of the factors that determined this positive perception were similar to those previously mentioned by the student interviewees (see above). However, along with agreeing with the student respondents on the importance of several factors affecting students' (and their own) performance in EMI classes, the interview data analysis also revealed that there are lecturer-specific factors that determined the lecturers' evaluation of EMI. Specifically, one major factor in this respect were the lecturers' age

The perceptions of EMI of the participating lecturers appeared to vary depending on their age. Specifically, the data analysis revealed that older lecturers were generally less supportive of EMI when compared to their younger peers (although, obviously, the sample size of the present study is too small to draw any general conclusions on that issue). For example, when asked about the reasons for having to teach in English, the eldest lecturer (T5) said, *"we are forced [to] because of the reasons I mentioned before [i.e., the lack of teaching resources in Arabic and*

pressures related to institutional ranking]." She also went on to speak positively about the possibility of teaching in Arabic, *"some people even could do all their teaching in Arabic, I mean some countries, like Syria, their education and higher education are in all in Arabic; Qatar did it, I think, but I am not sure if it was for scientific major[s]."* Significantly, the same lecturer also expressed her fears regarding the impact of EMI on the Arabic language. Her views contrasted with those of the younger lecturers, one of whom, for example, stated: *"I have no problem using English for the whole lecture, my English is good, but, again, I use it for other reasons" (T2).*

The observation regarding differences related to the age of the lecturers was shared by one of the managers, who said:

> *We get complaints all the time about some lecturers who use Arabic, and they do not care about our regulation [i.e., the EMI policy]; they are the older ones, it is already hard to communicate with them; they have a different perspective on everything not in their language… they have huge experience and knowledge that we cannot let go of yet. (A3)*

The explanation for older lecturers' less enthusiastic adoption of EMI was, according to another manager, either a desire to protect Arabic or a lack of proficiency in English: *"Some people are a little bit stubborn, they might not want to use English, because they want to protect Arabic, but it is not always the case – some just do not know English" (A2).* The final comment may be somewhat surprising in the sense that it poses the question of how someone who did not know English could be teaching an EMI university programme. However, obviously, A2's statement here should not be taken literally, he was being overly dismissive in his choice of words just to make the point that some of the lecturers did not, in his mind, possess the level of English abilities that they should have had (a fact that is corroborated by the lecturers' own statements

regarding their historical or current struggles with EMI). It is, however, also important to reiterate that there is no formal process or criteria for evaluating lecturers' levels of English prior to them being hired, nor any specific English-language qualification that they are required to possess. Furthermore, some of the lecturers were hired prior to the introduction of the EMI requirement and not subject to any tests of their English-speaking abilities. It is also important to mention that it is highly unlikely that anyone established in a government job in Saudi Arabia, such as the lecturers in this study, would ever be fired from their positions, even if policy changes had left them unqualified to meet the requirements of their roles. The other issue mentioned in A2's comment, i.e., perceived threats to the Arabic language, is discussed in more detail below.

A similar comment on the lack of proficiency in English as an important factor determining older lecturers' reluctance to use English as the MOI was made by T3. She explained that such lecturers prefer to use Arabic and related an anecdote to illustrate their lack of English expertise: *"Before, when I used to be a teaching assistant, one teacher would let me write her exam questions because she did not know how to do it in English" (T3).* She went on to relate that the same lecturer resisted pressure from the head of department to use English by saying that she had studied in Arabic and would continue to apply the language she had always used. T3 suggested that further training might be necessary to overcome the rigid thinking of older lecturers on matters of language.

The following excerpt from an interview with a student talking about an older lecturer provides further evidence of this:

She has like wrong pronunciation, and she gives us the exams with mistakes. She told us she does not think English is important as long as we know the science itself, but… she is… contradicting herself, because we need to do the exams in English. (S6)

In summary, some older lecturers might not favour EMI for reasons such as their limited proficiency in English, their desire to preserve the Arabic language (in which they had studied), or a lack of appropriate training.

While all the students agreed that English should be the MOI for scientific subjects, three believed that they were not ready to study on an EMI programme, claiming that they did not know the basic terminology required to understand the subject and needed more time to improve their English language abilities. For example, S4 stated: *"I knew I will study in English at the university, but I was not prepared, I tried to study from YouTube in the summer but that is not going to take me anywhere" (S4*). In the extract quoted above, she is talking about prior to the PYP, however, despite admitting to gaining some relevant skills from that programme, she claimed to feel still not ready for the EMI programme even after the PYP. Significantly, S4 was one of the state school students, as was S2 who went into more detail about her similar experience:

When I started it [I] was already exhausted, I spent the last year of secondary school stressing about my grade, and then [university entrance exams], and then applying for university was very hectic, and I did not have time to improve my language. I had so many questions that no one answered, I was not prepared for so many things. (S2)

This evidence from S2 provides a valuable student-level perspective of the university admissions system described in Section 2.4.1. The student quoted here is looking back from the perspective of having completed the PYP and now started on her EMI programme. Her experience of the

process as highly stressful seems to have been compounded by English language-related challenges, and her later statements regarding the PYP being insufficient preparation for university, confirm that she felt that the system did not do enough to address that. The fact that the PYP itself is highly stressful (because it requires students to pass tests to proceed to their degree) may contribute to the struggles of those students who are already struggling with the English requirement. All three of the participating students who expressed this sense of being ill-prepared for EMI education (S1, S3 and S5) were state school graduates. More is said about the challenges that such students face with regards to EMI at university following Arabic MOI at school in Section 5.3.2.

Some of the perceptions expressed by the students concerned social issues related to universities' EMI policies. Specifically, two of the students (S1 and S3) stated that EMI could have an adverse impact on Saudi society, the Arabic language and the Islamic religion. For example, S1 said:

> *Some people will mix between the two things. English is important for so many things in our life. That is a fact and that's okay, but what is not okay is what some people do with English when it is actually not needed. Our language is tied with our heritage, and it is the deepest factor in it. If another language breaks through [i.e., becomes increasingly influential] then our values and history will be affected or forgotten, I am not even kidding, it is serious, Islam might be affected because we will eventually follow them, and we will forget our morals. (S1)*

The language used by this student, as epitomised by the final sentence in the extract above, clearly articulate her strong feelings regarding the threat posed by English, suggesting the existence of alternative discourses regarding the incursion of a foreign language into the heart of

the Saudi education system and, by extension, society and religion. S1 appears to agree to some extent with both sides of that debate, recognising both the value of English and the potential threat it could pose. S1 seems to feel that English impacts Arabic and Islamic identity and expressed concern about the transmission of Western values because of the dominance of the English language at the university. S3 commented on the same issue, describing people who chose to use English in situations in which they could speak Arabic as *"big fans of the English people and countries. They do not consider… the costs this has for the Arabic language and Saudi culture."* By *"English people",* the student was referring more generally to people from anglophone countries. Some of the lecturers also expressed similar opinions regarding the impact of EMI on the Arabic language and Saudi culture. These issues regarding the perceived threat of EMI to Arabic and to Saudi culture and society are discussed in greater detail in Section 6.3.2.

Furthermore, analysis of the interview data shows that, despite all the lecturers stating that they had positive attitudes towards English as the most suitable MOI for science, two of them (T3 and T5) shared some of the students' concerns regarding broader societal impacts. As well as highlighting the possible negative impacts of EMI on Saudi identity, these lecturers also believed that the implementation of EMI could lead to a situation where Saudi students would feel inferior. For instance, one of the lecturers remarked when discussing the disadvantages of using English:

> *I fear that we became only followers, … we now take science and everything from certain [i.e., anglophone] cultures and, when using their language, we confirm this. And the new generation already feels that that they are better and want to be another version of these other cultures (T5)*

The above extract shows that the lecturer does not view English as a truly international language or lingua franca but rather as something that is owned by and advantageous to anglophone countries. She also perceived its usage as being symbolic of certain attitudes in Saudi society, specifically a sense of inferiority and a desire to try to copy other cultures, issues that are discussed in greater detail in Section 6.3.2. When asked whether she would prefer to teach in Arabic, this same lecturer showed a pragmatic perspective on the situation but also made clear her preference for her own L1.

> *In the current situation, and with the shortage in the Arabic scientific resources, I do not think so. English is definitely better in that sense, but I would love to teach in Arabic once this huge issue is fixed. (T5)*

T3 agreed with her colleague's pragmatic position and concerns regarding the negative impact of EMI on Saudi society. She explained her view that EMI was good in certain contexts but contributed to a trend of Saudi students preferring English and Western culture to the detriment of the Arabic language and their own culture. She specifically identified her concerns that the quality of Arabic was deteriorating on account of students mixing it with English and identified the role that EMI played in undermining Saudi culture, saying:

> *With teaching them in English, this stays in their minds forever that, if they want to learn and to keep developing, they need to do it in English, not in Arabic… It starts with the language, and then everything else changes – the way we dress, the way we speak and think. (T3)*

It should be mentioned that T3 was the lecturer who felt least comfortable using English, which may have had some influence on her more general critique of it. It is worth remembering that concerns about the deterioration of language and traditional culture are common amongst older

generations and more conservative people around the world (even in Anglophone contexts). Nevertheless, the specific issues raised here about EMI's potential contribution to that process are worthy of further consideration (and, therefore, are discussed in more detail in Section 6.3).

Interestingly, the two medical students interviewed reported experiencing difficulties in their medical practice in situations when they had to speak Arabic to their patients. Specifically, these two students found it difficult to switch from English to Arabic when discussing medical issues during practical sessions with patients. One of these students described the problems she had encountered thus:

> *[W]hen I take a patient's history, he or she usually speaks Arabic, while I am used to writing in English at the university. So, I need to spend a lot of time even when I ask for… the history of diseases in the family or something that can help me determine what the patient is suffering from. (S6)*

While having an overall positive attitude to EMI, this student highlighted the effect of it on her ability to use her L1 in the field. Similarly, another student said that she found it time-consuming and difficult to switch between English and Arabic when talking to her patients:

> *We must do everything, like taking history, doing the examination, and providing explanations to the patient, in 10 minutes. But, in terms of explanations, it is sometimes difficult to translate to Arabic in my mind. As I have studied all terminology in English, I forget it in Arabic, so 10 minutes is not enough for all this. (S3)*

Such struggles with Arabic when speaking with patients may be considered, perhaps, to be an unforeseen negative consequence of the EMI policy. It is significant that both students raising this issue were practicing medicine, as that discipline places a high premium on communication with patients, who, in the Saudi context, are very likely to be Arabic speakers and also, in many

cases, unlikely to be comfortable in the English language. Further consideration of this issue is given in Section 5.2.2 concerning the perceptions of managers regarding EMI.

An interesting nuance that emerged from the analysis of the interview data was that most of the students expressed an explicit preference for L1 Arabic lecturers in their EMI programmes. Specifically, only two students (S3 and S6) were neutral about this matter. One of those students said:

I don't really care as long as they have proper English(S6)

This student had a neutral position on the preferred L1 of an EMI lecturer. For her, the two important factors were adequate English and the ability to effectively deliver the content regardless of the lecturer's L1.

In contrast, the remaining four students (S1, S2, S4 and S5), three of whom were state school graduates, believed that it is better to have an Arabic lecturer to teach them in the EMI programme. To the question about these preferences, one of these students responded:

, I will choose to have someone who can speak both English and Arabic, because this will help me if I ever need something to be translated. (S2)

S4 and S1 voiced similar opinions, highlighting that Arabic speakers are likely to be more empathetic about the students' struggles with another language and consequently better able to help and that the accents of English native speakers can make understanding them difficult. Interestingly, the data from the interviews with managers supports this finding by showing that they have also observed the same enthusiasm for L1 Arabic lecturers among the students, with the courses of such lecturers often being oversubscribed. The extent to which such findings contrast with previous research on this subject is discussed in Chapter 6.

In summary, the majority of students believed that Arabic lecturers teaching in EMI programmes at SA universities are a better option than their native English counterparts or those teachers who speak English as an L2 but do not have Arabic as an L1. Among the articulated reasons underlying this preference were L1 Arabic lecturers' better understanding of students' needs, their willingness and ability to help students, and their relatively easier accent for L1 Arabic students to understand. The distinctions between private and state school students on this point are discussed in more detail in Section 5.3.2.

5.2.2 Managers' positive perceptions of EMI

Like the two previously discussed groups of stakeholders (students and lecturers), the managers shared positive perceptions of EMI. Indeed, they had the most positive perceptions of the three groups. All managers, regardless of their age, position and experience, expressed passionate support for EMI. Therefore, it was not possible to identify any specific determining factors that made some managers have more positive perceptions of EMI. Specifically, the managers strongly believed that EMI is the *"only"* way to teach any scientific programme. A major reason underlying this view was, according to the managers, the availability of English resources and the *"up to date"* material that cannot be found in Arabic. Another reason mentioned by all the managers was preparing students for the job market and for the outside world. Nevertheless, all the managers acknowledged the challenges faced by EMI lecturers. However, they also all believed that their institution offered the required support. Furthermore, they all emphasised that Arabic cannot be the medium of instruction and said they were willing to try any solution to make EMI work for students. Evidencing a number of the points made above, A1, the head of the college, said:

We know we have very low levels of English among students; so, what we can do is either cry about it or find a solution. Those who are against it… do not have a valid point.

The opposition referenced in the extract above is suggestive of the different power dynamics that are in play regarding the issue of EMI in Saudi Arabia. It is worth noting at this point that the evidence of the present study does not suggest that many of either the lecturers or the students are significantly opposed to EMI, although the words of A1 suggest the existence of more opposition, both within the university and society more generally (see Section 6.3 for further discussion).

A1 went on to justify his stance on EMI with reference to the benefits it had brought to previous students and, by extension and implication, Saudi society as a whole:

A lot of very good students graduated from these programmes… They were ready to do their job and strive not only locally, but internationally as well. We do not live alone in this world; we need to interact with others and especially those who lead the scientific field, or we will be ignorant. (A1)

The vision presented in this extract is consistent with the general discourse around the internationalisation of education, which (as discussed in Chapter 3) is becoming increasingly dominant around the world and within Saudi Arabia specifically. Similar points were echoed by some of the students, e.g., S1, who said *"the future is in English, even if it is a little bit harder, I would rather figure what I do not understand out than being left out and having less job opportunities in the future… maybe we can discuss using Arabic but it might also make us alone without the rest of the world."* A1 and S1's words can be connected to the concept of English as the lingua franca not just of science but of the whole modern world (see Section 3.1). Perhaps A1's choice of words also makes apparent some of the reasons why there is an opposition to

such arguments from the proponents of traditional Saudi culture (i.e., his characterisation of a society without English-speaking graduates as *"ignorant"*). When the agents of a change are seen to ridicule more traditionally minded members of a society, it is unsurprising that a backlash is generated. See Section 6.3 for more about the debate concerning the advantages/disadvantages of encouraging the use of English across Saudi society as a whole.

Finally, regarding the head of college's comments, it is worth noting that he claimed that management had tried to implement numerous solutions to the challenges of EMI: *"Some worked, others did not. Some worked with certain students and not with others."* This relatively positive picture of the university's efforts regarding EMI is not supported by the data from the other stakeholders (see Section 5.3 for more on their views of the support available).

A2 discussed the same EMI-related challenges and also sought to exonerate the university for any blame for the students' English levels while placing all the responsibility with the schools:

> *We try to help them in the PYP, but we cannot do anything else… the mistake is not ours. I would say the schools [are responsible]. (A2)*

A2's description of the problems that resulted from inadequate preparation is also worth quoting: *"the students fall in this never-ending cycle of trying to catch up with the scientific part and the language at the same time."* It is interesting that this manager clearly felt that nothing more could be done by the university, a view that is very much at odds with other stakeholders' perspectives on the PYP (see Section 5.2) and what the literature tells us about the ways in which EMI programmes can be delivered effectively (see Section 3.4).

A2's critique of state schools specifically was echoed by another manager, A3:

> *[State school] students come with very low levels, and they expect the PYP to be the magic wand that will enable them to… sound like a native. That is not true; English [must] be learned from a very young age. The PYP is supposed to be just a very little cherry on the top… the basics need to be learned at school. (A3)*

Again, a manager can be seen to be emphasising perceived failings further down the system and avoiding attributing any responsibility for the situation to the university itself. The description of the PYP as *"a very little cherry on the top"* suggests an underplaying of what can be achieved in what is, after all, an intensive one-year course. It also poses questions about how the PYP is designed bearing in mind that the university is well aware of the issues that many students still have with English after completing their secondary school education. Further consideration of the issues around state schools and the PYP can be found in Sections 6.2.2 and 7.2, respectively.

Despite their enthusiasm for the EMI requirement, none of the managers were able to identify any policy document stipulating it and were unaware of how the current policy was chosen. For example, A3 said, *"So, I'm not quite sure but I do not think there is any document."* A2 elaborated further, *"So, here's the thing, there isn't any written policy regarding that, but it's inferred because of, as I told you, the books and the materials that we use and, um, the plans, the department plans that were written beforehand, they're all in English. So, it's a, it's an inferred rule. Um, it's not, it's not written or explicitly written somewhere in the university or the institution's policy."* Similarly, A1 characterised the policy by stating, *"It is not hidden but it is not written… These are rules, even if they are not written but they need to be followed.*

And I think it is, it's obvious because our curriculum and our study plans are in English. Uh, so they need to be taught in English."

Furthermore, many answers in the managers' accounts of their experiences with EMI were consistent with those provided by students and lecturers. For instance, A3 acknowledged that EMI students indeed prefer L1 Arabic teachers (rather than native speakers) as EMI lecturers, saying:

> *If one subject is taught by two lecturers, one of them non-Arabic, students prefer… the Arabic one, even if the quota of students is already full for that course. (A3)*

When asked about the reasons for this, she explained that the students preferred to have the option to switch into Arabic when required (see Section 6.1.1 for a further discussion of code-switching/translanguaging in the EMI class context). However, A3 argued that that the students would benefit more from completing the course with the non-Arabic speaker as that would force them to develop their English skills to their ultimate advantage in examinations and beyond.

The managers did mention some considerations around lecturers' English abilities when making hiring decisions, although they focused primarily on the issue of accents rather than on a more holistic consideration of the lecturers' abilities in the language. The data reveal different perspectives on the issue of accents, with A1 stating that he looks for accents that the students will be able to understand when making hiring decision whilst A2 advocated hiring staff irrespective of accent because *"after [the students] graduate, they will go to [the] work environment [where] they will interact with different people from different backgrounds, different accents. So… we cannot limit them to Arabic lecturers, this is not how the real world looks like. (A2)*

The managers were also asked about whether they were aware of the problem identified by some of the medical students who studied on EMI courses regarding experiencing difficulties when switching from English to Arabic. However, most of them said they did not perceive this

as a major challenge. Specifically, A1 commented, *"We recognise this problem, but to be honest, very few students complain about it."* A3 also downplayed this issue as *"not a big problem."* The managers appeared to assume that only those students who had complained had been affected by this issue, not taking account of the possibility of a "silent majority" who might have suffered the problem but not voiced it at the university (a possibility that seems more likely given that the same issue has also been reported elsewhere in the literature, see Section 3.5). A3 concluded this discussion by stressing the perception that the advantages of EMI outweigh its disadvantages, which could be said to be representative of the views of the managers and, indeed, all of the interviewees, as a whole.

In summary, all the managers believe that any scientific teaching should be conducted exclusively in English. In their view, that is the only way to prepare students for the future job market. However, they varied to some extent in their beliefs about the advantages or otherwise of employing lecturers whose L1 was Arabic.

5.3 Challenges associated with EMI

This section discusses the findings from the interview data related to Research Question 3: "What are the pedagogical, social and cultural challenges associated with EMI in Saudi universities?" It is divided into four main sections: EMI as a barrier to developing scientific literacy (Section 5.3.1), students' different experiences dependent on their school types (Section 5.3.2), the need for support for lecturers (Section 5.3.3), and the affective impact of EMI on students and lecturers (Section 5.3.4).

5.3.1 EMI as a barrier to developing scientific literacy

The interview data revealed that four students (S1, S3, S4 and S5) reported encountering specific linguistic challenges in their EMI courses. Specifically, the students mentioned different

challenges related to their lack, or low levels, of linguistic ability. Notably, the students experienced more problems with productive skills (writing and speaking) than with receptive skills (reading and listening). Specifically, this section describes the students' challenges with writing, vocabulary, reading and lecture comprehension.

Students reported that writing and speaking are the most challenging tasks on their EMI courses. In terms of writing, they identified three main challenges. First, the three state school graduates (students S1, S4 and S5) reported finding it difficult to write academically and use proper academic vocabulary, especially when they were asked to write on the spot or to answer questions in exams. For instance, S1 mentioned the difficulties that she faced when writing:

> *I know I will make mistakes if I do not memorise the answer before, and I hate it when… a teacher asks me to write on the board if I don't… prepare ahead… I feel that I cannot explain deeply. (S1)*

Significantly, the student felt unable to give a deep explanation not because of a lack of knowledge of the content but because of a lack of language abilities.

Second, two of the other students who expressed similar concerns (S1 and S4) believed that spelling and punctuation are particular problems for Saudi EMI students. With reference to the discrepancies that exist between English spelling and pronunciation, S4 explained:

> *The spelling is hard especially with… medical terms, sometimes they are long words and hard to pronounce or write; also, because it is not even like you pronounce it, you know, sometimes it is different. (S4)*

She went on to explain that the teachers would take off marks for her punctuation, showing a connection between grades and English abilities, rather than content knowledge, which is something that lecturers did not confirm. Notably, deducting marks for poor punctuation is not

consistent with the syllabus that was examined for this study (see Appendix R), which made no reference to accurate use of English in its marking schema.

Third, two students (S1 and S5) mentioned that writing coherently and being able to clearly communicate their thoughts were among the major challenges that they faced on their EMI programmes. S1 referenced the teachers' criticism of her writing as being incoherent and lacking sharpness. She went on to say:

> *When I started the programme, I thought that using big, strange words would make my writing look better and coherent and impress my teacher to get high marks. But it turned out I was looking in the thesauruses for synonyms, but they cannot be used for what I want to say, and I made things worse actually…*

Based on such experiences, she said that the students needed further assistance with writing in particular, especially after the PYP, and suggested that specific standards should be set for them to follow.

All the students claimed that there was a lack of institutional support for the ongoing development of their English skills after the PYP, as described by S1 (above). For example, S6 said in response to a question about such support: *"No, I have never heard of any services provided by the university" (S6).* However, even though all the students consistently reported the absence of that support, two of the managers (A1 and A2) contradicted them. For example, in response to a question about the sort of language support provided by the university, A1 said:

> *[W]e recently encouraged our students, gave them, like, a special fund from the department to enrol in some [external] courses and some of the online distance courses. (A1)*

It seems possible that this fund was either relatively small or not publicised sufficiently given that the students did not express any awareness of it. It is also comment-worthy that many institutions in other countries (such as the UK) would offer such support internally, whereas in the university in question in Saudi Arabia, the support being referred to is external.

Lecturers were asked about how they address students' writing challenges. While they all showed awareness of those challenges, four out of the five lecturers said that they did not have a specific strategy to improve students' writing and did not intend to improve it or any other language-related skill. The other lecturer (T5) reported that she only tries to help students by putting simple exam questions. When asked about how she addresses students' challenges, with specific reference to those related to writing, she replied: *"I try to help, I do not… teach them how to write though because I do not know how."* As shown earlier (in Section 5.2), lecturers do not feel that it is their job to help students with their English. The above quotation suggests that, even if they felt that it was, they might not know how to do so. The issue of a lack of support for students generally is discussed in more detail in Section 5.3.3 below.

Another challenge that was reported by students relates to the vocabulary used on EMI programmes. Three students (S1, S4 and S5) reported that they found it difficult to understand and memorise all new vocabulary they were exposed to during their EMI programme – S1 said:

> *There are a lot of words that I cannot remember, and I need to translate. Even if I learn them, I forget them right away. That is why… it is not easy to answer teachers' questions. (S1)*

Commenting on the same issue, S3 protested *"we are not walking dictionaries; we cannot understand all of this at once"*, which seems to suggest that she was struggling with the amount of unfamiliar material (rather than building on what she had learnt at school). She also

highlighted difficulties with pronunciation and the fact that *"in exams, if you forget one word, then, for the whole question, you lose the mark."*

S5 built on the above theme of unfamiliar vocabulary and highlighted the failings of the PYP in that regard.

> *In the English year, we learn about things we do not really use later in our major, like [about] vacations or food. It is nice if we learn this, like, during school but not in the university. (S5)*

The disconnect between content on the PYP and on the degree course becomes particularly stark when the students in their first year are *"hit with long lists of words they could have let us learn before."* Bearing that in mind, S5 recommended that it would be better for students to focus on the vocabulary needed for their major in the PYP, so that it acts as meaningful preparation for the challenges that they would go on to face (see Section 7.2 for recommendations for how the EMI programme as a whole, including the PYP, could be improved).

Interestingly, A1, the head of the college, echoed the same critique with reference to the way in which things were prior to the introduction of the PYP. He explained that the English courses used to be delivered from each department rather than *"from the English institution"*. According to A1, that shift had been *"unpleasant for many faculty members… and for me personally":*

> *We actually preferred the outcomes from our teachers because they can deliver the communication skills required for engineering or medical students. (A1)*

He went on to highlight the fact that there was *"zero collaboration"* between these different aspects of the university (i.e., the science and English departments). This is a revealing contrast to his generally very positive presentation of everything the university was doing to facilitate

students' success on EMI programmes (see Section 5.2.2), suggesting that his defensiveness of its efforts only concerned what his own department was doing rather than the university as a whole.

As illustrated by the excerpts above, some of the students struggled to memorise and understand new terms in their EMI programme. Two of the students (S1 and S4) commented on how these struggles with comprehension adversely affected their participation and performance in EMI lectures. S1 identified her struggles to understand texts when reading on her own, and S4 highlighted her difficulties understanding lecturers:

> *If the teacher speaks in a difficult accent, or very fast or says a word I do not understand then I cannot understand the following information and I lose my focus. (S4)*

She also identified a strategy that she used to deal with this problem: recording the lecture to listen to it later. When replaying it and translating terminology into Arabic, she found content comprehension not so difficult. However, she noted that some lecturers do not allow recording, which would appear to be undermining a simple way to help their students to gain a better understanding of lesson content.

5.3.2 Students' different experiences based on their school type

One of the themes that emerged clearly from the analysis of the interview data was that private/international school graduates and state school graduates had different experiences with EMI. The latter group reported facing more challenges and having a more difficult transition to EMI (having attended schools with Arabic as the MOI). Such students also reported experiencing more fear and anxiety regarding EMI (see Section 5.3.4 on the affective impact of EMI). As will be discussed below, students had different experiences/views regarding the transition from school to university via the PYP programme, the EMI programme (understanding content,

participation, and examination) and using their L1 in the EMI programme.

S1, S4 and S5 had formerly attended state schools, whilst S2, S3 and S6 went to privately funded institutions. Thus, the three state school graduates had received 12 years of pre-university education in Arabic and EMI was a new experience for them but not for their private/international school counterparts.

Section 5.3.2 shows the challenges the former state school students were facing. When asked why they thought they were encountering such problems, unsurprisingly, they all referenced their previous schooling experiences and the extent to which that had left them behind their counterparts in terms of English. For example, S4 stated:

> *Of course, school is the reason, I would have saved a lot of time if I studied proper English at school and just focused on science at the university. (S4)*

S1 emphasised the same point but went into more detail concerning the deficiencies of her school in terms of the curriculum and pedagogical practices. Answering a question about why English teaching at schools was inadequate, she said:

> *Because of the teachers and the curriculum... I remember teachers [at school] asking us to memorize something then next day we just rewrite it… So just prepare for it... (S1)*

As discussed in Section 6.2.2, these comments about general pedagogical practices reflect what has been widely reported as the norm in Saudi state schools (i.e., spoon-feeding and rote-learning focused on memorisation rather than developing students' critical thinking skills). This student's specific allegations of improper conduct related to examination preparation warrant further investigation that is beyond the scope of this paper. She went on to comment in more detail about English at her course:

We never had the chance to explore writing and get feedback, like proper feedback. Even with speaking, I can't remember any day that I spoke in English at school, can you imagine? (S1)

Although detailed investigation of the pedagogical practices of Saudi schools are also beyond the scope of this dissertation, some comment on the situation is appropriate. The picture painted by S1 seems likely to be an accurate one, given the extent to which it is corroborated both by the testimony of other state school students for the present study and by other research evidence on the subject (Mitchell & Alfuraih, 2017). It clearly suggests that need for improvement in teaching at the school level, especially given the fact that such schools are part of an education system that feeds into EMI programmes at the university level, see Section 7.2 for general recommendations on systemic improvements.

The more general trend of blaming schools for students' difficulties in the EMI programme was a common response not only among state school graduates but also among lecturers and managers. For example, A1 referred to the schools' role when answering a question about why students still encounter problems after the PYP:

Because the problem is rooted in our schools…we cannot teach them everything in one year. ... I think some reforms should be introduced at school, not the PYP. (A1)

This is particularly interesting in the context of the same managers' critique of the PYP quoted in the previous section. Again, it suggests that he is defensive about the university in general when given an opportunity to place the blame on another part of the system, but also happy to criticise other parts of the university when it comes to defending his own department. In response to follow-up questions about the type of reforms that could solve the problems identified above, the same participant responded that they should address issues with *"the language, more focus*

should be given to the language." When further asked if that meant teaching more English classes at schools, he replied, *"Yes, or even start to let native teachers teach in state schools, maybe they can improve the situation."* The evidence presented above concerning the preference of the majority of the students for Arabic-speaking teachers suggests that that proposed remedy may not necessarily rectify the situation.

Interestingly, the above comments appear to represent an indirect criticism of Saudi teachers, by suggesting that part of the solution is to bring in English native speakers to work in state schools. Although their critiques were not as specific in terms of apportioning blame, the other lecturers and managers also all believed that schools should have made greater efforts to prepare students for EMI at the university. For example, when T1 was asked whether schools were responsible for the challenges that the students faced with EMI, she replied:

> *Yes, and especially government schools and university also, everyone needs to prepare them before they start the science course in English. (T1)*

As this extract shows, T1 also believed that the PYP programme should share the responsibility of preparing students for the EMI programme, an issue that is discussed in more detail below.

Along with having had different experiences at school, the two types of students had varying opinions about, and experiences of, the PYP programme. For example, S4, a state school graduate, provided the following account when reflecting upon the value of the PYP programme:

> *It was important, I learned a lot in that year, it won't compensate for the many years we studied in Arabic, but at least it is something. Also, it was the first time to really experience many things like writing paragraphs by ourselves and doing discussions. (S4)*

These comments reflect the students' experiences of changing pedagogical practices through the PYP, as that programme represented a shift away from rote memorisation, where the individual

is viewed as an empty vessel to be filled with knowledge, towards a pedagogy that encourages students to actively engage in generating ideas; a shift that S4 experienced as being liberating after the stifling experience of state school. The three state school graduates all viewed their experience in the PYP positively, arguing that without it, the situation would have been *"way worse"* (S4).

In contrast to the state school students' positive feelings, two of the private school graduates complained about the PYP programme. They highlighted that the lessons were slow and uninteresting, which led to them being insufficiently motivated. They found the EMI classes characterised by considerable repetition of what they had previously studied at their private schools. One student (S3) stated that attending the PYP was a waste of time, and she wanted to find a way to skip this *"unnecessary"* year. She did not find that year useful preparation for the EMI programme.

There was also some evidence of rifts between the students from the state and private education systems. The former reported feeling inferior to their peers from private/international schools, on account of the common perception among the respondents that students in the latter group had better English skills because they had more exposure to it and previous experience of it as an MOI. This is illustrated by the following response of S5 (one of the state school students) to a question asking her to clarify what she meant when she had said that she did not see *"the fruit of her seeds"* and might never see them:

> *I feel that whatever effort I make or [however I] try to help myself I am always going to be behind some students. (S5)*

When asked to further clarify which students she was referring to and why she felt like that, she stated:

Rich students from private schools... they are way ahead of me, I am the last to finish my exams… sometimes I get discouraged, especially when I see how easily some tasks are being understood by my classmates; it is clear that they are better, and I fear that this might affect my chances in the future." (S5)

Notably, S5 mentioned the different economic statuses of the two groups of students, making connections between affluence and English abilities. She also demonstrated a poor self-image and lack of self-esteem that seemed to be linked to comparing herself with her richer, privately educated peers.

All three state school graduates mentioned feeling intimidated by the presence of private school graduates in their EMI courses. For instance, when asked why they did not like to participate in classes, S5 said:

If [private school graduates] are in an auditorium or big room I get even more nervous to speak English, it is just something I cannot control… I feel scared of saying a wrong word or making people laugh because they do. (S5)

Similarly, S1 and S4 were also considered high achieving students at their state schools but reported feeling the same sense of intimidation because students from private schools were going to be in the same lecture. S5 went on to explain the ways in which lecturers sometimes compounded her sense of embarrassment and intimidation:

One thing that I also hate is when the teacher tells other students to explain to me. Why? Is it because they are better than me? But even if that is right, I want the teacher to explain, I do not want her to compare me to others in front of the class. (S5)

Clearly, the student interpreted the lecturers' actions, which might have been intended as a way to help since some students tend to understand better from their peers (an issue that will be further

discussed in Section 5.4 on learning strategies), as embarrassing and unhelpful. Nevertheless, the same student had previously stated that she would sometimes seek help from her peers; therefore, she was asked a follow-up question to clarify the difference between that and the teacher telling other students to help her.

> *Yes, that is by my choice …. This is embarrassing… If we have group work with like one [student] from private school, I do not like to talk or say anything, I let her say what she thinks because maybe she knows more than me… they usually decide for the group." (S5)*

These comments were made in the context of discussing group work lessons that required students from state school backgrounds to interact with their privately educated peers. The description of the state school students' reticence allowing the private school students to dominate the sessions suggests a reinforcement within the classroom setting of the social hierarchy established across the wider society. The affective challenges related to the EMI programme are discussed in more detail in Section 5.3.4.

While the state school students felt intimidated by the presence of their privately educated counterparts, there was some evidence that students in the latter group felt obligated by their lecturers to help their peers, something that they are not necessarily always happy to do. Only one student (S6) referred to this, however, her comments are worth reporting. When asked about her experience with group work tasks and whether she liked to participate in them, she said:

> *I hate the group work… and in the end, I am the one doing all the work because they leave it to me. And the teacher, she comes and tells me to help or translate to my group. I do not know how to translate everything. And sometimes I do not even know*

the answer but the teacher and everyone in the group is expecting me to say the answer. (S6)

This both corroborates the previous comment from the state school student (about lecturers asking private school students to explain) and offers an interesting contrast to it, showing how the differing English abilities in the EMI classroom are experienced negatively by students on both sides of the divide. It is also interesting that some lecturers are relying on some of the more able students to translate, despite the fact that such students do not necessarily have sufficient English language abilities themselves (*"I do not know how to translate everything").*

Another complaint voiced by one state school graduate (S5) was that EMI prevented them from pursuing their study in their desired major/department. Therefore, that student had a positive attitude towards English proficiency as it can open doors towards desired opportunities. When asked whether studying this course was not really her choice, replied:

I want to study medicine…but I couldn't because I needed a stronger English language. (S5)

S5 attributed her inability to study medicine to insufficient English language preparation in secondary school and the lack of support provided at the university (e.g., through the PYP). This lack of preparation and support had, in her eyes, limited her life chances. According to the comments of the two other state school students (S1 and S4), EMI was not merely preventing students from accessing their preferred courses but also leading others to drop out. As S4 related:

I know one friend who used to be with us, but she dropped out, she went to [another] university because they were less strict with English. (S4)

These comments were made in the context of discussing admission processes, which require prospective students to not only pass the PYP but also to achieve a specific grade point average

(GPA) requirement in order to access the limited places that are available (see Section 2.4 for further details). In most cases, those who could not meet the requirements of their desired programmes were directed to study different courses. That means that those who have better English proficiency have more chance of being admitted to the competitive programmes.

Interestingly, while graduates of both types of schools believed that English should be the medium of instruction in their science programme, state school graduates thought that it was fine to occasionally use Arabic in class. In contrast, private school graduates believed it was confusing and stressful to use Arabic during EMI lectures. Regarding the issue of lecturers occasionally using Arabic, one of the state school-educated students (S1) said:

> *It is fine to use Arabic, we are all Arabs and sometimes it is easier and takes less time to understand. (S1)*

S1 expressed a positive view of the use of Arabic where possible, as it allows her to understand what is being taught. In contrast S6, a privately educated student, responded to a question about whether she preferred all English or a mixture of English and Arabic in the lectures by saying:

> *No, I do not like when the lecturer switches completely, like I said it is confusing and it is better to stick to one language only because later in the exam it will be all in English, … so there is no point in using Arabic. (S6)*

The two quotations above illustrate differing views regarding translanguaging between students who were distinguished by different levels of expertise in English. Significantly, all of the privately educated students were critical of the use of Arabic in classes, while all of the state school graduates welcomed it.

The two other private school graduates (S2 and S3) expressed negative opinions regarding the teaching methods used in the EMI programme, commenting that lecturers spend

too much time repeating basic information or speaking slowly. Therefore, they felt that they were being held back. For example, in response to a question probing why the student had called the lectures boring, S3 replied:

> *It is not that helpful, first, we take the same information, sometimes a copy of what we took in school, and even with this [the] teachers keep repeating for other students. (S3)*

This student seemed to be upset about both the content of the programme and the lecturers' pedagogical practices, feeling that too much repetition of basic ideas was holding her back from progressing in her learning at the speed that she would like. Interestingly, the third private school graduate (S6) did not express the same dissatisfaction with the teaching style.

The lecturers were asked to comment on the criticisms raised by S2 and S3. In response to a question about whether their classes were slow and repetitive, T5 responded:

> *Yes, this happens in my class too. I cannot ignore the students who did not understand, if they need me to repeat, I will, which annoys some other students. Sometimes, we intentionally put students with different levels together to help each other but that is not always what happens. (T5)*

Although this lecturer was aware of how the potential negative effects of her style on some students, she still believed that she should keep repeating for the benefit of those students who needed more support to understand, refusing to abandon them for the sake of others who are more advanced. This teacher showed that she reflected on her students' different levels and seemed to acknowledge that they would not all learn in the same way, basing her pedagogical decisions on that knowledge.

Overall, all five lecturers believed that their students normally have low levels of English proficiency, and they seemed to expect such low levels from the students even before meeting

them. When lecturers were asked what exactly it means to have "good" or "enough" English proficiency, they all shared the view that it meant *"not having to use Arabic".* That view is illustrated in the following quotation from T5, who stated that having good enough English meant *"understanding the scientific content without having to interrupt the flow of the lecture to translate each and every word" (T5).*

Furthermore, all five lecturers and managers agreed with the students' view that the type of school previously attended would influence students' performance in EMI. Specifically, the lecturers reported having different experiences with graduates of the two school types (state vs. private/international). Three lecturers (T1, T3 and T4) said that they could identify state school students by their English levels and needed to invest extra effort and time to help them, having to explain aspects that they expected the students to have already learnt. For instance, T4 said:

> *You can clearly see the difference in students' levels, and you can recognise the ones who studied in private schools, they are easier to teach, and you do not have to work a lot on their language, contrary to those who were in state schools. They need time and effort before they can draw near the level of their peers from private schools. (T4)*

These differences were observed by all the lecturers and university managers, showing that all the participants perceived state schools to be inadequate preparation for the English requirements of EMI courses at university level. Of course, it could be argued that the lecturers were guilty of assuming that all good students were from private schools, however, further discussions indicated that they had verified those observations through discussions with pupils and consulting their academic records.

Overall, it was clear that the state school and private school graduates had significantly different experiences of the EMI classes at university, differences that could be attributed to the

language of instruction used at their schools and which appear likely to shape their future prospects. Consequently, they had differing views regarding the use of translanguaging practices in classes, with private school graduates considering such practices a waste of time, while the state school graduates welcomed the lecturers integrating Arabic into their teaching (see Section 6.1 for further discussion). Generally, the state school students felt intimidated and lacked confidence when faced with the requirement to use English. Meanwhile, the privately educated students resented the classes being slowed down to accommodate those students who struggled with the language, Both the state school educated students and the lecturers/managers shared the view that state schools had offered inadequate preparation for the rigours of studying in a foreign language at university level.

5.3.3 The need for support for lecturers

It is also important to note that the lecturers themselves have needs regarding support, needs that they reported despite what appeared to be a general reluctance to talk about their insecurities and difficulties. They mainly discussed two means of support: training sessions and collaborating with language specialists. Their willingness to participate in such sessions will be discussed in this section. Significantly, all five lecturers reported having not received any appropriate training before they started teaching an EMI programme. Moreover, none of the lecturers were asked to provide any certification of EMI or English skills when they were hired. At the same time, three of lecturers (T1, T3 and T5) believed that they needed some type of support while teaching using EMI. Those who perceived their English level as adequate (T2 and T4) expressed more positive views of EMI but were still open to the prospect of attending any training provided by the institution. The evidence for each of the statements above is detailed below.

When discussing the support provided for lecturers, one of the topics that was frequently discussed was training sessions. In response to a specific question about whether she would benefit from training sessions if they were provided, T1 replied:

> *They are not offered, and I do not think it ever crossed [the university managers'] minds to do something like this for the lecturers… My English is not that good, we also need help, like training for English especially, speaking (T1).*

T1 admitted that her English language skills needed to be enhanced and that she also needed help with pronunciation so that the students could develop their proficiency; despite this, no support was provided. When expressing her need for training, she seemed to be struggling with speaking more than any other skill. Her prioritisation of speaking is unsurprising since the ability to speak effectively is a crucial skill for an educator, enabling a lecturer to transmit knowledge to students.

When discussing the actual type of support needed by lectures, T3 echoed T1 by expressing her willingness to participate in any training, especially those sessions that could improve her speaking skills. In answer to a question about what type of support or training she would find most effective, she responded:

> *I say speaking, because we teach and any mistake is easily noticed by students… but that, of course, does not affect the quality of my teaching… I am very proficient… (T3).*

The previous two extracts highlighted how lecturers might be conscious about their speaking skills especially because, as lecturers, they are expected to speak for a long time, and they might not be comfortable doing that while using English. The lecturers had to hide any perceived deficiencies and present themselves as capable regardless of whether they were able to communicate effectively or not. In the discussions from which the previous extract was taken, T3

highlighted her awareness that students scrutinize her English proficiency, thus increasing her apprehension about using the language correctly and potentially triggering her fear of being embarrassed in front of the students. In such a context, developing lecturers' competence in the English language would have a positive influence on both students and lecturers. As mentioned previously, the lecturers' specific concerns regarding speaking in English may be inhibiting their use of more interactive pedagogical styles.

Even though lecturers mentioned some of their difficulties and their need for support, they did so very briefly and were not too keen to open up about their own language difficulties (as exemplified by the quotation above from T3, in which she rapidly shifts the discussion from her support needs to a statement of her own, self-perceived, high levels of proficiency). It was clear that the lecturers were uneasy discussing their own challenges regarding communicating in the English language. Teachers generally, being in positions of authority where they are expected to be knowledgeable, are justifiably wary of showing their own shortcomings.

When the same question regarding support and training needs was asked to another lecturer (T4), she highlighted her need to be trained to use the language for teaching and expressed that her goal was to acquire the skills required to teach non-native English speakers. Specifically, she said:

> *We need training, maybe not in the language but in teaching skills… how to make students more engaged … how can we give feedback and support our students who are not very good, or when the course have different levels of language. (T4)*

As this quotation illustrates, this lecturer (who did not speak Arabic) was confident about her English proficiency, but she showed awareness that more general teaching and communication skills were required to make EMI programmes less problematic. Specifically, she needed to

improve her abilities to manage activities in the EMI classroom, such as giving feedback and managing students with different levels of English proficiency, rather than focusing on improving her own English skills. Some of the skills to which she was referring (e.g., giving feedback) are general requirements of effective pedagogy that can be challenging even in non-EMI contexts.

When lecturers were asked about the type of support that they required in an EMI context, the possibility of collaborating with language specialists was generally regarded as *"helpful"*. While one lecturer (T5) believed no joint-working was required to address an issue that they saw as solely *"the language teachers' job"*, the other four lecturers welcomed the potential for such collaboration. For example, T1 argued that she and her colleagues in the EMI department would benefit from obtaining support from experts specialised in teaching English for specific purposes, akin to the lecturers working in the PYP programme. Specifically, when asked about what support or training would be most effective for her, she said:

> *What we need is someone who is specialised in the language, but then it is the same problem: they are not science teachers, and it is unfair to ask them to shift their focus to science. But we can get together and do something, like planning for the lesson and checking for accuracy. (T1)*

This lecturer stressed that her job is to be a science lecturer (not an English teacher). However, despite the fact that she is not qualified to teach language, she does not make the job of supporting students with their English solely the responsibility of the language teachers since their limited scientific knowledge means that they cannot complete perform that function alone. Nevertheless, despite the words quoted above, neither this lecturer nor her colleagues communicated a sense of enthusiasm about addressing language problems or dedicating time to

do so. T1 did, at least, refer to the dilemma of preparing both content lecturers and language specialists, where both need to have at least some background in the others' specialisation, which is something to be considered when advocating and establishing such collaborations. She also went on to suggest that language specialists could also provide extra help with the marking of students' exams and assignments (to correct English language mistakes).

The extract quoted above suggests that lecturers do not generally understand fundamental concepts of EMI or their roles in implementing it. For example, they believed that EMI is just about switching language, not understanding that it also needs a shift in pedagogy to be effective and they also have a responsibility to provide language support to the students (see Section 6.4 for further discussion).

Following on from T1 mentioning how she would benefit from increased joint-working between language and science lecturers, the other lecturers were asked if they would welcome such collaborations and how exactly they would envision it working. Significantly, all the lecturers and managers reported the absence of such collaboration, but all the lecturers, except one, believed that there was a need for it. When asked about how exactly one would expect the collaboration between science lecturers and language teachers to occur, one of the teachers replied: *"Maybe by… regular meetings or… sending stuff to her to check or… planning the whole materials together" (T3).* Thus, this lecturer seemed to prefer such collaboration to be consistent, with both teachers meeting and working together on a regular basis.

T1 argued that such collaborations between science teachers and language instructors would be *"very useful"*. However, she also noted that, in order to be effective, they should be well structured and obligatory. Responding to a question about how she would envision collaborations between science lecturers and English specialists working, she replied:

> *some type of organised collaboration, where every [English] teacher is assigned to work with a particular lecturer… science lecturers need to contribute and explain the scientific part to the language teachers, but… it should not be optional, we all know what will happen. (T1)*

Similar to that view about the importance of planning, T3 also believed lecturers would need to use some sort of system to make such collaboration work. Responding to a follow-up question about how specifically language teachers could play a helpful role in planning the EMI course, she said: *"by… regular meetings or… sending stuff to her to check or… planning the whole materials together" (T3).*

The extracts above show the lecturers' belief that collaboration would be beneficial only if it was organised and systematic and not left as an option which could lead lecturers to neglect the work. This is interesting and significant in that it suggests the existence amongst the lecturers of a culture of only doing what they are required to do, or, at least, the perception amongst some lecturers that such a culture exists amongst their peers. The implication of T1's words, *"We all know what will happen",* is particularly revealing in that regard. It is also noteworthy that the lecturers reported that the students would not do anything that was not required (i.e., if it did not directly contribute to their grades), whilst at the same time, there is evidence here that the same accusation could be levelled at the lecturers. Nevertheless, the lecturers suggested different ways in which they could collaborate with language specialists. Such collaboration could take many forms, such as being consistent and ongoing through the entire course or just being as simple as reviewing the materials and pointing out any suggestions for improvement at a one-off meeting at the beginning of the course.

It is also worth commenting on the one lecturer (T5) who was opposed to such collaboration. Her view was that involving another teacher would be uncomfortable and stressful and generate more *"unnecessary work".* In response to further questioning about why she felt that way, she replied *"the ship sinks if there are two captains"*, a response that was revealing in terms of what it seemed to suggest about a fear of losing power through collaboration with another professional. Her further comments on this subject also suggested that the additional stress that she feared would result from having her own English language capabilities continually evaluated by her colleague. It may not be significant, but it is perhaps worth noting, that T5 was both the oldest lecturer and the one who expressed some of the most concern regarding negative impacts associated with teaching in English (see Section 5.2.1). It is also noteworthy that the other lecturers who were positive about the potential for collaboration did not reflect on actually sharing the class with another teacher, instead, they focused only on the aspects of collaboration related to planning, reviewing, checking and being available for questions (i.e., no elements that involved sharing power with another professional or being under additional scrutiny when teaching).

Overall, the lecturers were found to be underprepared or inefficiently supported for their roles on EMI programmes. The interviews with the lecturers revealed different needs, such as language improvement and pedagogical training, and raised questions regarding improving collaboration between language and science lecturers. The data suggest different implications that could help to improve the outcomes of EMI programmes. First, the lecturers might benefit from language training that focuses on developing their English competence, which could also increase their self-esteem. Second, lecturers' challenges were not limited to the linguistic aspects of EMI, there seems to be a need for training that focuses on improving EMI pedagogy as well as

the lecturers' English proficiency. Additionally, the participating lecturers do not fully understand their role as EMI lecturers and what that role entails; the fact that they are denying any responsibility for improving students' language or providing any type of support highlights the need to raise awareness of the role of content lecturers in EMI, for example through a clear policy that could guide the lecturers and explain what is expected from them (see Section 7.2 for recommendations related to such a solution).

It is noteworthy that there appeared to be miscommunication between university managers and other stakeholders concerns lecturers' training. According to the lecturers (see above), there was a need for training in different areas such as speaking and general teaching skills. However, the university managers did not see any point in providing such training. The justification given for that position was that the lecturers were deemed to be experts, having gained their qualifications from international institutions in countries such as the UK and the US. In a discussion with one of the university managers about the challenges lecturers face, the manager (A1) expressed confidence about the lecturers in his department and their ability to teach in English. The fact that they *"did not complain"* and his own perceptions, which perhaps reflected broader cultural assumptions about lecturers who had pursued their education abroad led him to conclude: *"there is no problem, no one talked about any problem from the lecturers' side, they all studied overseas in America and the United Kingdom and Australia."*

In the previous extract, the manager believed that in order to address a problem he had to receive complaints about it. However, lecturers seemed to be facing challenges that they were trying to hide, and it would take courage for lecturers to report such challenges to their own employer, leading to a reluctance that could affect the students' achievement in the EMI programme. Another important point is the distinction between having studied in an anglophone

country and the ability to use English to teach science to second language students. Despite the fact that the lecturers were deemed to be qualified to teach on the EMI programme, some significant gaps in their capabilities were apparent from their own testimonies. For example, as highlighted above, the lecturers stated that they had not received any dedicated training prior to teaching on the EMI programme. Moreover, none of the educators who took part in the research were asked to provide any certification regarding their proficiency in EMI. Neither were they asked to demonstrate their English language skills when they were originally hired. Three of the five lecturers (T1, T3 and T5) believed that they needed some form of support whilst teaching using EMI.

5.3.4 The affective impact of EMI on students and lecturers

All the students in this study reported having experienced affective challenges related to their EMI programme. Interestingly, there were continuities and similarities in terms of the affective challenges faced by students irrespective of their educational background. For example, all the students remarked on the psychological difficulties associated with speaking English in front of others. The fear of making a mistake when speaking in public appeared to be creating blockages around language acquisition and demonstrating learning. For instance, S3 (a private school graduate) said she avoided participating in the EMI lecture for fear of making mistakes. More specifically, she noted:

> *I am scared to make a mistake or say something wrong out loud; sometimes, I know I know the right answer, but I am hesitant, and I do not say it unless like the teacher says my name and asks me to answer, which makes the teacher think that I am lazy (S3)*

This quotation illustrates an important point about the impact of EMI on students: even when a student is confident that they know the right answer to a question (i.e., has good content

knowledge), the medium of instruction can make them afraid to express that knowledge for fear that they will make a mistake when trying to express that knowledge in English. In the case of S3, she believed that the resulting hesitancy to speak was causing her teacher to perceive her as lazy instead of recognising that she is a student who fears the consequences of failing in front of the class.

S4 mentioned that one of the reasons why some students may encounter psychological difficulties in EMI classes is that they might fear being judged about their capacities based on their proficiency in English. She said:

> *people usually judge you based on how you sound when you speak English, they think maybe you are not smart because you cannot say it in English but if it is not like a native speaker, I mean the accent. (S4)*

Given that there are numerous English accents ranging from those that are prevalent in the USA to the different forms of English spoken in the UK, each of which can be related to a particular social class position, the social position of the articulator becomes multi-faceted. Speaking English with an Arabic accent was, however, viewed as another potential issue that could generate ridicule. Together, the interview excerpts quoted above illustrate how stress and fear of making mistakes can adversely affect students' academic performance. The words of S4, in particular, and the earlier quoted S5, shift the focal point in the discussion around stress from the educator and their pedagogic practices to the class environment in terms of the role of peers and whether they provide support to or denigrate those students who are struggling. In terms of the potentially positive role of peer support, S5 commented that knowing the other people on the course and being friends with them gave her greater confidence to participate *"since they will not do something bad to me."*

S6 provided another example of a student expressing her emotional challenges regarding EMI and how they link to being around her peers: *"But when it comes to speaking, I am also good… it always makes me anxious."* This is consistent with the general fear of public speaking that is common in many contexts and intensified when speaking in a foreign language. It also suggests the need for particular psychological support for EMI students focusing on public speaking. That was not a specific solution suggested by any of the students, but they did report finding ways to face their fears, which typically involved relying on their inner resources (e.g., taking inspiration from their own motivation to excel in the EMI programme). For instance, S5 said: *"You can [overcome challenges] if you work on yourself and if you love what you study." (S5)*. S6 provided another example of a motivated EMI student, arguing: *"I think there is a challenge in anything in life, so I just have to find ways to adjust and keep going to get where we want to be" (S6).* These quotations illustrate the importance that students attached to self-belief and finding their own solutions to enable them to overcome their challenges.

However, while three students referred to motivation as a major factor that helped them overcome their difficulties on the EMI programme, one of the managers had a more pessimistic view of students' motivation. For instance, she believed that students were not always sufficiently motivated: *"if you ask them to do something that has nothing to do with the marks, grades and assessment, they will be lazy to do it" (A3).* The manager viewed the students as overly fixated on their grades, lacking a wider, holistic sense of the value of education. One of the lecturers developed this theme by referring to the *"mark-oriented culture"* as the main factor that impedes students' systematic effort at self-development and overcoming difficulties:

> *We always do things in education just to make sure students pass the exam and get good grades… they might cheat for good grades. (T2)*

Whilst previous comments have focused on the problematic pedagogies imposed upon the students by the various educators, here one of the lecturers reflected on how the educators are also constrained. For example, she spoke about how students are shaped by the overall requirement to obtain good grades in order to enter university, making that the focal point of the class intervention. Pedagogical styles are, therefore, built around obtaining good grades, which can be done in numerous ways, including cheating.

Overall, it seems that the psychological challenges associated with using a language other than the students' L1 as the MOI can affect individuals' performance on their course. Such challenges are not always related only to students' abilities to use the language but also, sometimes, to the culture of the university.

5.4 Students' learning strategies in EMI classes

This section discusses the findings from the interview data related to Research Question 4: "What learning strategies do students use to address the challenges they encounter in EMI programmes?" The findings here are divided under the headings of the types of strategy that the students mentioned. In terms of the frequency with which the identified strategies were discussed, it is important to note that all the students (S1–S5) mentioned the extensive use of social learning strategies (see Section 5.4.1). Cognitive strategies, such as the use of L1 and various facilitating digital tools and technology, were the next most frequently mentioned type of strategies (see Sections 5.4.2 and 5.4.3. respectively).

5.4.1 Social strategies

In their use of social strategies, EMI students reported seeking several types of support, including that of family, friends and peers, lecturers and external actors. The results revealed that all six students sought help from people around them, such as family, friends and peers (including

previous students) – to cope with the challenges of EMI education. For instance, one student (S5) said she would frequently ask for assistance from her elder sister, a graduate of the same department, such as advice about how to study, information about course content or help with translation. In response to a question about what she does when she is struggling with any aspect of the course, she replied:

> *My sister is my go-to when I struggle. She studied in the same department she went through all this before me, and she took all those examinations. So, if I do not understand something, she would explain [it] to me. (S5)*

Interestingly, the same student also mentioned that, along with providing help to the family member, her sister was also willing to help S5's peers, thus actively contributing to a broader network: *[S]ome of my friends call me, so I let them talk to her, and she would explain to them.*

A similar account was provided by another student who mentioned that, whenever she was experiencing difficulties in her EMI studies, she would seek help from her friend: *"I would simply ask my friend to explain" (S6).* Importantly, the aforementioned student also emphasised the value of students' teamwork and mutual support in the EMI programme. In that student's specific case, this took the form of an extracurricular study group of EMI students who would help and support each other. Answering the same question about what she does when struggling with any aspect of the course, she stated:

> *Before corona, we actually had a study group [we would] encourage each other to do things on time and not to forget about the work until exams… [W]e used to enjoy [it]. (S6)*

As illustrated in the interview excerpt above, joining a study group is believed by students to be an effective strategy to make the learning process more enjoyable and interactive, as well as to better cooperate with other EMI students and avoid procrastination. However, this strategy seemed to have been affected during the pandemic since students were not able to meet in person (further comments regarding the impact of the pandemic on social learning strategies are given at the end of this sub-section).

According to the interview data, social collaboration among EMI students can go beyond the group level to include all students in a course. In that respect, one of the students reported that she had an experience when all the students in the course fruitfully collaborated to gain a better understanding of the content of their lectures. Interestingly, the response below was to a question about how teachers could help; rather than going down that track, the student described the strategies that she used with her peers (without support from the teachers):

> *We agreed that each one of us would take apart from the material and summarise this part, and we did, like, diagrams [and a] mind map... [W]e all incorporated something(S4)*

When S4 was asked if she transferred this strategy to the other courses, she said:

> *I tried to suggest that we do it in another course, actually, but some people did not want to commit. (S4)*

Generally, the students' accounts of forming study groups on their own initiative and working to positively motivate each other stand in contrast to the general impression of a lazy student body lacking motivation that was communicated by some of the lecturers/managers).

Another related example comes from a student describing how a lecturer in her course helped the students to better organise their collective learning:

> *[…] it was suggested by our teacher… she helped us to distribute the material… Then she would expect us to send her what we did on email to review it and check our translation before we give it to the rest of the students. (S1)*

As the quotation above clearly illustrates, dividing work helped to save students' time and effort and positively impacted their performance (as evidenced by the fact that they, according to S1, all received good grades following the implementation of the strategy described above). This example shows that the lecturer's role might be particularly important in guiding and encouraging students.

Finally, and as already mentioned above, the interview data revealed that the social strategies used by EMI students had been adversely affected by the COVID-19 pandemic. Specifically, with most university-level studying going online on account of the pandemic, EMI students have had fewer opportunities to get to know each other and engage in meaningful cooperation to overcome the challenges in their EMI studies; one of the students provided the following account: *We do this now on Zoom, ... and I do not know most of my classmates. (S2)* As mentioned previously, not knowing one's classmates can potentially contribute to a greater sense of inhibition and embarrassment when required to speak in public. Therefore, the sense of disconnection created by the pandemic may have had a negative impact on students' confidence and, consequently, learning.

In summary, the results of interview data analysis revealed that social support is believed to be a meaningful way to address the challenges students encounter during their EMI courses. As suggested by the interviewees, EMI students are supportive and make an effort to help each

other. Of note, however, this support is not necessarily about their academic struggles. Sometimes, students seek emotional support from their peers (see also Section 6.4.2 for further discussion).

The second group of social strategies mentioned in the interviews relate to the different methods that EMI students employed to get lecturers' assistance. Overall, EMI students perceive lecturers as the primary resource of information in the course. They trust the lecturers' judgment and, given that it is lecturers who set the exam questions, expect assistance and guidance from them. In practice, such seeking of lecturers' assistance can take many forms, including requests to repeat some aspects of the lecture, asking questions during teachers' office hours, or contacting lecturers by email for clarifications.

For instance, one of the students shared her positive experience from getting her lecturer's assistance during their office hours as a good learning strategy in EMI courses; in response to a question about whether she ever asked the teachers for help, she replied:

> *I ask her to repeat, but I like to go during the teachers' office hours and ask; the teacher can focus on me and my problem, rather than the whole class. (S4)*

The comment about engaging with the lecturer in a private space may suggest that the number of students present at the lecture is a factor preventing the lecturer from giving students the level of attention that they feel that they require. Another interviewee mentioned seeking lecturers' help as an adaptive learning strategy in EMI courses; in response to a question specifically about the lecturers' office hours, she said:

> *When you go to the teacher's office hour, the teacher can talk to you in Arabic. Not all teachers like to speak Arabic in class, but it is different when we are alone. (S3)*

From the above, it appears that lecturers can apply different practices during their office hours compared to their EMI lectures. More specifically, in the latter settings, they may be more flexible in terms of language use and switch to the students' L1 to help them to better understand the content and encourage them to ask questions. The data, therefore, suggests that office hours offer a unique space for switching. Factors that may have influenced this include being alone with the lecturer (i.e., away from the gaze of other stakeholders at the university) and possibly the fact that the students can start speaking in Arabic, thus prompting the lecturer to respond in the same language.

Another practice related to seeking assistance from EMI lecturers was contacting lecturers for clarifications by email. The purpose of this strategy is two-fold: on the one hand, by contacting a lecturer by email, an EMI student can avoid being publicly exposed to the lecturer's potential negative judgment; on the other hand, the student has more time to carefully read the email that comes in response and, if needed, ask for help to interpret it correctly. One more advantage of contacting a lecturer by email is that it is a less stressful option for less confident students. The interview excerpt below illustrates the advantages of this strategy; in response to a question about whether the student visited teachers during their office hours to ask for help, S5 said:

> *I like to ask my teacher through email. Because I have the information with me, and I can ask anyone else about the meaning… It does not have to show in my face… because I am shy. (S5)*

The lecturers were also asked how they felt about the students using email as an informal means of communication. The following response from T1 is representative of their views:

> *I do not mind as long as they understand what they need to do… I even have a group on WhatsApp with the whole class in it so they can discuss anything they want, and I can help, they speak in Arabic and English. (T1)*

This suggests that electronic forms of communication (whether via email or WhatsApp) also provide spaces for switching away from the university's more formal learning environments (e.g., the lectures). See Section 6.1.1 for more discussion about code-switching in different contexts.

However, while some of the students mentioned that they would explicitly seek their lecturers' assistance (whether in person or via electronic means), an important nuance that emerged in the interview data analysis is that two students reported feeling reluctant to contact lecturers. For instance, one of the interviewees said she felt more comfortable asking her sister, a former graduate of the same EMI programme, than her lecturer; in response to a specific question about whether she asked lecturers for help, she replied by immediately referring back to her sister:

> *Unlike the lecturer, I can keep asking her [the sister] and tell her honestly that I have not understood what she said. (S5)*

In the interviews, the EMI students' reluctance to seek lecturers' help was underpinned by the following three factors: (1) avoidance of a potential negative judgment; (2) unwillingness to bother or annoy the lecturer; and (3) a lack of confidence in EMI classes.

With respect to the first factor (avoidance of a potential negative evaluation of the lecturer), one of the students admitted she would consider contacting a lecturer only when absolutely necessary; when asked whether she would ask a lecturer for help in the lecture, she said:

No, I do not interrupt teachers in lectures…I [only] go to the office hours if I am stuck. I do not like when the teacher thinks I am not a good student. (S6)

The above extract may suggest that there is an intimidating atmosphere in some of the lectures or, at least, that students feel intimidated and thus are discouraged from participating (a conclusion that is generally supported by the data previously presented in Section 5.2).

Furthermore, with regards to EMI students' attempts to avoid bothering or annoying the lecturer, one of the students explained her way to try to minimise it:

I sometimes feel that I bother the teachers by showing [up] a lot in their office time, and I feel like I am a burden... [therefore,] I try to collect all my questions and ask all of them at one time. (S1)

This reluctance of EMI students to get in touch with their lecturers when issues emerge can negatively impact cooperation between lecturers and students and, ultimately, students' performance in exams. Specifically, as students may postpone addressing their lecturers until the last possible moment, the teacher may not be able to resolve all their issues before the exam. A good illustration of the point is provided in the following account by an EMI lecturer; when asked about what help she offered outside lectures (with a prompt about office hours), she responded:

we are required to offer office hours to students, usually two hours a week... [T]hey come more before the exams, the dead week,[1] that time they form a line outside my office door... [but] I can't help everyone at that time. (T1)

[1] Dead week is the week before exams. During this week, there are no lectures and students usually revise the important aspects of the course, coming to the university only if they need help or have questions.

Overall, the reluctance of students to seek lecturers' assistance can be attributed to the following two factors. The first factor relates to personality: shy or less confident students, i.e., those who are conscious about their suboptimal English skills, may avoid speaking to or asking the lecturers for help. The second factor is fear of losing face, there seems to be an implicit expectation that good students would know all answers and making mistakes is considered shameful by some students, which leads to losing face. Face, or an image of self, is a salient concept in Saudi culture. Losing face entails embarrassing the self, and cultural concerns regarding that appear to contribute to creating an environment where EMI students would rather avoid speaking to avoid an imagined negative evaluation on the part of the lecturers.

The third group of social learnings strategies used by the students was seeking help from external sources. In this case, assistance was sought to enhance both English proficiency and understanding of scientific content in English. The major reason the students reported resorting to this strategy is that they failed to find (or did not seek) assistance from their lecturers.

When speaking about getting external help, the interviewees mentioned the following two practices: (1) attending extra classes provided by a private institution and (2) hiring a private tutor. In the excerpt below, one of the students describes her experience of getting help from a private institution. As becomes obvious from her account, the quality of assistance that an EMI student might get can considerably vary:

> *I go to extra classes that **** institution offers, you can choose your schedule… [and] they had experience with so many students before. The class has only five students, I had a class in another institution, the class had more than 10. I did not really gain anything (S5)*

This highlighting of issues regarding class size may also imply some of the problems that students struggling with English face with the university programme and the PYP, which are both characterised by large class sizes. When asked further about the exact services that these institutions usually offer beyond the extra classes, the student answered:

> *They sure have for English but also [classes] for science courses… they try to put everyone from the same university together [so they can] teach them exactly what they take in the course. [S5]*

The extent to which such institutions can customise their offering to the needs of specific university courses is suggestive of how well-organised and experienced they are. However, two of the EMI students in the present study mentioned hiring a private tutor as a more effective and personalised way to cope with EMI challenges. When asked whether she had used that strategy pre-university, S3 replied:

> *I decided to hire a private tutor and not wait until I fail. Also, if I hire the tutor from the beginning of the year, I can guarantee she will put me in her schedule when the exams start. They become fully booked. (S3)*

The final sentence is perhaps unsurprising but also consistent with the general sense communicated in the findings about the extent to which the whole university education system is focused on the exams. The interviewees' accounts revealed that hiring a private tutor is a common practice among EMI students. However, according to the students, hiring a private tutor is a costly solution (in which context it is worth noting that S3, the student quoted above, was a private school graduate from a more affluent background than some of her peers) When asked about costs, one of the students said:

> *... the private tutor takes 500 riyals per hour [around £98] ... I cannot afford it. (S1)*

This extract reiterates the divide between the more and less affluent students (i.e., those educated in private and state schools, respectively), as discussed in Section 6.2.2. S1 was one of the students who had attended a state school. Bearing in mind the high cost of tuition, one of the EMI students (S5) mentioned that some students found a solution by jointly hiring a tutor to split the cost.

According to the interview data, the practice of hiring private tutors seems to be extensively used by students and becomes even more common in the exam period. This can also be seen from the number of advertisements on different platforms, such as WhatsApp, Telegram, and the university campus' advertisement board (see Appendix N for an example), which promote different types of services such as tutoring and help with presentations or assignments. However, despite its popularity, this strategy has two important downsides. First, in view of the cost, only a limited number of students – typically, those coming from more affluent families – can afford it. Costly as it is, it becomes even more expensive during the exam period. Second, there are ethical concerns about the services offered by private tutors. Rather than providing genuine assistance and helping students to cope with EMI challenges, private tutors can also do assignments on students' behalf. This raises ethical concerns and also, potentially, adversely impacts the students' education, as highlighted in the extract below in which a student talks about private tutors:

> *They are frauds. You do not learn anything from them, but they do all the work for you instead… [I]t is cheating (S6)*

It is worth noting that S6 was a graduate of a private school, hence it could be argued that she could afford to take such an ethical stance because she had been privileged to have a good education in English prior to attending university. A similar negative view of private tutoring

was articulated by one of the lecturers. She argued that it is the university lecturers' responsibility to explain materials to EMI students, while students were expected to diligently study and do their homework. She also emphasised that the practice of hiring private tutors does not benefit students in the long run, as they would fail in the end-of-term exams. When told that some students had mentioned the practice of using private tutors and asked for her opinion on that, she replied:

> *I do not recommend it [private tutoring] ... they do not usually benefit because they let other people think for them (T1)*

T1 went on to explain how students using such services may attain high marks for assignments that someone else did for them but would suffer during examinations (where, obviously, they would have to rely on their own underdeveloped abilities).

A manager (A2) also agreed with these negative views on private tutoring. However, while questioning whether private tutoring is a legitimate option for EMI students, he also acknowledged that the appearance of such services stems from EMI students' low levels of English proficiency or EMI teachers' lack of competence:

> *[I]t could be because they [the students] are careless, or it might be because of the low level of English language. Sometimes the lecturers are the reason when they do not provide support or use inadequate methods to teach. (A2)*

This response is consistent with the general trend emerging from the data of the university management being keen to blame any other stakeholder (e.g., students, lecturers and schools) for any problems associated with the EMI programme. However, the fact that students in EMI education in Saudi Arabia do hire private tutors or seek other external help suggests that such students do not have sufficient support in EMI programmes. Specifically, the accounts presented

in this section clearly indicate that there is a deficiency in teaching both the language and the scientific content. Among other reasons, this deficiency might be caused by students' low levels of English proficiency as well as by inadequate pedagogical practices and course materials.

5.4.2 The use of L1

All six students explicitly mentioned using L1 in different ways and for different purposes in EMI classes. Specifically, L1 was frequently used to (1) bridge the gaps in students' understanding of the content; (2) avoid miscommunication between them and their lecturers; and (3) study for EMI exams.

With regards to the first purpose, one of the students referred to translation as a strategy that she would frequently use to help understand English scientific content, particularly when she was stuck or struggling with a lecture. When asked what she did if she did not understand something in the presentation slides or the books used for the course, she said:

> *I usually like to translate if there's something I did not understand, a word or terminology, … I use my phone … an application called Dictionary Box. (S3)*

Interestingly, according to the interview, one student used L1 before EMI lectures to prepare and enable her to better understand the lecture content; when asked when she uses translation, S5 replied:

> *Before each class, I try to go through the book and translate the terms that I do not understand so I can follow my teacher when she explains. (S5)*

Again, this shows the students working hard to try to overcome the challenges of EMI, in contrast to some of the negative views of their motivation expressed by some of the other stakeholders.

According to the interview data, the lecturers appeared to be well-aware of the challenges their EMI students encounter. For instance, S5 mentioned: *"Sometimes lecturers give us the slides in English with a translation."* Lecturers were asked in the follow-up interviews if providing students with slides in two languages was allowed or not. Most believed it was not allowed, yet two admitted to doing it anyway for the benefit of the students. As L1 put it:

> *I think they [i.e., management] expect us to give everything in English, but they know sometimes we need to adjust for the students. And no one actually speaks about it [so] I think they choose to ignore commenting on such actions (T1)*

The fact that the lecturers were not absolutely certain regarding management's requirements concerning the use of English (*"I think they expect us to…)* is consistent with both the lack of a formal, written policy and with some of the mixed messages from management reported in Section 5.1.2. The fact that such practices are tolerated also suggests, as T1 said, that management are prepared to be flexible regarding the requirement on account of the problems that it poses (a finding that is consistent with the data previously presented in Sections 5.1.2 and 5.2.2).

With regard to the second purpose of using L1 in EMI classes – i.e., avoiding miscommunication between students and lecturers – one of the students mentioned regularly switching to L1 to better understand class assignments and activities:

> *I use Arabic inside the class when the teacher gives us a task... I ask my friends next to me in Arabic... In group work as well. (S4)*

This is consistent with the earlier presented data regarding the use of Arabic for communication between peers. Code-switching/translanguaging in such circumstances is analysed in further detail in Section 6.1.1.

Concerning the third purpose of using L1 in the EMI context – i.e., preparing for examinations – one of the students said that she made extensive use of Arabic as a learning mechanism:

> *When I use Google Translate, I also face another problem with words and vocabulary; I do not know a lot of words. I know what I want to say, but I cannot say it properly. (S1)*

This quotation shows that although resorting to L1 can facilitate students' understanding of exam questions that strategy may fail, particularly when translation gets too literal, leading to errors and, consequently, lower marks. It also shows, unsurprisingly, that some of the technological solutions upon which students sometimes rely (in this case Google Translate) are not necessarily failsafe.

Another student mentioned that she extensively used L1 to prepare for (rather than perform during) her exams:

> *I just write the Arabic word above the English … It helps me understand more. (S5)*

As illustrated by the quotations above, EMI students can use the following two L1-based strategies to prepare for their exams: (1) translating unknown words using Google Translate and (2) reading translated books that are available online. With regards to the latter option, the student reported retrieving the books from a website;[2] the books available through this resource are written by professors specialised in each subject. Most of the professors are members of the Scientific Centre for Translation.[3] Along with translated books and journal articles, the website

[2] physics-pdf.com

[3] This centre has many goals, including keeping pace with scientific and technical development by translating the latest useful technical research; filling the deficit in the library market for Arab information sources by translating parts of modern books in an effort to establish an Arab library rich in resources and information; informing Arab students about the latest scientific findings to help them enter new and modern fields; and providing a reliable source of scientific information in Arabic (https://www.hazemsakeek.net 3).

also offers Arabic books and free online courses. However, a limitation of this resource is that most of the available books are dated between 2000 and 2013 and some are even older (see Appendix S for an example of a translated book). It should be noted that these books are not from the reading list set by the lecturers in each course, rather, they are different books that discuss the same and/or similar related topics.

Furthermore, an interesting nuance that emerged in the interview data analysis is that EMI students, who would try to speak English with their lecturers to avoid possible negative judgements, reported feeling more comfortable using Arabic with their peers in class. The following interview excerpt illustrates that point:

> *I use Arabic in class, but… not with my teacher, I want to be professional when I ask her or answer her, so she does not think I do not understand English. But with my friends, we both speak and understand Arabic. Why try to be so cool? (S6)*

This text is particularly revealing about some of the attitudes regarding English that underlie the students' opinions and actions. For example, as previously discussed, there is the association of using English with being professional, a word that is suggestive of the connections made in the minds of students (and others) between the language and success in the world of work. Furthermore, the final sentence in the above extract also shows that there is a common association amongst the students between English and the concept of being "cool".

Similarly, another participant (S2) mentioned that she would use only English to communicate with lecturers to prevent them from assuming she was unable to understand the content. At the same time, this student found it acceptable to speak Arabic with her classmates to ease the learning process and avoid being perceived as supercilious.

The lecturers confirmed that their students used Arabic to communicate among themselves. For instance, one lecture mentioned that *"[…] students want the easier way, so they speak Arabic to understand faster [or] to avoid misunderstanding" (T5).* She also mentioned that, in order to help students, she would sometimes provide instructions in L1 and that she did not mind her students' discussions in Arabic as long as *"they provide the answer in English" (T5).* This, again, illustrates the tendency to be flexible in the application of the English requirement in classes.

In summary, the interview data revealed that translation and translanguaging were strategies that were used frequently by the students and occasionally by their lecturers. However, the students seemed to use Arabic more with their peers, rather than when communicating with their lecturers, particularly in discussions of content-related issues or difficulties. During such discussions, speaking in L1 helped students to communicate faster and more efficiently.

5.4.3 Using online resources and digital tools

Another important set of learning strategies that were recurrently mentioned by the students pertains to the use of online resources and digital tools. All students reported using such tools. More specifically, online resources and digital tools used by the students included (1) YouTube videos; (2) educational websites (e.g., Khan Academy); (3) social media platforms and groups (e.g., Telegram channels, WhatsApp groups); (4) test banks; (5) smartphones to record, take pictures or search for information online. The ways in which the EMI students made use of these resources are briefly reviewed below.

In the interview data, many students reported using different types of online resources and tools for different purposes. For instance, one interviewee talked about using YouTube and

videos from Khan Academy to get a clearer idea of the subject matter. Khan Academy[4] is a non-profit educational resource that uses straightforward vocabulary and provides brief (3–4 minutes) videos for each topic (see Appendix J for relevant examples). S2 provided the following account of her use of these resources in response to a question about when she uses the internet to search for information and which websites she uses:

> *If I didn't understand from the teacher because of her English, I would go and search for the subject on YouTube or in Khan Academy. (S2)*

S2 went on to explain that she used Khan Academy's resources for both scientific and English language content, watching videos concerning the former in English, which she described as being *"really helpful".*

S6 also reported using YouTube, Khan Academy and AMBOSS as the main websites on which she relied. She also recounted how COVID had forced her to use social media to provide learning support that she used to get in person:

> *Before COVID, I used to have a study group, but now, we just ask each other on our WhatsApp group. (S6)*

Presumably, in the post-COVID world students will use both in-person study groups and WhatsApp groups as ways of providing support to each other to enhance learning.

One of the reasons why EMI students would turn to video materials is that, despite their confidence in their own English skills, they might find English as spoken by their lecturers somewhat problematic. A similar point was mentioned S1 who also appeared to struggle with

[4] https://www.khanacademy.org/

some of her lecturer's English more than her own English skills, arguing *"they cannot pronounce the words correctly" (S1).*

This critique is especially interesting given that S1 was one of the state school students who admitted to having substantial struggles with English. So, if her judgement here can be taken as accurate, that implies some serious deficiencies in the English language abilities of some of the lecturers. Furthermore, the students also reported extensively using social media platforms where, along with emotional support (see Section 6.4.2 for further discussion), EMI students can find answers to their questions. A relevant account of such use of social platforms was provided by S3:

> *We have a Telegram channel and a WhatsApp group for the whole cohort… when it's 3 a.m. in the morning, and there is no way you can get an answer from the professor, the heroes of the WhatsApp group can answer you. (S3)*

As is clear from the interview excerpt above, the students create such groups on social platforms as a way to communicate and help each other with the course or share their concerns; their flexibility in terms of the times when people are online and available are particular advantages. The picture presented of students collaborating in such ways is a positive counterpoint to the alternative image created in some of the interviews of students laughing at their peers when they struggled with the English language (although, of course, the two pictures can both be true).

Importantly, the lecturers acknowledged the usefulness of many online resources and other facilitating tools that their students may use to overcome challenges in their EMI studies. A good illustration of this point is provided in the following account from one of the teachers; it comes from her response to a question about whether she allowed students to use their mobile phones in the lecture:

It is really helpful. If I said something that they need to translate, they just do it themselves instead of interrupting me or waiting until the end of the lecture and missing all the important information. (T5)

Such evidence suggests the role that technology can play in overcoming EMI-related challenges in real-time in the class. It seems unfortunate that some lecturers do not allow their students to take advantage of that.

Two lecturers also helped to guide the students to identify the best resources to use by listing recommended websites either in their syllabus or on the course page on the Blackboard system. However, along with recognition of the utility of online resources that facilitate EMI students' learning, the lecturers were also aware of the gaps that unequal access to such resources can create among their students. When answering the same question as the previously quoted lecturer, T1 said:

Those who… come from small villages, who do not have access to the internet. Not only because they do not have money, but also because of the infrastructure. Before corona, they were able to use the facilities at the university. (T1)

The issue highlighted here by T1 is another important aspect of the ways in which COVID has served to compound existing inequalities. As the students have become increasingly dependent on online connectivity those students who lack it for whatever reason are further disadvantaged.

As this chapter has shown, the findings of the current study present a complex picture of EMI and its implementation in the context of a Saudi Arabian university. Despite general support for the principles of EMI, the unwritten policy is being interpreted and delivered in a haphazard

way, with all lecturers who had recourse to the Arabic language employing it to some extent in their teaching. Similarly, students reflected on various instances of using Arabic in different contexts. There was even some evidence of the group that was ostensibly, and unsurprisingly, the most pro-EMI (university managers) encouraging the use of Arabic in response to the learning challenges encountered by students. In addition to the generally positive views expressed on EMI, some concerns were also raised regarding the learning challenges associated with the practice and its potential implications for Saudi Arabian society and Islamic culture. The main challenges discussed, however, were in the pedagogical context, with lecturers who had seemingly been neither briefed nor trained on EMI struggling to deliver lessons in their L2 to students with varying ability ranges in that language. One crucial distinction between students' abilities relates to whether they were educated privately or not. The key themes that have been identified in these findings are discussed in the following chapter, which looks in more depth at issues concerning how EMI is being implemented, the problematic aspects of that implementation, the ambivalent attitudes expressed towards EMI, and the strategies that can be used to overcome challenges and maximise the benefits of instruction in English.

CHAPTER 6 DISCUSSION

This chapter discusses the findings presented in the previous chapter in more detail, relating them to the existing literature on this subject and using them to present answers to the research questions. The discussion of the findings is structured as follows. Section 6.1 focuses on the implementation of EMI in the case university's STEM programmes, examining how the unwritten policy is translated into practice. It begins with a discussion of the extent to which the programme meets the definition/criteria of EMI outlined in the literature review and gives consideration to the extent to which it can be classified as full or partial EMI, while also discussing what the findings tell us about the factors that determine the extent of EMI implementation. Section 6.2 focuses on the challenges associated with EMI. It is divided into two sections, the first of which discusses the issues faced by students in terms of both academic and affective challenges. The second sub-section looks in more depth at the social justice implications of EMI by discussing in more detail the significant findings relating to the different experiences at university of state and private school graduates, issues that have, surprisingly, been very seldom mentioned by the existing literature on this subject. Section 6.3 focuses on discussing the stakeholders' attitudes towards EMI, which it characterises as being ambivalent. Specifically, it discusses how their attitudes towards EMI were positive overall (with several seeing it as essential) but tempered by some stakeholders' struggles with it and also mixed given that some concerns were expressed regarding the impact of EMI on the status of the Arabic language and Saudi Arabian culture. This sub-section concludes by discussing another issue that has not featured extensively in the existing literature on this topic, the impact of EMI on students' abilities to use Arabic when required in professional situations. Finally, Section 6.4 focuses on the strategies that can be used to improve students' experiences of EMI, discussing

both the preparatory aspects of the programmes (i.e., the PYP) and the strategies that are being employed by students whilst undergoing their full EMI studies. Taken together, the following four sections discuss and offer answers to the four research questions of this study.

6.1 Translation of the unwritten policy into practice

The present study's particular value lies in its examination of the ways in which the EMI policy is put, or not put, into practice in a Saudi university. One of the distinctive elements of this study stems from its nature as a piece of qualitative research, which delves in-depth into stakeholders' perspectives on what goes on in EMI classes at the university level. Whilst many other studies either show that EMI is being implemented or is not and comment on variations between institutions (e.g., Rose et al., 2020), this one presents a somewhat messier picture of variable and inconsistent implementation of an EMI policy, with fluctuations from lecturer to lecturer within a single university, which are dependent upon a wide range of factors. The extent and nature of that inconsistency in policy application are worthy of significant further discussion, and this sub-section focuses on how the lecturers' different applications of the policy result in inconsistent implementation of the EMI requirement in the classroom.

Before delving into that, it is worthwhile to briefly discuss the issue of the extent to which the programmes at the university being studied actually meet the definition of EMI given in the literature review. As we have seen, Pecorari and Malmström (2019, p.499) built upon the definition formulated by Macaro (2018) to identify the four elements that could be described as EMI's fundamental characteristics: English is used for instruction in a setting in which it is most students' L2, but it is not the subject being taught and language development is not the primary intended outcome of the course (see Section 3.4.1 for further explanation of these characteristics). Obviously, in the present setting, English is the students' L2 and therefore that

characteristic is satisfied. Furthermore, the findings show that the lecturers, at least, are very clear that English is not the subject being taught and that language development is not the primary element of the course. However, the extent to which EMI is the language of instruction remains open to debate, with much evidence of usage of Arabic, evidence that derives its strength from coming from the testimony of all three groups of stakeholders. It is clear that English-language instruction as practiced in the case university only meets the definition of partial EMI (with the exception of classes taken by lecturers who do not speak Arabic, in which case it can be considered to be full EMI). Before discussing what the findings show us about where these EMI programmes sit on the continuum of partial EMI, it is also relevant to briefly refer back to the debates introduced in the introduction about the extent to which EMI can only be defined as such if it stems from a clear policy decision that marks a change from the previous status quo in terms of MOI (Hultgren in Coleman et al., 2018). Of course, EMI in Saudi Arabia does meet that criterion in the sense that a policy decision was taken to apply English language instruction for certain courses in higher education. However, the fact that the specifics of said policy decision were neither written down nor clearly articulated means that a vacuum has been created that appears from the data generated for this study to have been filled with a wide variety of different practices under the umbrella of EMI as discussed in more detail below.

While the findings show that all stakeholders expressed support for the use of EMI in scientific programmes at Saudi Arabian universities, a key finding of the current study is that there were significant variations and inconsistencies in the ways in which the different lecturers implemented that requirement. Specifically, the data revealed that implementation of EMI varied across different lecturers and, for one lecturer, across different situations (see Section 5.1). Even though lecturers do not create central policies, they are responsible for implementing them and,

especially in the absence of clear guidelines to govern the decision-making process, they technically act like decision-makers, amending the EMI policy as they see best for the situation (Spolsky, 2004). Overall, lecturers frequently reported deviating from the unwritten English-only policy for the sake of their students' understanding of the content. Of course, it should be noted that the fact that the policy is unwritten makes it difficult to measure deviation from it. However, the common understanding of the policy is that English should be used in all teacher-student interactions, and the findings show that that is clearly not the case, to lesser or greater degrees, with every lecturer who could speak Arabic.

This finding is, perhaps, unsurprising, given the evidence previously reviewed regarding the English language ability levels of Saudi Arabian students. Nevertheless, it is significant as it clearly indicates a breakdown in policy implementation. It suggests that the short version of the answer to the first of this study's research questions (how is EMI implemented in STEM programmes in SA?) is "highly variably and, except in cases where a lecturer cannot use Arabic, never completely". When considering the reliability of that answer, it should be noted that the fact that all the stakeholder groups acknowledged that Arabic was being used extensively in the classroom effectively triangulates the finding and offers strong evidence that it is correct. It is also highly unlikely that any of the groups or individuals are exaggerating the extent to which Arabic is used, given that they are all aware that it should not be used according to the unwritten policy, therefore, any falsification concerning Arabic usage is likely to be an underplaying of the number of times that lecturers and students resort to their L1. Nevertheless, it is also important to reiterate that the present study's small scale does not, of course, permit generalisations about the implementation of EMI across all Saudi universities offering STEM programmes. However, the qualitative nature of the study does enable a deeper understanding of the reasons behind the

failure to fully implement the EMI requirement, which are likely to be transferable to other contexts beyond the specific university that is the subject of this research. Specifically, lecturers' choices regarding the language of instruction and teaching practices varied depending on factors such as the context (i.e., inside or outside of class), the students' proficiency in English, and the lecturers' experience with EMI and proficiency in Arabic. The importance of the lecturers themselves as factors determining the extent of EMI implementation aligns with the conclusion of Macaro (2019) concerning how EMI is often applied in an ad hoc way according to lecturers' preferences and contradicts the downplaying of the role of the individual lecturer in the work of Galloway et al. (2020). As noted above, the absence of a written policy to guide and constrain lecturers' decisions around EMI may explain why their influence on implementation appears greater in the present study's findings relative to some of the previous literature on the subject.

Furthermore, the general finding that the EMI requirement is not being fully implemented by most lecturers contradicts the findings of some other recent research in the Saudi context specifically, such as Alfeheid's (2018) study in which only a minority of lecturers admitted to the occasional use of Arabic. However, the present study's findings agree with the results of much of the other relevant literature regarding EMI in contexts in which both students and, to some extent, lecturers struggle with the language (for students' language difficulties see, for example, Aizawa & Rose, 2018; AlBakri, 2017; Arkın, 2013; Griffiths, 2013; Solloway, 2016). Sahan's (2020) study of the implementation of EMI in Turkish universities is particularly relevant to a discussion of the present study's findings because it was also primarily qualitative in nature and took place in a context with similar levels of English proficiency levels amongst students. Through interviews and focus groups with stakeholders, the author found that the implementation of EMI varied with regard to language choice and the proportion of teacher-

student interaction across classrooms. Interestingly, at elite universities, teacher-student interaction and the use of Turkish (the students' L1) in such interaction was less frequent compared to other universities where students more commonly used Turkish in classes and where a greater extent of interaction between students and lecturers was observed. A similar conclusion can be assumed on the basis of the data of the present study, which show that students from private school backgrounds (i.e., those who would be more likely to attend elite universities) are more comfortable with using English and, consequently, keener for the EMI policy to be fully applied.

A similar observation of variability of implementation of EMI depending on the local context and other factors was noted by Galloway and Ruegg (2020) who found differences in classroom practices with regard to language use in different contexts (in China and Japan) and within the same context. Specifically, it was found that most students in Japan were more likely to be exposed to English, while in China only half of the students reported that EMI lectures were conducted in English with faculty members in both countries reporting the use of English only in their EMI lectures. One factor that affected the lecturers' implementation was the uncertainty surrounding EMI policy which resulted in varied interpretations (Barnard & Hasim 2018). That conclusion echoes the results of the present research, which highlight considerable ambiguity about approaches to EMI in the university in the absence of a written policy and the inconsistent messages given by management (some of whom, according to the interview data, actively encourage the use of Arabic in supposedly EMI classes).

An additional finding in the present thesis that concurs with previously reported results concerns stakeholders' use of L1 for different purposes in the EMI classroom, such as giving instructions, repeating information, explaining difficult concepts, or translating in the exams.

Similar purposes were reported in the literature – for instance, Hu and Lei (2014) found that lecturers in China used L1 to explain difficult concepts in the EMI classroom. Similarly, Bravo-Sotelo and Metila (2021) gathered data from four mathematics teachers and their students in a Philippine state college through interviews, surveys, and class observations and found that lecturers used L1 for a number of purposes such as simplifying lessons, emphasising a mathematics notion, expanding mathematics-related information, concretising abstract mathematical ideas, and telling jokes. Similar trends were observed by Tarnopolsky and Goodman (2014) who found that EMI teachers in Ukraine used L1 to explain subject-related terms or when they were unsure about an English word or did not know it. Ellis's (1992) categorisation of class interactions depending on their intended goal (i.e., core, framework or social) is a helpful prism through which to view the findings emerging from the present study. Those findings suggest that, generally speaking, lecturers were even more likely to use Arabic for framework or social communication (where the former refers to communication for the purposes of course management). The debate about whether the uses of L1 that were reported in the present study constitute code-switching or translanguaging is discussed in the following sub-section.

6.1.1 Translanguaging or code-switching, and why the distinction matters.

Section 6.1 discussed the extent to which the lecturers were implementing EMI within STEM programmes at the university. This section explores whether or not their uses of Arabic should be characterised as either code-switching or translanguagin.g, based on the distinction identified in the literature review, which describes the former as shifts between two languages regarded as autonomous units (Goodman & Tastanbek, 2021) whereas the latter is based on a more holistic perception that permits the full use of individuals' language resources to create an integrated system in which different languages overlap and are interconnected (Canagarajah, 2011). Significantly, the philosophical stance that

underpins translanguaging requires lecturers to give up a degree of control by permitting their students to choose when and how to employ their different linguistic resources. That contrasts with code-switching in which the switch is flipped by the hand of the lecturer, who determines when and how the students' different language units can be used in the classroom context. Another distinction between the two terms made by some of the previous researchers on this subject concerns the fact that translanguaging should be explicitly connected with efforts to address marginalisation and promote social inclusion through education (see, e.g., Garcia Mateus, 2020; Charalambous et al., 2020). That distinction can also be connected to the issues of control highlighted above.

These distinctions are not simply a question of semantics or mere "academic interest". The terms code-switching and translanguaging, as defined above, describe very different approaches to the usage of multiple languages in an EMI context. Evidence suggests that those differences result in variations in learning outcomes for students. For example, Muguruza et al. (2020) identified the benefits of flexible language policies. Those benefits were particularly felt in terms of helping students with relatively low levels of English to develop their language comprehension abilities. Similarly, Garcia-Mateus and Wei (2014) and Woodley and Brown (2016) identified the benefits of translanguaging approaches in multilingual classrooms, particularly in terms of encouraging participation promoting equity and social justice (Tai, 2022) – see Section 6.2.2 for further discussion of this. In other words, this debate is not just about academic classifications but rather about how variations in pedagogical approaches can create different results in classes. Therefore, it is relevant and important to clarify whether the inconsistent approaches to EMI implementation revealed by the present study can be classified as translanguaging or code-switching.

Bearing the above distinctions in mind, the findings cannot really be said to show that the lecturers were using translanguaging approaches. Some of the lecturers spontaneously switched codes to explain complex terms in Arabic and others made more planned use of the students' L1 (including it on PowerPoint slides for example). However, neither of those approaches truly meets the definition of translanguaging. According to what they reported in the interviews, even when the lecturers planned to code-switch in their teaching, they still tried to stick to English as far as possible, supplementing it with some Arabic, rather than creating a holistic experience for their students that fully integrated the two languages. Further evidence of that is given by the testimony of the students, who reported their reluctance for their lecturers to overhear them speaking in English, prompting code-switching of their own during group work (from Arabic to English to try to convince the lecturers that they were following the EMI requirements). That clearly indicates that the students did not feel that they had the freedom to employ their different linguistic resources in the way that translanguaging would encourage. Furthermore, none of the lecturers, even those who admitted to using the most Arabic and were most critical of the EMI requirement, could be said to have anything like the sort of "translanguaging stance" described by Garcia Mateus (2020), in that they did not take strong positions on the relationship between language and social inclusion (the closest to such a stance was T1 who articulated more consciousness of the fact that some students were being disadvantaged by their lack of knowledge of English rather than the lack of scientific content knowledge). Nor was there a sense from the interviews that any of the lecturers had created approaches to language use that took account of cultural, historical and ideological contexts in the ways that Charalambous et al. (2020) described as being an essential component of translanguaging practice. In fact, the findings of the present study appear to confirm the conclusions of Doiz and Lasagabaster (2016)

and Daryai-Hansen et al., (2016), who found that teachers' attitudes regarding the importance of using English as much as possible (see Section 6.1), which we can term as an acceptance of the monolingual paradigm, discouraged them from fully exploiting the range of language resources available for them to use in their class. The work of Tsokalidou and Skourtou (2020) emphasises the challenges to implementing translanguaging that can manifest in contexts in which monolinguistic paradigms develop, which may become increasingly relevant to contexts such as the university described in the present study in which the majority of managers interviewed appeared to strongly favour the exclusive use of English. It appears from the above that the use of Arabic in classes generally fits the definition of code-switching adopted for this study (i.e. the occasional use of L1 to facilitate communication in ways that are controlled by the lecturer) rather than the definition of translanguaging (i.e. a pedagogical strategy that gives equal weight to the students full range of linguistic abilities and allows them to employ all of that knowledge to increase their comprehension of content).

To summarise, the distinction between the two concepts, as identified in the literature review, highlights translanguaging as the integrated use of multiple languages, allowing for a holistic and interconnected language system, while code-switching refers to the controlled switching between languages determined by the lecturer. Additionally, translanguaging is often associated with addressing marginalization and promoting social inclusion in education. Based on the interviews conducted, the evidence suggests that what was observed can be classified more accurately as code-switching rather than translanguaging. The participants' use of their first language in the classroom was accompanied by a sense of shame and hesitation. Teachers did not actively encourage students to use their first language, and they were cautious about being seen or witnessed by authority figures when using it. This cautious behavior

demonstrates a lack of the translanguaging stance and suggests that the use of the first language was not viewed positively. Instead, it appeared that code-switching was employed under the control of the teachers, who determined when and how the students could use their first language in the classroom context.

These findings highlight the importance of distinguishing between code-switching and translanguaging in educational settings. The reluctance to embrace and promote the use of the first language suggests a limited understanding of the potential benefits of translanguaging, such as the integration of diverse linguistic resources and the creation of a more inclusive learning environment. To truly embrace translanguaging, it is necessary for educators to relinquish some control and allow students to utilize their linguistic resources freely. By doing so, educators can foster a more inclusive and supportive learning environment that recognizes and values students' diverse language backgrounds.

Unsurprisingly, the students' positive reactions to the lecturers' use of Arabic fit with the previous literature regarding the use of code-switching and translanguaging in EMI classes (e.g., Muguruza et al., 2020; Hu & Lei, 2014; Jang, 2017; Marshall, 2020). However, the fact that such approaches cannot be fully described as translanguaging means that they do not fully unlock the three specific benefits of translanguaging practice described by Goodman and Tastanbek (2021), (i.e. acting as a scaffold, bridging students' worlds inside and outside the classroom, and building dual language abilities in a way that boosts bi-cultural identities), or Karlsson et al. (2020), whose work focused specifically on the improvements in learning outcomes that could be attained in the context of science education. We have already seen that the one-word answer to this study's research question concerning how EMI is being implemented is "inconsistently".

The above discussion suggests a further nuance to that answer, those inconsistencies can be classified as instances of code-switching, rather than translanguaging. For further discussion of how translanguaging approaches could be integrated into the context described in the present study in order to improve learning outcomes see the recommendations in Section 7.2.

.

6.2 The problematic aspects associated with EMI

This section discussing what the findings of the present study reveal about the problematic aspects associated with EMI is divided into two sections. The first (6.2.1) examines the ways in which EMI, despite being intended to benefit students, is actually acting as a barrier to their learning. The second (6.2.2) focuses on the social justice implications of those barriers, in terms of how they disproportionately affect the less affluent students who attend Saudi Arabia's AMI state schools.

6.2.1 EMI as a barrier to learning and participating

The second theme emerging from the present study's findings concerns the extent to which EMI is acting as a barrier to learning, which can be connected within this study's research question concerning the challenges experienced by stakeholders. Obviously, the policy is intended to improve learning outcomes, in the sense that the use of English offers a way to connect students to the global scientific community and its resources and prepares them for future careers in which command of the language is deemed essential. Nevertheless, the findings of the present study have revealed numerous ways in which the implementation of that policy is creating barriers to learning. For the purposes of this discussion, those barriers are divided into two categories. The first concerns barriers to learning in related to academic skills, examining the way in which the policy is directly impeding knowledge acquisition within classes, seminars, and

lectures by making content comprehension more difficult. The second concerns some of the broader barriers to learning that are created by what we could term the stress-related impact of studying in a foreign language. The findings of this study suggest that EMI instruction is creating considerable stress for many of the students, such stress is likely to impact learning outcomes because it is not conducive to the creation of an effective learning environment (Vogel Schwabe, 2016; Pascoe et al., 2020). Again, the focus throughout this sub-section is on answering the research question and discussing how the findings of the present study concerning barriers to learning related to EMI are consistent with, or differ from, the results of previous studies on the same subject (from both the Saudi and international contexts). The discussion in this sub-section then links into the following one (6.2.2), which focuses on the ways in which learning barriers manifest differently for two groups of students: those from state school backgrounds and those from private schools.

The present study suggests that EMI impacts students' ability to comprehend terminology and key aspects of course content, read scientific resources and show their understanding by explaining scientific concepts in written assignments, exams and presentations, all of which will, of course, affect their overall academic performance. The four lecturers who used Arabic in their teaching admitted that it was due to the fact that they prioritised content understanding over fidelity to the principle of using English exclusively and felt that employing the students' L1 was sometimes necessary to enable them to comprehend the lesson or certain key points. That strongly suggests that enforcement of the EMI principle would create further barriers to learning by reducing student comprehension of course content, a finding that is consistent with a great deal of research from both the Gulf Cooperation Council region and

international contexts (e.g., Aizawa & Rose, 2019; AlBakri, 2017; Arkın, 2013; Griffiths, 2013; Mouhanna, 2016; Solloway, 2016).

As discussed in Section 3.3, there are certain language complexities that are particular to the study of science. For example, when learning science, one needs to learn both the language of science, which comes with its own specialised vocabulary and ways of structuring discourse. It is also necessary to acquire a scientific literacy that is beyond the ability to read, write, speak and listen; it entails developing the ability to ask, explain, analyse and observe and being able to communicate and present knowledge. It seems obvious that in the case of studying science in a language other than one's first language, it is even harder to develop such a type of literacy. Earlier research highlighted the significant role that language plays in science learning and the specific challenges around terminology (Al Bakri, 2013; Kim, 2011).

The findings of the present study clearly show that students' abilities to explore scientific concepts were hindered by the challenges that they faced in understanding the English language (as evidenced by the use of Arabic by all the participating lecturers who could speak it). However, even if someone is studying science in their first language, the language aspect of disciplinary learning is problematic and multifaceted (Met and Lorenz, 1997; Duff, 1997; Wachob, 2009; Ismail, 2011). Lemke (1990) has thus concluded that learning depends on the ability to understand the disciplinary language in which the knowledge is construed. Some students in the present study experienced EMI at a later stage of their education which made their progress slower than others. While they might be competent in the scientific component, they might still be disadvantaged by the fact that they are not competent enough in the language to show that they understand the concepts being studied.

Regarding challenges experienced by EMI students, the results of the present investigation are broadly consistent with those reported in many previous studies, including the work of Al-Kahtany et al. (2016). Regarding linguistic challenges, the data revealed that low proficiency in English among Saudi students was associated with different types of challenges and adversely affected the interviewed lecturers' implementation of the EMI policy and their pedagogical practices. This observation is consistent with almost all previous studies that investigated EMI stakeholders' challenges. For instance, Aizawa and Rose (2019) and Doiz et al., (2013) found that the low English proficiency of students in Japan and Spain, respectively, was related to their negative attitudes towards EMI. Moreover, students' limited English skills were reported to influence institutional decisions in some contexts in Europe (Wächter & Maiworm, 2014). Likewise, Aizawa and Rose (2019) demonstrated that the lack of adequate levels of English was perceived by students as a restrictive factor that limited their opportunities in the EMI programme. Similarly, several other studies found that students' limited English skills compromised their success in EMI programmes and negatively affected their ability to learn (Airey, 2011; Chapple, 2015). Insufficient mastery of English was also reported to adversely affect students' understanding of the lectures and hinder students' content acquisition. In some instances, the lack of English competence was reported to cause students to fall behind in their studies or, in rare cases, to drop out of the EMI programme (Doiz, Lasagabaster, & Sierra, 2013). The issue of dropping out was also reported in the present study, with some of the students stating that friends of theirs had quit courses specifically because of the challenges of dealing with EMI education.

The findings of this study show that regardless of their perceived levels of English, all the participating students reported facing affective challenges during their EMI programmes. Even

though the literature highlights the strong connections between one's emotional state and one's ability to learn (Pekrun, 2014; England et al., 2017, Downing et al., 2020) it is often an ignored topic, making the findings related to this issue particularly worthy of further discussion here.

The present study's findings concerning the stress related to EMI learning at university level are consistent with the conclusions of Al Zumor's (2019) quantitative study of 264 Saudi students studying computer science, engineering, or medicine. These challenges (in both Al Zumor's research and the present study) were primarily connected to speaking rather than any other skill. Interestingly, while all students in this study reported facing these challenges with speaking, and the previous literature confirms high levels of speaking anxiety among Saudi students, the IELTS (2021) country by country report shows that Saudi students score the highest in this area. Furthermore, the finding that speaking was the most challenging issue for students contradicts the conclusions of Evans and Morrison's (2011) longitudinal study of EMI at university level, which found writing to be the main problem area. Nevertheless, the fact of speaking being particularly anxiety-inducing is unsurprising given that it the most public activity and is consistent with the well-known phenomenon of people fearing public speaking (even when using their L1).

The finding regarding anxiety with speaking echoes the conclusions of the previous literature on this subject both in the Saudi context and internationally. For example, Rafada and Madini's (2017) mixed-methods study of a Saudi PYP found that nearly half of the 116 participants who completed the researchers' questionnaire (46.6%) felt anxious when speaking English in front of other people and 55% of the students reported feeling anxious when they wanted to contribute to the class discussion. In addition, 56% reported that they feel anxious if the teachers ask them to answer without prior preparation. More of the students in the current

study reported feeling anxious, and it is also possible that the greater level of personal engagement that came from using semi-structured, one-on-one interviews in the present study may make it more likely for students to admit to having experienced such affective challenges than the relatively impersonal method of a questionnaire.

Regarding the specific emotional challenges experienced by EMI students, the interviewed students in the present study reported having frequently experienced anxiety, feeling scared of being judged/laughed at, as well as feeling intimidated in the presence of their peers who had a better command of English. All these stress-related issues were reported to negatively influence the students' performance in the EMI classroom. Similar observations were made in the literature as well since foreign language anxiety has been a widely researched topic in second language acquisition, with studies indicating that anxiety can negatively impact language learning and communication. The findings of this thesis align with previous research, which suggests that anxiety can be a significant obstacle for students in English medium instruction (EMI) classes, particularly when it comes to speaking in English. The anxiety experienced by students in EMI classes can lead to a lack of participation, decreased self-esteem, and ultimately lower performance. Therefore, it is crucial for teachers and educators to recognize and address the issue of foreign language anxiety in EMI settings to create a supportive and inclusive learning environment. By doing so, students can feel more comfortable and confident in their language abilities, ultimately leading to improved learning outcomes. For instance, in a study conducted in Israel, Gregersen and Horwitz (2002) noted the negative impact of foreign language anxiety, which would frequently lead students to avoid active participation in classes. Congruent results were also reported in Kudo et al.'s (2017) study conducted among Japanese students who, also, reported experiencing the strongest anxiety towards speaking activities.

The present study shows different reasons why students encounter such affective challenges. Students seemed to attribute negative feelings such as stress and anxiety to the reaction of others rather than their own abilities in the language. While some connected this type of challenge to their level of English or not being prepared most of the students attributed these challenges to the environment that they study in, which is extremely judgmental to the extent that students' intellectual abilities might be judged based on their language proficiency or even worse, their accents. For example, if a student has a limited or low level of English or speaks with an accent, this can be confused with laziness and unintelligence, which affects students' self-esteem. However, a similar trend was observed in other contexts. For example, Jewels and Albon (2012) also found that some teachers view non-native English students as "being either 'lazy' or 'not at a high enough intellectual standard for university life', simply because of the difficulties they face with the language of instruction" (p. 5). The literature review undertaken for the present study did not produce other studies that focused on the issue of accent specifically, therefore, further research may be required to delve more deeply into issues around students' accents when speaking English and the perceptions, both positive and negative, that can be attached to them.

Downing et al. (2020) specifically discussed anxiety and stress among science students and note that they are at a higher risk of experiencing such emotions. England et al., (2017) associated anxiety with low motivation, poor academic performance and a greater tendency to leave the science major. Students in the current study were dealing with both science and a second language which might put them in an inconvenient situation, and they might be more likely to experience such negative emotions. In the current study's context, the issue of anxiety and emotion was not given much attention by EMI policymakers or even the lecturers, who seem

to be pushing for more use of EMI without considering the students' emotional experience. The fact that the other two groups of stakeholders did not highlight or discuss students' affective challenges is suggestive of a low level of awareness of the issue on their part, possibly related to the fact that some of the participants in those categories referred to the laziness of the students as the root of their problems, without showing a sensitive appreciation of the students' affective struggles and how they might be ameliorated.

As discussed above, it seems that affective challenges associated with using a language other than students' L1 as the MOI can affect their performance in the course. This type of challenge is not always related to students' ability to use the language, being related instead to the environment they study in. However, such challenges are hard to identify since a person needs to talk about them to try and solve the problem. Despite that fact, lecturers can still provide support by ensuring a healthy environment where students are allowed to make mistakes and both lecturers and other students respect everyone else. Another aspect that would help make the situation better is to raise awareness to accept all accents. These potential solutions are discussed further in Section 7.2 of the following chapter concerning recommendations for improvement. The next section of this chapter discusses in more detail what the findings of the present study show us about the ways in which the barriers to education being created by the EMI policy are experienced differently by students from different backgrounds, thus potentially exacerbating inequality across Saudi society.

6.2.2 Reinforcing inequality: the social justice implications of EMI programmes

In Saudi Arabia, the English language has become an essential asset for any students who wish to complete their studies (either domestically or internationally) and compete for high-quality jobs. Therefore, wealthy families are more likely to send their children to EMI schools (private

or international), while those who are less fortunate usually attend the free education offered by state schools, which uses Arabic and renders those less privileged students disadvantaged when seeking to access or complete EMI programmes. Consequently, the impact that EMI as a language policy in Saudi Arabia has on students' learning experiences depends on socio-economic factors that determine the type of education that students have access to before university, with private schools that offer EMI connected to higher economic status.

In keeping with the analysis above, the findings of this study strongly suggest that Saudi Arabian state school graduates are struggling with studying science at university in a foreign language in which they lack competence. On the other hand, students from private school backgrounds are advantaged when joining an EMI programme. This advantage starts at the transition phase (PYP), where the process of student selection to move from the PYP to their main undergraduate courses is based on English proficiency, which, therefore, gives more chances to those who were privileged to study at prestigious private schools. Consequently, that privilege ultimately provides such students with more opportunities to access better jobs in the future relative to their less affluent peers (Dearden et al., 2002; Sullivan et al., 2014). The present study's findings suggest that these two types of students experience PYP and EMI differently, differences that are reflected in the evidence from their testimonies regarding their transitions, levels of participation and examination outcomes. These differences are also reflected in the students' views of using Arabic in EMI lectures. Each of those issues are presented in more detail below, in a discussion that highlights how the findings of the present study pertaining to unequal opportunities relate to the existing literature on the impact of MOI language policies on different groups of students.

As noted above, the differing experiences of students from private/state school backgrounds are evident from their initial transition to university through the PYP programme. Private school graduates seemed to have had smoother transitions since the MOI remained the same as what they were used to at their school, thus they were familiar with most of the terminologies used and had also covered some of the same content pre-university. On the other hand, the MOI was new for state school graduates. Consequently, such students experienced a sense that their previous education in Arabic at school was insufficient preparation for courses in a different language that marginalised their mother tongue. Therefore, treating and evaluating these two types of students in the same way can create an unfair situation, since the private school graduates have advantages over their counterparts from the state schools, meaning that they are more likely to be able to access the limited places available on highly competitive courses at prestigious departments. Consequently, many state school graduates cannot access their preferred courses because they cannot compete with their counterparts from private schools, thus creating an inequitable situation. Therefore, wealthier students who were privately educated and could afford to study through EMI at secondary school enjoy greater access to educational, social and economic opportunities. The sense of a great divide between the two sets of students in terms of how they experienced EMI and relationships with each other in class contexts is abundantly evident from the findings of the present study. State school students expressed resentment towards their private school counterparts, especially when they perceived them to be contemptuous or arrogant with regards to their English-speaking abilities. There was also evidence of some reciprocation from the latter group with resentment expressed around being continually required to provide support to students with lower levels of English competence.

Those overall findings on the reinforcement of social inequality through EMI are consistent with the conclusions of McLaren (2011), who identified that instruction in the English language at the university level in the UAE advantages those students who previously attended private school to the detriment of their counterparts who had experienced Arabic MOI at state schools. McLaren specifically highlighted the same issue that is evident in the findings of the present study, i.e., that students who might be equal or better in terms of content knowledge in scientific subjects could be falsely judged based on their (in)ability to express their understanding through a second language in which they have not received proper training. That is a consequence of establishing criteria for judging student performance that are largely dependent on students' language abilities rather than their understanding of the content. Similar findings were reported by Troudi and Jendli (2011) and by Albakri's (2017) study of EMI programmes at universities in Oman. However, only few previous studies have highlighted the fact that this situation negatively affects both state and private school graduates. The present study shows that the former group, according to stakeholders' perceptions, underperform because of language barriers and feel intimidated and uncomfortable when forced to compete with peers with greater levels of English proficiency, whereas the latter group feel that they are wasting their time attending English classes that they do not need and repeating previously covered material.

Significantly, participants in the present study appeared to be losing faith in state schools and the quality of the education they provide, especially in terms of how they use Arabic as the MOI and teach English as a foreign language. It is noteworthy that the students' critiques were focused more on the quality of education provided at the state schools that they attended rather than on the policy of English MOI at the university level, a finding that echoes the conclusions of

Yeung and Lu (2018) in their study of state school graduates facing similar circumstances at university in Hong Kong. In fact, in the present study, even the state school graduates expressed support for the principle of using EMI for university-level science courses, despite the disadvantages it caused them. Such opinions are in contrast to much of the academic literature on this subject, which tends to come from the perspective of criticising such language policy decisions (e.g., Skuthabb-Kangas, 2006; Tsui & Tollefson, 2009). Such critiques were not explicitly echoed by the state school graduates interviewed in the present study. The absence of such critiques from the students may offer further support to the arguments of Canagarajah (2010), who claimed that the preference for teaching in English has become an unquestioned orthodoxy amongst education professionals. The findings of the present study suggest that that orthodoxy may also be becoming entrenched amongst students, even those who appear to be disadvantaged by the EMI policy. Critics of EMI language policies would attribute the acceptance of that orthodoxy as an example of Gramscian hegemony, i.e., dominance through consent and persuasion (Al Kahtany et al., 2016).

The state school graduates interviewed did, however, express support for the use of translanguaging practices in the classroom (in line with Canagarajah's (2011, p.401) definition of translanguaging as "the ability of multilingual speakers to shuttle between languages"). Their opinions on the benefits of using Arabic alongside English in the lessons are consistent with the literature on the advantages of translanguaging (see, e.g., Goodman and Tastanbek, 2021). Much of the existing literature that is positive about translanguaging, however, does not highlight the opinions of those students who are critical of it. Significantly, the privately educated students interviewed in the present study were critical of the use of Arabic in lessons on the grounds that it was confusing and unnecessary given that the course would be assessed in English. Critiques

of translanguaging on the grounds of its capacity to further marginalise students in multi-lingual EMI contexts who do not share the L1 of the majority of the class (e.g., Clark, 2018; Włosowicz, 2020) are not relevant in the context of the present study as the student body in the university in question, in common with most in Saudi Arabia, was exclusively made up of L1 Arabic speakers. That important contextual detail suggests that Saudi Arabia, and similar contexts where one L1 dominate, may be more fertile grounds for the use of translanguaging practices than other international contexts in which students sharing the same class have a diverse range of L1s.

Following on from what has been said above regarding students' views of the deficiencies of state schools, it is unsurprising to note that all of the participants (regardless of which type of school they had attended) seemed to believe that private schools provided the education required for future success at university and beyond. Students from private schools are more likely to succeed in their higher education and, consequently, find higher quality and more prestigious jobs which further upgrades their financial status (or, rather, helps them to maintain it given that such students tend to already be from upper-class backgrounds) (Frenette & Chan, 2015; Green et al., 2017). This situation reflects the latest developments in the changing dynamics of languages in Saudi Arabia, with the Arabic language losing its position and status within society, as knowing and using English has become associated with much prestige, meaning that, by default, those who received their education through Arabic are rendered less fortunate. The problems with this situation become clearly manifested when students finish school and enter university-level education, as English acts as a gatekeeper regulating admission to and completion of further education. This finding is consistent with the conclusions of Tollefson (2000, p. 9) who described English as a "formidable obstacle to education" in the context of his studies of MOI policies internationally.

The disadvantages that EMI policies in Saudi Arabia create, and the social hierarchies that they reinforce, may constitute a human rights violation in line with the arguments of Shohamy (2006) regarding the imposition of foreign language education on certain groups of students. The evidence of the present study strongly suggests that state school students suffer from having to study EMI courses, which consequently reduces their access to university programmes, limits the participation of those who are admitted, and makes it harder for them to have a full understanding of the scientific content of their courses. Forcing students to learn in a language other than their mother tongue, without considering their background and previous knowledge, is likely to result in a poor quality of academic experience, which can be considered a form of violation of those students' right to education. As Shohamy (2006, p.147) put it, "Rights associated with language are still not viewed as legitimate human and personal rights and result in situations where those who do not possess knowledge of the power language cannot fully participate in the society, leading to a policy of exclusion." That description appears to accurately characterise what the results of the present study show regarding the ways in which students from state school backgrounds are, at least partially, excluded from full access to educational opportunities. Specifically, the students from Arabic MOI backgrounds can be said to be suffering from what Kloss (1971, as cited in May 2015) defined as a lack of "promotion oriented" language rights, a category that encompasses being deprived of the right to use one's own language to participate in society (e.g., in educational settings). Shohamy (2006, p. 89) argued that granting the right to study in one's native language at school but removing that right at university can be considered a particular form of human rights violation, an analysis that is clearly especially relevant to the present study. In the same vein, Martín Rojo & Mijares (2007) as cited in Sayahi (2015) argued that the impact of MOI change can be so serious that is

comparable to moving to be educated in a different country without, of course, leaving one's own home country. Nevertheless, it is worth reiterating that the state school-educated students in the present study did not blame the EMI policy at university level but rather the schools that they had attended for giving them insufficient preparation. Again, critics would probably attribute that to hegemonic thinking, but assessing whether that is the case is beyond the scope of the present study (if, indeed, it is possible at all).

Interestingly, much of Shohamy's analysis of these issues is given over to the imposition of particular official languages by the dominant language group within a society (such as the imposition of Hebrew in Israel), on the principle that the languages "'of the others' present elements of mystery, secrecy and symbolize threat." However, the examples in the present study constitute a case in which the dominant national language itself (in this case Arabic) is being marginalised in the interests of promoting a language that is foreign to almost all of the country's own nationals. As such, the situation described here is closer to that analysed by Troudi and Jedli (2011) and Mouhanna (2016) in their studies of the UAE, which also showed that using EMI at the tertiary level impacts the performance of students brought up through Arabic medium education by limiting their abilities to understand lectures, read scientific resources, explain scientific concepts, and show their understanding through assignments, presentations and exams.

6.3 Torn between internationalisation and Arabic identity: stakeholders' ambivalent attitudes towards EMI

This section focuses on the participants' attitudes towards EMI, which are discussed in the context of this study's second research question: what are stakeholders' perceptions of EMI? The section is divided into three sub-sections. The first (6.3.1) focuses on the findings concerning the participants' positive attitudes toward EMI on account, largely, of the opportunities that it creates

by exposing the students to education in the scientific lingua franca. Those positive perceptions are discussed in the context of the process of internationalisation, which is fostered by the adoption of EMI policies (Hopkyns and Elias, 2022). The second sub-section (6.3.2) examines those findings that suggest the stakeholders' attitudes are being pulled in another direction – with some students and lecturers reporting negative attitudes towards EMI, ostensibly on account of its perceived impact on Arabic language and identity. In other words, a trend of more negative comments on aspects of internationalisation is somewhat evident in the findings, albeit to a lesser extent than the more generally expressed positive sentiments regarding the value of EMI. Nevertheless, the expression of such negative sentiments emphasises the importance to some of the participants of their mother tongue and their Arabic culture and identity and hints that such issues may become more pronounced as English is progressively used more across Saudi Arabian society. Finally, sub-section 6.3.3 deals with the practical issues related to EMI's impact on students' Arabic language abilities in professional contexts and the influence that impact has on their attitudes towards EMI. Again, these comments are linked to potential future trends in terms of the long-term decline of the Arabic language in its homeland. That is an outcome that may seem unlikely based on Arabic's continued dominance of most aspects of life in Saudi Arabia, but it is nevertheless worthy of further discussion, especially when considering specific contexts, such as academia, and the potential language perceptions and choices of future generations.

6.3.1 Acknowledging the importance of English and EMI

All participants in this study, whether students, lecturers, or managers, expressed the belief that English should be the medium of instruction in scientific programmes at the university level in Saudi Arabia. Although a variety of reasons were given for that belief, the main ones mentioned

were the availability of scientific resources in English and the opportunities that proficiency in that language offers to participate in the scientific community through further studies or future jobs, which echoed rationales reported by stakeholders in other contexts. The issue of the dearth of scientific resources in Arabic being a driver of EMI was highlighted by Al-Jarf (2008), and the present study's findings suggest that that remains an issue, unsurprisingly given the even greater spread of EMI through university programmes in the Arab world.

The expression of the types of opinions given above is unsurprising in a context in which English has become the lingua franca of science. Alongside attributing that status to the language, the participants appeared to accept, largely without challenge, the notion that English is a key agent for societal and individual advancement and accomplishment. The fact that, in the short term, it granted access to one's preferred programme of study was also highlighted as a significant factor. This overall support for EMI as a policy was expressed consistently, even by those participants who reported struggling the most with its application.

On one level, these findings could be taken as a strong endorsement of the EMI policies of STEM programmes at Saudi universities, at least in principle if not necessarily in practice. Unanimous support, albeit from a small sample, is certainly noteworthy, especially when so many of the other findings focus on the challenges of implementing the policy and the impact of those challenges (see Section 6.2 for further discussion of this). However, alternative perspectives on this data could lead to a questioning of the extent to which it truly shows support for the policy. It could be speculated that some of the stakeholders, especially the managers and, to only a slightly lesser extent, the lecturers, are reluctant to criticise the policy of the institution that employs them. On another level, the data may indicate support for the policy only on account of the hegemonic discourse that exists around the English language as the only avenue

for internationalisation and, subsequently, a perceived prerequisite for higher-level opportunities in the academic and business worlds.

That the present study's participants did not challenge such notions is consistent with the arguments of Mouhanna (2016), who highlighted the unquestioned acceptance of such concepts across the Gulf Cooperation Council area. Focusing on the same region, Hopkyns and Elyas (2022) discussed the ways in which discourses and ideologies regarding language form through the influence of history, society, and the media. In the Gulf specifically, the same authors identified the "divisive language ideologies… [that] place Arabic and English as symbolic opposites in the region, with Arabic associated with domestic and religious domains, and English representing the wider world and education (Hopkyns & Elyas, 2022, p.27).

The students' generally positive attitudes towards EMI despite the challenges that it creates for them could be viewed as an example of what Tollefson (1995, p. 2) described as the projection by those who control language planning of their "own practices and beliefs as universal and common sense." Similar arguments have been made by, amongst many others, Canagarajah (2010) and McLaren (2011), with the latter writing about the Gulf region specifically.

According to Tollefson's perspective, the students' acceptance of such views would be evidence that they had accepted a discourse that was being imposed upon them, a process that he saw as "reflect[ing] relationships of unequal power" (Tollefson, 1995, p. 2). The unequal power relationship being thus expressed in Saudi society in the case at hand would not be between the speakers of the dominant language and a marginalised language (as everybody shares Arabic as a common language), rather it would be between the social elites who have access to international (i.e. English language) education, and who are responsible for forming policies, and the less

affluent members of society who are further disadvantaged by their lack of schooling in English (see Section 6.2.2 for further discussion of this). This would be consistent with Tsui and Tollefson's (2009, p. 113) argument that MOI selection "determines who will participate in power and wealth" and Tollefson's (1991, p. 8) claim that "language is a means for rationing access to jobs with high salaries."

However, as well as potentially reflecting hegemonic discourses and unequal power relations, these positive opinions of EMI could, at least partially, be based on students' objective assessments of the importance of English for their future careers and success and the extrinsic motivation that flows from such assessments (Holbah, 2015). These positive views of EMI are consistent with Pennycook's (2001, p. 81) description of English as "one of the most powerful means of inclusion into or exclusion from further education, employment, or social positions."

That possibility is to some extent supported by the fact that the participants' general responses regarding the use of English in science programmes echo those reported in many studies both in Saudi Arabia and internationally. One example from the former context found that 97% of the students surveyed viewed English as the language of scientific discourse and technical vocabulary and, consequently, the only way forward for their careers (Al-Jarf, 2008). Similar views were found in other Gulf-focused studies such as Mahboob and Elyas (2014) and Solloway (2016). The international literature reviewed also overwhelmingly revealed generally positive views of the use of EMI (see, for example, Aguilar & Rodríguez, 2012; Costa & Coleman, 2013; Doiz et al., 2013; Hu, 2009; Jensen & Thogersen, 2011). Limited exceptions to the general rule about positive perceptions of EMI internationally include the work of Doiz et al., 2013, which reported negative perceptions, and Galloway et al., 2017, which reported variations in perceptions across different stakeholder groups.

Conversely, all participants in the present study expressed the view that the use of Arabic as the medium of instruction for scientific programmes was neither feasible nor welcome as it would lead to them being excluded from participation in scientific discourse. This widely expressed view of Arabic as being inferior to English in the academic scientific context confirms the findings of other studies on stakeholders' perceptions, including Al-Jarf (2008) and Habbash and Troudi (2015).

Finally, the finding that all managers interviewed in the present study had a strong positive perception of EMI is consistent with the international data. For instance, a study conducted in Egypt by Sabbour et al. (2012) found a similar tendency among managers to favour English. However, an interesting nuance here is that managers in different countries may have different reasons for promoting EMI. In the present study, one of the major reasons underlying their positive perception of EMI was that its implementation would lead to a greater internationalisation of Saudi Arabian universities, thus increasing the professional competitiveness of graduates from their EMI programmes. In other educational contexts, a major reason underlying policymakers' promotion of EMI implementation can be the intent to attract more international students to higher education institutions to derive financial benefit from that trend (Kamasak and Ozbilgin, 2021). The latter motivation does not apply to Saudi Arabian universities that admit only Saudi students (with some limited exceptions) and do not charge fees.

As the above discussion makes clear, part of the answer to the research question about stakeholders' attitudes to EMI is "ostensibly positive". What this research cannot answer conclusively is whether that stated positivity stems from a largely objective assessment of the benefits of studying in English or whether it reflects the pervasive influence of hegemonic

international discourse on this subject (and a certain degree of not wanting to be seen to question the official policy). Evidence from the related literature suggests that all of those issues could be factors influencing the positive expressions of support for the EMI policy. Nevertheless, the most likely answer is that a combination of those factors is responsible for the stakeholders' stated positive perspectives on EMI as an agent of internationalism and opportunity. The following two sub-sections look at more negative attitudes towards aspects of EMI, which both co-exist and compete with the positive perspectives reviewed above.

6.3.2 The desire to preserve Arabic's status and identity

Despite the overwhelmingly positive attitudes toward English as the scientific lingua franca, some participants did report some negative feelings regarding EMI as a policy. Although such participants were in the minority, and their feelings did not outweigh their overall positive perceptions of EMI, those reported negative perspectives are still worthy of discussing here.

These negative perceptions were focused on the perceived impact of EMI on participants' Arabic language and identity. The current use of EMI in higher education institutions is contributing to English being given more power and prestige than Arabic. As English increasingly becomes the language of science, technology, social mobility and economic advancement across Saudi Arabia, it seems evident that Arabic must become of lesser importance in each of those fields. As the importance of any language wanes in such fields, it follows that aspects of people's abilities in that language may fade over time, particularly if they are using it less and less in formal and professional contexts. The impact of the increasing importance of English globally has been challenged in the literature by authors including Shohamy (2006) and Skuthabb-Kangas (2006), who have argued that people should be able to

use their mother tongue and still enjoy access to the opportunities that can offer a successful future.

It is worthwhile reiterating that Arabic is the only official language in Saudi Arabia and, as well as being used in different sectors, it is the MOI in public schools. The Saudi Vision 2030 commits to the preservation and celebration of the Arabic language in order to maintain the Arabic Islamic identity of Saudi society (Vision 2030, 2016). Nevertheless, Arabic was not chosen to be the MOI for higher education, which could be interpreted as an initial, and significant, step towards diminishing the status of the language in its homeland. Restricting the use of Arabic at the pinnacle of the Saudi education system might encourage students to come to regard their mother tongue as being of lesser importance. The findings of the present study show that some stakeholders are calling for improved English language teaching in state secondary schools and expressing the wish to have studied in EMI at that level, which may eventually contribute towards creating a situation in which different levels of Saudi education adopt English as the MOI. Such stakeholders may also come to identify Arabic with parochialism and the past rather than the internationalisation and modernity that are associated with the English language. As Al Bataineh (2021, p.12) concluded in a relevant study of EMI in the UAE, providing higher education exclusively in English gives a clear signal that it is the language of knowledge acquisition and success, rendering Arabic, by implication, "dispensable and irrelevant to success."

The assumption made by some of the participants in the present study that EMI could have an adverse impact on Saudi society and the Arabic language echoes similar concerns about the unfavourable impact of EMI on local languages that have been voiced in many previous studies (e.g., Wilkinson, 2013; Airey, 2004). For instance, Kirkpatrick (2011) argued that the

extensive use of EMI at universities could weaken the status of the Chinese language, mirroring concerns expressed about Arabic in the present study. Likewise, similar opinions were reported about the Arabic language in different contexts (Al-Jarf, 2008; Ismail, 2011; Troudi, 2009; Troudi & Al Hafidh, 2017). Al-Rubaie (2010) argued that, since Arabic is strongly associated with the Arabic identity and the Islamic religion, using EMI to teach science would promote the idea that Arabic is not as good as English and cannot be used for such purposes, which would eventually make students look down on their mother tongue. Other studies that have contained similar critiques of the impact of EMI on the Arabic identity include McLaren (2011) and Eisele (2017, p.309), with the latter reporting that Arabic was in the process of becoming a "minority language" in the Gulf, due to the predominance of communication in English in academia and at the highest levels of business and government. The speculations contained in those studies go somewhat beyond those offered by most of the stakeholders in the present study. However, those additional studies suggest that the current general support for EMI amongst stakeholders at university level may be challenged by a backlash in favour of Arabic as the extent of the threat to it becomes clearer through the continued spread of English.

6.3.3 The need for Arabic in academic/work settings

It may be suspected that concerns reported in the present study regarding the deterioration of Arabic language skills might be overstated, given that Arabic is still the dominant language of everyday communication across the Arabian Peninsula (notwithstanding the fact that the Arabic used at home is not the standard version used in academic contexts). However, Bot and Hulsen (2002, p. 253) suggested that "[n]either first languages nor second languages are immune to loss. With non-use they fade, and though they keep their place in our memory system, they become less accessible up to the point where the knowledge has sunk beyond reach and is for practical

purposes lost." Similarly, Cook (2003, p. 12) suggested that "as a person gains the ability to use a second language, so he or she may to some extent lose the ability to use the first language. In circumstances where one language becomes less and less used, people do lose their command of it."

Such comments may not, initially, seem to be of particular relevance to Saudi Arabia, where the Arabic language remains dominant in the majority of fields and remains, of course, the language of everyday discourse. Nevertheless, evidence from the interviews with the students in the present study suggests that EMI is starting to affect their abilities to use Arabic, specifically when they were discussing their courses or academic concepts. This raises questions about the students' future abilities to perform professionally and communicate within scientific contexts through Arabic. This reflection has been reported by other students on EMI programmes in the Gulf region, such as those interviewed by Masri (2019) in the UAE and AlBakri (2017) in Oman. One consequence of EMI education is that students will have minimal chances to develop their use of Arabic in academic and professional settings, which will in turn affect their professional careers where they are expected to use Arabic to communicate. This was evidenced by participating students in the present study who reported struggling to use Arabic to communicate with patients during their hospital training. Students' low levels of competence in Arabic as a result of using EMI was one of the reasons why Qatar decided to reverse education system reforms and revert to using Arabic as the MOI at the university level (Mustafawi & Shaaban, 2019).

Finally, it is important to state that these findings are snapshots taken at a relatively early stage in the rise of English in Saudi Arabia. It may seem that the concerns raised here are overstated. But using English at the top of the education system will inevitably produce ripple

effects throughout the rest of that system. We can assume that the education that prepares students for higher education will become increasingly English focused, thus further strengthening the language's importance across the country. As English becomes stronger it seems inevitable that Arabic must become weaker, making space for the expansion of English into further aspects of public life and producing successive generations of highly educated Saudis who are increasingly familiar with English as the language not only of science but of senior-level work in a broad range of increasing internationalised fields. The findings related above give hints of the ways in which that will start to happen, as professionals trained in English struggle to communicate their professional knowledge in situations in which Arabic is required. However, should the potential backlash against EMI speculated about at the end of the previous sub-section ever manifest with greater strength in Saudi Arabia, the possibility remains that the country will follow that Qatari example, a reminder that the seeming march towards ever-increasing use of English in academia internationally is not as irresistible a force as it may sometimes appear.

As this discussion has shown, the expansion of English through the top level of Saudi education appears to be welcomed by many for the benefits that it brings. Nevertheless, it is important to remain aware of potentially negative aspects of that expansion so that the process can be managed, as far as possible, in ways that maximise the positive and minimise the negative. Some may doubt the extent to which the process can be "managed" at all, given the complex interplay of factors, both locally and globally, that determine which languages are used in particular contexts and how they are used. However, it is important to remember one of the distinctions made by Wächter (2000) (Hopkyns & Elyas, p.18, citing Wächter, p.9). between globalisation and internationalisation, where the former is a largely uncontrollable dynamic,

whereas the latter (which includes EMI as one of its potential constituent parts) is primarily a consequence of conscious and planned actions. If internationalisation through EMI is part of a planned process, it stands to reason that the refinement of such plans can contribute to changing the consequences of that process. Such planning must be informed by an informed discussion of both the positive and negative effects of EMI (see Section 7.2 for recommendations relating to this aspect of language policy and planning).

6.4 Strategies to improve students' experience of EMI

One of the aims of this study is to provide practical recommendations to help improve student outcomes in the context of the EMI policy in Saudi universities. Consequently, the research questions not only focus on attitudes towards EMI and the challenges related to the implementation of the policy but also on the learning strategies that students used to try to overcome those challenges. This section of the discussion focuses on considering the findings that are related to those strategies and situating them within the broader literature as a precursor to making recommendations regarding improving students' experiences of the programme in the following chapter. The discussion regarding learning strategies is contained in section 6.4.2. However, before turning to that, it is necessary to discuss a key, related issue that emerged from the findings of this study: how to ensure that both students and lecturers are properly prepared for the programme. In the case of the former group, the focus is primarily on the role of the PYP and the ways in which it can be improved. In the case of the latter group, the focus is primarily on training and changing their understanding of their role in the context of an EMI programme. Discussing the issue of proper preparation is the subject of the next sub-section of this chapter (6.4.1).

6.4.1 The need for proper preparation for students and lecturers

The extent to which schools sufficiently prepare Saudi students for the demands of EMI courses at university has already been extensively discussed in Section 6.2.2. Therefore, the focus of this section is on discussing the findings related to the PYP. The PYP is intended to be a key facilitator of the EMI policy, providing a bridge between students' high school education and their EMI university courses. As the findings presented in the previous section revealed, many of the students and lecturers participating in the present study were critical of the PYP. Unsurprisingly the managers did not echo most of those critiques as the PYP is provided by the university (see Section 5.2.2 for further details). Nevertheless, amongst the students and lecturers, it was generally argued that the PYP provides inadequate preparation for studying in English, which is, partly, responsible for the students' struggles. Some of the state school students were grateful for having received at least some preparatory support from the PYP (both in terms of English language and exposure to different pedagogical styles). In contrast, none of the private school students expressed such positive sentiments regarding the programme, finding it unhelpful and irrelevant given their backgrounds in EMI education. Overall, the agreement across the students and lecturers generally was that the programme is failing in its duty to convert high school pupils into university students capable of dealing with EMI education. The critiques levelled at the PYP by those participants in the present study are supported by much previous research concerning such programmes in Saudi Arabia (e.g., Al-Adwani & Al-Abdulkareem, 2013; Alblowi, 2016). The present study's findings support the argument that PYP programmes have failed to improve despite the criticisms made in such older studies and the increasing policy focus on implementing EMI across Saudi universities.

Specifically, the present study's finding that the PYP focuses on the English language too generally without addressing the particular terminology required by science students echoes the conclusions of Tawalbah's (2014) relatively large-scale study of attitudes towards the PYP, which involved 326 students and 55 lecturers. That study found that such programmes insufficiently considered students' specific academic and linguistic needs. The fact that similar findings are reported in the present study indicates that insufficient action has been taken in response to Tawalbah's research, despite the fact that it is now eight years old. The findings of the current study also corroborate the more recent evidence from the work of Muhammad and Abdul Raof (2019), who found that engineering students are not being prepared by the PYP for the specific requirements of their subsequent courses, and Khan (2020), who showed that a majority of both lecturers and students felt that specialised preparatory courses are required for those students who wish to pursue degrees in science subjects, especially medicine.

The present study does, however, add additional dimensions to the previous research on PYPs and the challenges associated with them in Saudi Arabia. One way in which it does so is by making a distinction between the PYP experiences of state school and private school-educated students. The previous research has tended to focus on the inadequacies of the PYP from the perspective of it not sufficiently preparing those students whose English skills are poorly developed (which normally means the state school students). However, the current study also shows the frustrations of those students with better English language abilities (i.e., the privately-educated students) who found the PYP a waste of time as it did not offer more than their previous English MOI experience at high school. Also, as noted above, the present study also captures some more positive perspectives from state school students on issues such as the pedagogy used on the PYP (with one participant noting that it was their first experience of

education that was not solely focused on rote memorisation). Therefore, it can be concluded that the most negative opinions of the PYP were from those students with the best English language abilities, who found it insufficiently challenging. Furthermore, the current study also goes beyond the previous literature by also interviewing managers (rather than just students and lecturers). Although the managers, unsurprisingly, tended to be positive about the programme, the fact that the head of the college was critical about shifting responsibility for it from the individual departments to the English department does show that the issue of the PYP insufficiently covering technical scientific vocabulary is widely recognized by stakeholders within the three groups interviewed.

Moving beyond the PYP and its role in preparing the students, it is also necessary to discuss the extent to which the lecturers are adequately prepared for EMI. The present study's key finding here is that no such preparation is provided to the lecturers, which appears to mean that not only do they lack the skills required to teach in the students' L2 but also an understanding of their own role in the EMI process. All the participating lecturers reported that they had not been asked to provide any certifications related to English or EMI skills and had not been provided with any EMI-specific training for their role. The fact that all the lecturers stated that they would be interested in attending extra English language training, were it to be offered, could be interpreted as an indication of their struggles with teaching in English as could the enthusiasm of four out of the five lecturers for collaborating with language specialists in their teaching.

The frequent complaints of the lecturers interviewed for the present study concerning the lack of EMI training were echoed in many studies from a variety of educational contexts. For instance, Baldauf et al. (2011) and Wijayatunga (2018) argued that one of the main reasons why

EMI programmes across Asia and in Sri Lanka, respectively, failed to achieve their objectives is the under-resourcing and insufficient funding of such programmes, which leads to a lack of training opportunities. However, the major reason EMI lecturers did not receive adequate training in the context of the present research was not the cost of such training. Instead, it was related to the prevailing belief among university managers that L1 English lecturers or lecturers educated in English-speaking countries would not need additional training, which shows the managers' lack of awareness of what EMI is and what it involves.

Insufficient attitudinal preparation for teaching EMI was evidenced in the current study by the fact that the interviewed science lecturers focused on content, rather than language, in their teaching, considering that it was not "their job" to provide language assistance to students. Significantly, only one of the interviewed lecturers suggested that they should be receiving additional training that focused on teaching skills and ways of helping students who were struggling with the English language aspects of the programme. The lecturers' general perception that they were not responsible for providing language support contrasts with the argument of de Oliviera (2016), who claimed that "All students are language learners. All teachers are language teachers," arguing that the best results are achieved when students are engaged with English language learning that is relevant to the specific subject they are studying. Nevertheless, some lecturers said they lacked the expertise to correct students' English or attend to their issues with language. That finding is consistent with the results of Airey's (2012) discussions with Swedish lecturers who reported not focusing on teaching the language as one of their course learning outcomes. Like the teachers interviewed in the present study, the lecturers in Airey's (202) study did not consider themselves to be language teachers nor did they think that

teaching language was one of their responsibilities. Similar to the present study, Airey's (2012) respondents reported not feeling confident correcting students' English.

In another relevant study, Soren (2013) found that physics lecturers from Denmark frequently resisted teaching language in their classes because they believed that they were not required to teach the language and, therefore, doing so was not one of their course objectives. A similar attitude among science teachers was observed in a study conducted by Dearden and Macaro (2016). Adequate preparation for EMI would require lecturers to improve their pedagogical skills in ways that are relevant to that context. A necessary precondition for that is changing their attitudes to their roles as educators so that they see addressing English language challenges as part of their job and, consequently, focus on that in their classes and in the support that they provide to their students. Similarly, the findings of the present study suggest that more needs to be done to encourage the lecturers to recognise that the move to EMI does not only require a switch in language but also changes in pedagogical practices.

Finally, an interesting aspect of the findings of the present study that differs from much of the received wisdom in this field regarding the phenomenon of "native speakerism" (Sahan, 2020) concerns the students' preferences for native Arabic-speaking lecturers, rather than English native speakers, because they felt such lecturers were easier to understand and able to draw upon the students' L1 to explain difficult concepts or terminology whenever required. This contradicts the findings of Sahan (2020), whose study of EMI in Turkish universities concluded that students had an overall preference for native English-speaking teachers (NESTs). However, there was a nuance to that finding: Sahan found that students preferred NNESTs for course content (because they could draw on the students' L1 to explain it) but NESTs for the language instruction element of their course. In light of that finding, perhaps the fact that the students in

the present study showed an overall preference for NNESTs can be attributed to their struggles with the language and their need for greater support in that element of the programme (support that seems to come not in the form of additional language instruction but rather through increased usage of L1 when deemed necessary).

On the same subject, Jieyin and Gajaseni's (2018) study of students' preferences at Guangxi University in China found that the 65 participating first- and second-year students overall viewed both NESTs and non-native English-speaking teachers (NNESTs) positively and believed that different types of teachers had different strengths which make each group better in certain areas but do not mean that one is better than the other. That echoes the distinction made by the Turkish students in Sahan's study, although, interestingly, as well as preferring NNESTs for imparting knowledge, the students also preferred non-native speakers for some aspects of language instruction (especially details of grammatical structures) while NESTS were preferred for some aspects of language (particularly pronunciation). Perhaps the same distinctions were not evident in the findings of the present study because the lecturers are reluctant to take on the role of language instructors and focus exclusively on course content (see Section 6.4 for further discussion of their perceptions of their roles on the EMI programme). Finally, the preference for NNESTs expressed in the present study are,, consistent with the findings of Evans and Morrison (2011), whose study of a university in Hong Kong found that students deemed non-native English-speaking lecturers better because they could understand their accents more easily and because such lecturers could explain content more clearly (by using L1 when required).

In conclusion, it can be said on the subject of preparatory support that the case university appears to be applying a mixture of three of the four methods of EMI support identified by Macaro (2018), i.e., the preparatory year, selection and the ostrich model (see Section 3.6.1 for

further discussion). The adoption of the ostrich model following the PYP and the selection that takes place at the end of it can be explained by the assumption that the preparatory year online suffices and that, therefore, the fourth method of EMI support identified by Macaro, concurrent support, is not required. The following sub-section moves beyond the question of preparation to look at the learning strategies used by stakeholders during the course of the EMI programme.

6.4.2 Different strategies used by stakeholders

As mentioned above, one of this study's research questions focuses on the strategies used by students to overcome the challenges associated with EMI in Saudi universities. Concerning students' learning strategies, the results of the present study reveal that they use social strategies more frequently than any other learning strategy. However, they also reported using translation and socio-affective strategies to ease the learning process. Social strategies included seeking support from family, friends, peers (e.g., through study groups), wider networks, and external resources (e.g., tutors). Translation strategies included employing technological tools to convert content into the students' L1, reading translated books, and using dictionaries. It is worth noting that there is some cross-over between the social and translation strategies because seeking help from other speakers of their L1 within their networks gave students opportunities to use Arabic to increase their understanding of course content. For example, students reported seeking help from lecturers outside classes and responded positively to the opportunities that this gave them to engage in Arabic in a less formal environment. However, some students reported a reluctance to engage with lecturers for such support on account of their fear of being negatively judged, their sense that they would be troubling the lecturer, or their general lack of confidence. Finally, socio-affective strategies included students seeking emotional support from different people around them, such as family, friends, and therapists. In addition, using social media and the

internet to connect with other people and seek emotional support was an observed practice in this study as well.

The current research's findings regarding the extensive use of social learning strategies among the interviewed students are consistent with various previous studies. For example, Holi Ali's (2020) study of Omani EMI students found that students used social support as an adaptive learning strategy to address the challenges of EMI courses. That social support included help from their families, friends, and peers. However, unlike in the present study, EMI students in the Omani context seemed to employ translation strategies more than social strategies. However, similarly to the interviewees in the present study, who would seek to sign up for extra classes and hire tutors, Holi Ali (2020) reported that Omani engineering students would also opt for English tuition classes in addition to hiring a personal tutor. The present study shows that such a strategy might only be accessible to certain students from high-income families. Similarly, several scholars argued that this type of service may disadvantage the already disadvantaged and further increase the advantages of the rich who already have access to better education (Jerrim, 2017; Dang and Rogers, 2008). Another social strategy used by the students in the current study is seeking help from lecturers. This finding mirrors those of the previous studies that examined students' EMI coping strategies and how they use their lecturers' support to help them understand and complete the given tasks in English (e.g., Kagwesage, 2013).

Unlike the previous research referenced above, the present study covered the period of restrictions that were imposed in response to the COVID-19 pandemic. Therefore, it offers a perspective on the use of social learning strategies at a time when students' opportunities to meet face-to-face were significantly limited. In that context, the present study's findings show that students were using technological solutions (e.g., Zoom) to overcome the restrictions on meeting

in person. However, some of the students reported that the lack of opportunities to get to know their classmates was impacting their ability to use social learning strategies effectively. This finding has implications that extend even beyond the lifting of the COVID restrictions in the context of a general trend towards more remote education internationally, particularly if, as this study's findings suggest, social strategies tend to be students' preferred method of dealing with the challenges of EMI courses. One of the lecturer's responses to questions about students' use of technology for learning during the COVID period also shed light on a problem that has not been extensively discussed in the existing literature on EMI in Saudi universities, i.e. the disadvantages that technological reliance places on those students who cannot access the internet at home (which became particularly significant when the universities were closed as those students who depended on attending in person for internet access found themselves cut off). This finding suggests that further consideration should be given to ensuring that the trend of shifting more and more course content and support systems online does not further disadvantage the already disadvantaged.

Taken together, the results reported in this study regarding translation strategies are consistent with the observations made in previous research. For instance, similarly to the present results, Yu et al. (2021) concluded that most of their study participants referred to using L1 as an effective strategy to improve their understanding of the course content. In Yu et al.'s (2021) study, the participants also reported translating books available online and teachers' slides. Indeed, as argued by Chalmers (2019), translating content to L1, which is typically EMI students' stronger language, can promote their deeper understanding of the subject, leaving more time for the development of their English skills. Along similar lines, upon finding that the interviewed students used different languages to facilitate cognitively demanding tasks,) Galali

and Cinkara(2017) argued that appropriate use of L1 can in fact help students avoid any confusion caused by their inadequate command of English. However, while Hu and Lei (2014) reported that EMI students would borrow textbooks from students who took the same course in Chinese, doing so was not possible in the context of the present research, as all science courses in Saudi Arabia are taught in English (and only English course books are available).

Another trend observed in the present study that also agrees with previously reported findings concerns using the internet to search for translations or for specific information in L1 as well as using different applications such as Telegram, WhatsApp and various educational websites. Taken together, these findings are consistent with previous observations. For instance, Holi Ali (2020) reported EMI students' extensive use of the internet and smartphones inside and outside lectures. Likewise, Al Qahtani et al. (2019) emphasised the effectiveness of WhatsApp as a learning tool and its important role in improving students' skills and language learning at the university level. The present study also found that one of the strategies used by students is the use of test banks to prepare themselves and translate key words before the exams. In previous research, test banks were reported to enhance students' understanding of what future exams might look like and force them to think more critically (Kurtz et al., 2019).

Finally, the findings regarding students' use of socio-affective strategies are also consistent with previous research on this subject. For instance, Ansari and Khan (2020) found that social media is a helpful tool for connecting students to social resources and creating networks. It might also have further positive effects on students' psychological and emotional well-being since they can use it as a safe place to share their feelings and seek emotional support. Although, again, the present study's findings regarding those students who could not access the internet outside of the university itself suggest that the increasing dependency on online

resources to provide both learning and emotional support risks further disadvantaging the already disadvantaged. Overall, the findings reveal that students employed a wide range of strategies to attempt to overcome the challenges of EMI and further their education, an observation that stands in stark contrast to some of the accusations of laziness levelled at them by other stakeholders interviewed for the present study. The students may well struggle with EMI, but they appear to retain overall positive attitudes towards the concept and continue to try to find creative ways to overcome the challenges associated with its implementation.

CHAPTER 7 CONCLUSION

The present thesis adds to the general body of literature on EMI in HE contexts internationally by adding another qualitative study to the literature focused on the Gulf region. More specifically, its main goals were to analyse how EMI is implemented in the Saudi Arabian HE context and explore the attitudes of major stakeholders involved in the process, the challenges that they encounter, and the strategies that they use when attempting to maximise the potential benefits of EMI. This thesis adds value to previous studies of this subject in Saudi Arabia through its in-depth focus on the stakeholders at the case university and its detailed examination of issues that have been somewhat neglected in previous studies such as the views of managerial staff involved in setting and overseeing EMI policies, the variability of implementation within an individual university, the extent to which practices such as translanguaging and code-switching take place within that context, and the significant differences between the EMI experiences of private and state school students. It also questions the ways in which EMI is being implemented, received, and responded to in a context in which all students share an L1 and come from a society in which many question the value and nature of relationships with the Western world at a time when that society seems poised between tradition and reform. Furthermore, the results of this study's data analysis have revealed a number of concerns that should be brought to the attention of all decision-makers in the Saudi Arabian education sector.

In this concluding chapter, I recapitulate the study's main findings, answering the research questions and highlighting the particular issues that should be highlighted to stakeholders and decision-makers involved in the process of generating and implementing EMI policy (Section 7.1). I then proceed to make a series of tentative recommendations for improving policy and practice based on those findings (Section 7.2), tentative because of the limitations of

the present study, which are set out, alongside the challenges encountered in the research process, in Section 7.3. Section 7.4 shows how some of those limitations can be overcome with recommendations for future research that could build on the findings of the present study and add more to the body of knowledge that informs EMI policy and practice in Saudi Arabia and internationally. Finally, Section 7.5 concludes the entire thesis with some personal reflections on my research journey.

7.1 Summary of main results

This section summarises the main results of the data analysis under the headings of each of the four research questions of this study.

7.1.1 RQ1: How is EMI implemented in STEM programmes in Saudi Arabia?

With regards to my first research question, the results of the data analysis revealed that implementation of EMI is highly variable in the STEM programmes being studied in Saudi Arabia. All lecturers admitted to using Arabic at some stages in their teaching, with the exception of the only lecturer who could not speak the students' L1. Arabic was used to give instructions, clarify concepts and communicate with students in settings such as office hours. Factors that determined whether or not Arabic was used included the context (i.e., inside or outside of class and whether the lesson was online and, therefore, potentially being recorded), the students' proficiency in English, the lecturers' experience with EMI and lecturers' proficiency in Arabic. Some examples of this usage of Arabic were clearly planned (such as putting translations of English terms on the slides used for lectures); others appear to have been more spontaneous. The evidence suggests, however, that none of the usage of Arabic in any of the learning environments investigated in this study can be considered to meet the definition of "translanguaging" as discussed in more detail below.

As the literature review undertaken for the present study has shown, translanguaging is a concept that permits, indeed encourages, all stakeholders in a learning setting to freely draw upon their full range of linguistic resources in order to facilitate communication and overcome the academic challenges linked to the enforced usage of a single L2. Translanguaging practice starts from the "stance" of the lecturer, who consciously permits the usage of additional language resources as part of an integrated system of communication that does not favour one language over another. Taking such a stance necessarily requires the surrendering of a certain amount of authority on the part of the lecturer because they allow their students to use their linguistic resources in the ways that they see fit to create a hybrid system of communication. Although the lecturers admitted to using Arabic, they did not do so from a "translanguaging stance" that equally valued the use of L1 but rather attributed it just to being enforced by practical considerations in a context in which their students struggled with EMI. When Arabic was used, it appears to have been as part of a "code-switch" between two separate languages rather than as part of the creation of an integrated system of communication. Further, the usage of Arabic in classes appears to have been entirely controlled by the lecturer; there was only limited evidence of the students initiating that usage, and the students' testimonies showed that they used Arabic amongst themselves (in group discussions for example) only when they were confident that their lecturers would not overhear them, strong evidence that they were not free to use their L1 in the ways that translanguaging would encourage.

The fact that all the stakeholders admitted to the usage of Arabic, despite being aware that it should not be being used according to the commonly held understanding of the unwritten EMI policy, is clear evidence of the variability of the application of EMI. That variability of application can be, at least partially attributed to the lack of a written or clearly articulated policy

on the subject. The absence of official guidance creates a vacuum that can be filled by the lecturers in a variety of ways depending on factors including their students' abilities and their own levels of comfort with using English. The present study revealed that, beyond just failing to articulate what the policy means, some staff in managerial roles were actively encouraging the use of Arabic in classes, despite their stated commitments to EMI only; management showed an awareness that EMI is problematic on account of the students' difficulties with the English language (which they blamed on schools and, to a lesser extent, the PYP). The general confusion and inconsistency around implementation are also illustrated by the fact that one lecture admitted to being more careful to not use English when delivering classes online (during the period of COVID restrictions) because of what amounted to her "fear" of being recorded not applying the EMI requirement.

Significantly, the lecturers themselves spoke of having received no additional training related to the requirements of teaching using EMI. The extent of the lack of some lecturers' knowledge of the issues related to EMI was revealed by the fact that one of them had not even encountered the term "English medium of instruction" until the interviews undertaken for the present study. Perhaps that individual could be considered an outlier in terms of lack of knowledge of EMI, however, her peers who were at least acquainted with the term showed no understanding of its implications in terms of requirements to modify their pedagogy to meet the requirements of EMI. The fact that they did not see themselves as having any responsibility for the development of their students' English language abilities is, at least, in keeping with the letter of some of the most commonly used definitions of EMI, i.e., that improvements in language abilities are not an explicit aim of the course. Nevertheless, that attitude is not in keeping with the implicit aims of EMI policymakers and the students signing up for such courses, i.e., to

improve English-language abilities in ways that permit increased engagement with a globalised world that depends increasingly on knowledge of the English language. Perhaps even more significantly, in a context in which students were clearly struggling with EMI, the lecturers' stances regarding language development appear to have been a hinderance to students' achieving the explicit aim of their EMI programme: improved content knowledge of the STEM subject that they were studying. Overall, this study's findings suggest, in contrast, to some of the previous work in this field, that the lecturers themselves play a crucial role in the extent to which EMI is being implemented. Their choices appear to be not only dedicated by their students' abilities but also by their own confidence and the extent to which they subscribe fully to the principles of EMI (see Section 7.1.2 for more on this).

7.1.2 What are stakeholders' perceptions of EMI?

With regards to the second research question, despite the fact that EMI in Saudi Arabia is a governmental top-down incentive, all stakeholders reported generally positive perceptions towards EMI, linking the use of EMI with advancements in scientific fields and better professional opportunities for university graduates. Most of the interviewed lecturers also identified believed the availability of materials and resources in English as an important benefit of EMI. Of course, it is important to reiterate that these findings only reflect what the participants *claimed* to believe, there are possible reasons why they may not have actually believed what they stated or why their statements may not have reflected the full range of their opinions regarding EMI. Despite attempts to create a scenario in which participants feel as comfortable as possible disclosing their true feelings, it remains the case that stakeholders, especially the managers and lecturers, may have been reluctant to contradict the policy of the institution. Further, as the literature reviewed showed, many theorists would argue that positive expressions of support for

the EMI policy reflect the influence of the prevailing discourse about the benefits of English in contexts of internationalisation and globalisation. It is beyond the scope of the present thesis, and perhaps ultimately impossible, to prove whether or not that is the case. Suffice to say, for now, that my personal perspective is that the critical theorists may overstate the influence of that discourse by attributing all of people's views to a blind acceptance of it, especially in a context in which command of English clearly has the potential to bring tangible benefits to the individual, benefits that may inform a rational, individual decision to see EMI as a beneficial form of education.

Those caveats notwithstanding, the analysis of interview data allowed me to obtain a granular picture of the factors that appear to have influenced the stakeholders' stated positive perceptions of EMI. In that respect, one important factor for the interviewed students was their previous school experience (i.e., whether they were educated in state or private schools). It is important to reiterate, however, that even the state school students expressed strong support for EMI. For lecturers, the determining factors appear to have been age and previous experience of EMI. With regards to the managers, it seems like there were no factors that determined managers' positive perceptions; in fact, all of them enthusiastically supported EMI and were willing to try as many solutions as possible to make the situation better. Finally, it is also worth noting when discussing the findings related to stakeholders' views of EMI, that most of the students expressed a preference for non-native English-speaking lecturers, because they were easier to understand and could draw upon Arabic when required, a finding which contradicts some of the received wisdom in this field regarding the general desirability of employing native English speakers in teaching roles.

Despite the generally positive views of EMI expressed above, a key finding of the present study was that some stakeholders (from the student and lecturer groups) expressed ambivalent views regarding EMI. Interestingly, these critiques did not come from a perspective of challenging EMI on account of its impact on learning (see Section 7.2.3 for findings regarding such issues), which suggests the extent to which stakeholders had accepted EMI as a beneficial, or even necessary, element of their STEM programmes, consistent with the findings regarding their perceptions of its benefits in terms of access to materials and future career development opportunities. Instead, critiques focused on issues concerning EMI's potential impact on the Arabic language and Islamic culture. The voicing of such critiques was not widespread amongst the study participants although the fact that they were voiced at all by the people engaged in such programmes may be suggestive of the broader existence of such beliefs across Saudi society. some of the potential remedies that might address the academic challenges encountered by HE students, such as extending the practice of EMI through other levels of the Saudi education system, may sharpen such critiques of its impact on the Arabic language and culture, although drawing firm conclusions about such issues is beyond the scope of this thesis (and, inevitably, only a matter of speculation). Finally, a limited number of participants raised concerns about not developing the abilities to communicate their new knowledge in professional situations that required the use of Arabic (as medical students interacting with patients). This unintended consequence of the EMI policy is noteworthy and may require changes in the ways in which EMI is conceived and implemented in order to stop that issue from developing further

7.1.3 What are the pedagogical, social and cultural challenges associated with EMI in Saudi universities?

Next, as concerns my third research question, the results showed that EMI is associated with a range of challenges for both students and lecturers. The fact that the latter group also experienced difficulties with using EMI in classroom echoes with the previous finding about the lack of policy guidance to structure EMI education and, even more so with the lack of training to prepare the faculty for this type of teaching. The specific challenges encountered were many and varied and particularly related to content comprehension, speaking, and writing. In addition to these challenges with academic skills, all the students interviewed, irrespective of their self-reported English language abilities, reported experiencing affective challenges related to studying through EMI. These stress-related affective challenges included anxiety, the fear of being judged or laughed at and the related feeling of intimidation in the presence of peers who had a better command of English.

As noted above, these affective challenges were experienced by all students. Nevertheless, perhaps one of the most significant findings of the present study concerns the different experiences of EMI generally for those students who were privately educated, and their state school educated counterparts. Unsurprisingly, the latter group, who were educated in AMI schools experienced many more challenges with content comprehension and contributing to class on EMI programmes when compared with their private school educated peers who had many years of EMI experience. Such a conclusion may be unsurprising, but the present study remains, nevertheless, one of the few studies to both confirm that finding and interrogate it in some detail. Public school graduates reported many more challenges and also feelings of inadequacy and shame when required to perform in English, especially in front of their privately educated peers.

The latter group also experienced some challenges, with evidence that some of them dislike being relied upon by their lecturers to provide assistance to those students who were struggling with the requirements of EMI. The findings related to different school types throw much light on the social justice implications of EMI in Saudi Arabia. In some other contexts, the imposition of an MOI that is an L2 for some of the class can exacerbate divisions between different ethno-linguistic groups within a given organisation. In the context of Saudi Arabian state universities, this issue does not apply as the students come from a common cultural background and share Arabic as their L1. However, EMI in this context (as in others internationally) can be seen to be exacerbating the impact of class-related inequalities in terms of access to English. One impact of EMI in such a context is to further advantage the already advantaged to the detriment of those who were already disadvantaged. How such a situation can potentially be addressed is discussed further in the recommendations in Section 7.2.

7.1.4 What learning strategies do students use to address the challenges they encounter in EMI programmes?

Finally, focusing on the fourth research question, the present study identified a number of strategies that students typically use in their EMI studies. Before turning to them, however, it is necessary to briefly summarise the findings concerning a related issue, the extent to which students were adequately prepared to learn through EMI by the PYP that they all had to undertake prior to commencing their STEM programmes. The findings of the present study show that the PYP generally attracted criticism, with the most reserved critics being the university managers (who, after all, were likely to be reluctant to criticise another element of the institution that employed them). Managers' critiques were largely limited to identifying deficiencies of the PYP that were linked to removing it from the control of individual departments and centralising

it with the English language centre. The specific critique related to that was that the PYP was overly general and did not focus specifically enough on the scientific vocabulary needed for STEM programmes. That criticism was echoed by other stakeholders who generally deemed the PYP to be insufficient preparation for the subsequent courses. However, a distinction was again noted between the private and state school educated students, with the latter more likely to speak positively about the PYP on the grounds that it at least provided some additional support for them (and, for some, a first exposure to pedagogies that did not rely upon rote learning), in contrast to the former group who found it irrelevant following many years of high school EMI education. This emphasis on the inadequacy of the PYP from the perspective of private school graduates adds another dimension to the critiques of it from the existing literature, which tends to focus on its failures to sufficiently lift up students with low levels of English rather than on the extent to which it wastes the time of those whose language abilities are more advanced.

In terms of learning strategies when the students had actually started their EMI programmes, the findings of this study revealed that although the interviewed students used different types of strategies, such as socio-affective and translation strategies, they used social strategies most frequently. Specific social strategies mentioned included seeking support from family, friends, peers, wider networks, and external resources (e.g., tutors). In terms of translation strategies, students employed technology, read translated books and consulted dictionaries. Finally, socio-affective strategies included students seeking emotional support from different people around them, such as family, friends and therapists. This support was sometimes sought in person and at other times via the internet (e.g., social media). Notably, some of the participants reported reluctance to seek support from their lecturers on account of a fear of being negatively judged, a sense of troubling the lecturer, or a general lack of confidence.

As the present study took place during the period of COVID restrictions, its findings offer particular perspectives on remote learning which are, perhaps, still relevant in the post-COVID period in light of the general trend towards more remote education. For example, students reported feeling that enforced overreliance on technological tools, such as Zoom, was limiting their ability to get to know their peers socially and consequently impacting their abilities to use social strategies effectively. Further, the findings relating to those students who cannot access the internet at home throw further light on the ways in which a move towards more reliance on technology can further disadvantage the already disadvantaged within society.

7.2 Recommendations

Based on the results of the present thesis, a number of recommendations for practice can be formulated. Overall, as revealed by my findings, unless higher education institutions in Saudi Arabia adopt a systematic way of providing continuous support for students, many of the objectives of the EMI programmes might not be attained. Accordingly, there is an urgent need for a governmental revision of what students experience before they start the EMI programme.

As the findings above have shown, students, especially those from state school backgrounds, are struggling with the demands of EMI on account of having been insufficiently prepared by their previous education. Therefore, on the school level, it is necessary that schools, state schools in particular, produce graduates who have sufficiently high levels of English that they are able (following completion of the PYP) to undertake higher education. In that context, a very timely recent decision (which was made while I was completing this study) is that, starting from the academic year 2021/2022, English language will be taught as a subject to students from the first grade in elementary school. Additional measures that would be needed for a better preparation of school graduates for their studies in EMI programmes include introducing teaching science

subjects in English in schools. This could be done by either incorporating a content and language integrated learning (CLIL) approach which aims to teach a subject and a second language at the same time. A science course, for example, can be taught to students in English and they will not only learn about science, but they will also gain relevant vocabulary and language skills which in turn will help prepare them for the EMI courses at the university. Such an approach is to be recommended on the grounds that this study found that experiencing English as a language of instruction at the school level helps smoothen the transition from school to university, with students who have had that experience tending to face fewer challenges.

This approach is a complex pedagogical model that poses several challenges in its implementation. One of the key challenges is the time constraint, which requires efficient planning and coordination among language and content specialists to ensure that both language and content instruction are delivered effectively within the allotted time. In addition, ensuring that the language and content are appropriately levelled to the target audience's language proficiency and background knowledge can also be challenging, especially in diverse student populations. Furthermore, the CLIL approach requires the provision of appropriate materials and resources that cater to both the language and content instruction, which may not always be readily available. Adequate teacher training is also essential to ensure that educators are equipped with the necessary skills and knowledge to implement the CLIL in higher education approach effectively. Lastly, the development of appropriate assessment strategies that measure both language and content proficiency is also a complex undertaking. Despite these complexities, the CLIL approach offers several benefits to students, including improved language proficiency, deeper subject matter understanding, and enhanced employability in a globalized world, making it a worthwhile endeavour for universities to undertake.

When conducting CLIL in schools, it is crucial to keep in mind the importance of preserving Arabic identity and ensuring that the CLIL approach does not inadvertently undermine Arabic language learning. In the context of EMI or CLIL in Saudi Arabia, a tension might arise between the goal of internationalization and the preservation of Arabic identities. On one hand, the adoption of English as a medium of instruction aims to align Saudi education with global standards and facilitate integration into the international community. English proficiency is considered crucial for accessing knowledge, opportunities, and fostering economic growth in a globalized world. However, this pursuit of internationalization can raise concerns about the potential erosion of Arabic identities and cultural heritage. The prominence of English may overshadow the importance of Arabic language and literature, leading to a potential loss of linguistic and cultural diversity. The challenge lies in striking a balance between embracing the benefits of English medium instruction and safeguarding the richness and significance of the Arabic language and cultural traditions. Efforts must be made to ensure that Arabic remains an integral part of the educational curriculum, providing students with a strong foundation in their mother tongue, and emphasizing the value of their cultural heritage. By adopting a nuanced approach that combines proficiency in English with a deep appreciation for Arabic identities, Saudi Arabia can navigate this tension and foster a generation of globally competent individuals who are firmly rooted in their cultural heritage.

While the schools cannot anticipate each students' future area of study, and it is impossible to tailor school's curriculum to match each individuals' plans, another approach that could help to raise the general standard of the students' English language abilities could be for schools' policymakers to work in coordination with universities to develop or adjust their English curriculum to meet the EMI university's general demands. For example, schools could implement

the common core (CC) list of vocabulary for academic study in English which has similarities between the various fields of study. That common core also focuses on language and literacy development across all content areas; if it were to be implemented at school level, students would be exposed to the language that would help prepare them to meet the demands of the EMI courses at universities. Having said that, as indicated in the findings, careful consideration would need to be given to the potential impact on Arabic of such an extension of English language teaching throughout the school system. Furthermore, from a practical perspective, there may be issues concerning ensuring there are sufficiently qualified staff at the school level to deliver improved English programmes. Further research would be required to identify the likelihood of these potential problems manifesting and the solutions that could render it less likely that they do. Finally, further consideration would also need to be given to the need for supporting (potential) university STEM students with subject-specific EAP programmes or less specific English for science and technology (EST) courses that look at both common core vocabulary and discourse types.

Another recommendation arising from the present study concerns revisiting the universities' admission procedure and the PYP programme. As shown by the results of my interview, the students admitted to the PYP have varied levels of proficiency in English and consequently have different attitude towards it, which was one of the reasons some students in this study considered the PYP inadequate. This suggests that, while some students need this additional year, that might not be the case for others. Accordingly, it would make sense to revisit the admission process and introduce a standardised test that all school graduates would need to pass before entering the university (further research would be required to identify exactly which test to use and which threshold should be set for university admission). Based on the results of

this test, it could be determined which students would take the PYP, and which could skip it. Introducing this step would place all school graduates in a win-win situation: on the one hand, students with a high level of English proficiency would be able to immediately start the EMI programme; on the other hand, students with limited English ability would be able to focus on learning the language and receive all the support they need, without feeling intimidated by students who have higher levels of English (e.g. private school graduates) and without stress from unfair competition with those who have a stronger command of English. In addition, introducing the aforementioned test would also lessen the burden for PYP lecturers who would no longer have to teach overqualified students., this solution would also benefit higher education institutions, which would be able to provide adequate training to all students at a lesser cost.

One more policy recommendation suggested by both students and managers when asked about ways to improve their programmes is that it might make sense to operate the PYP in a targeted way within each of the departments. As shown by the results of the interview data analysis, vocabulary was among the most challenging aspects that students had to face. Therefore, in the PYP, it would be desirable to focus on teaching prospective EMI students the vocabulary that they would need on entering the EMI programme. Specifically, offering English for specific purposes (ESP) classes that are designed to develop students' abilities that are needed and improve their communicative competence in a specific discipline such as engineering, business, medicine. In these classes, learning discipline-specific material, texts, vocabulary and technical and semi-specific terminology (i.e., terms such as "systems", "comprises" and "causes" that are fundamental to scientific discourse) would help the students to accomplish academic tasks when starting their EMI programme. Therefore, if students started learning the general academic vocabulary at school (as suggested in the previous point) they can

then learn the semi-specific terminology in the PYP since both are needed to successfully understand the specialised terminology that is taught alongside complex concepts as part of content courses. Such an understanding would, of course, enable students to participate actively in the learning process.

Even though the PYP is intended to help students with their English abilities, this study, and previous studies in the Saudi context, has highlighted that it might not be enough for students. Despite its benefits, the period of one year might not be sufficient to prepare students for EMI course. This study also highlighted the lack of linguistic support for students after the PYP and the sole focus of lectures on content, which affected some students. One way that could help the students could be establishing ways to help them improve their English after the PYP and continue to provide them with guidance. This could happen by providing the students with in-sessional support. For example, language/writing centre support, optional English courses, additional sessions or workshops. If these services already exist, as some managers claimed, they should be well advertised, and students should be encouraged to attend or seek help from these sources. This could happen in the orientation week, or the information could be available on the university website.

Beyond issues with the extent to which schooling and the PYP adequately prepare students for EMI, what might be done about the partial and inconsistent implementation of EMI revealed by this study? Given that EMI was only being fully applied by the lecturer who spoke no Arabic, one solution could be to hire more such lecturers (or exclusively hire such lecturers), placing the students in a "sink or swim" situation, in which they are required to use English without any of what, for the purposes of this analogy, we could term the "buoyancy aids" provided by Arabic. Of course, such a solution is highly unlikely to be implemented for a

number of practical reasons, not least the existence of a substantial Saudi national workforce within universities whose jobs are highly protected by the government. However, even where it to be possible, such a solution appears, on the basis of the present research, to not be desirable anyway. Equally, more strict enforcement of the EMI requirement also does not seem to be the right way to go in a context in which students are struggling.

Saudi Arabian universities would provide an excellent setting for translanguaging to develop given that they would not face some of the issues related to such practices concerning the potential for further marginalisation of students who do not share the L2 of the majority of the class. Translanguaging in the Saudi context would entail both a practical recognition of the current reality of EMI implementation, bringing into the open that which is currently covert and thus also unlocking the potential of such pedagogical practices to promote social justice, in the sense that they would allow state school students to compete on a more level playing field with their more affluent, privately educated counterparts who have much more EMI experience from their previous schooling. It would achieve that by enabling all students to draw upon their full range of linguistic resources (i.e., Arabic alongside English) to improve their comprehension of content and their engagement in classes. Such a solution would mean, in practical terms, the hiring of more Arabic/English bilingual lecturers, not fewer, and the provision of proper training that allows them to understand and apply translanguaging in ways that are consistent across the university and the different educational settings that exist within it.

All attempts to improve the implementation of EMI within university settings should be grounded in two key actions. The first concerns producing clearly written and articulated policies explaining the scope of the EMI requirement and supporting documents given information and examples to show how the policy can be translated into practice. In defining the nature of the

policy, universities should be encouraged to take a translanguaging stance and to encourage the application of translanguaging practices in classes to level the playing field for those students who do not have as good a command of English. Secondly, universities should improve the training and support given to lecturers on EMI programmes so that they fully understand the responsibilities of their new role in such programmes and are equipped to meet those responsibilities. This would include training them to incorporate translanguaging approaches into their pedagogy, thus enabling students to use their full linguistic resources to understand lesson content and progress with their course. Training EMI teachers is crucial for universities to improve teaching quality and achieve their internationalization objectives. EMI teachers play a significant role in delivering high-quality education that meets international standards and prepares students for global challenges. To achieve this, EMI teachers need to be proficient in English, possess excellent communication skills, and have a deep understanding of the culture and values of the target audience. Training programs can help EMI teachers improve their language proficiency and acquire pedagogical knowledge that supports effective teaching and learning. Moreover, training can also help EMI teachers gain cross-cultural competencies that enable them to communicate effectively with students from diverse backgrounds. Through such training, universities can equip EMI teachers with the skills and knowledge they need to provide high-quality education that prepares students for success in a globalized world.

The evidence from the present study and previous relevant literature shows that students' experiences of the challenges associated with EMI ameliorate over time. Given that, the potential exists for staggering full policy implementation, with more Arabic usage permitted in the earlier years of the programme compared to the subsequent ones (so more English is phased in as the

students make progress). Such an approach could ultimately help to achieve the benefits of EMI (in terms of improved English language abilities) while not compromising students' abilities to understand lesson content and also reducing the affective challenges created by having to study in another language. Further research would, of course, be required to identify exactly how such a scheme could work in practice and the sort of training that would be required to enable lecturers to implement it consistently in ways that maximised its potential benefits (see Section 7.4 for more details on recommendations for further research generally).

On a micro-level, another aspect that can also be added is instructing lecturers to invest more effort into making the EMI classroom a comfortable environment for students as this study showed that some students are reluctant to ask for help and fear that they would bother the lecturer (as mentioned in Section 5.4.1). Therefore, lecturers should reassure students that they are welcome to reach out to them. If they cannot provide the required support personally, they should be able to refer the students to the best resources available. This would encourage the students to contact the lecturers for help. For example, if the content lecturer was approached for help with a language-related issue and she could not provide assistance, she could refer the students to a colleague who could.

In addition, giving students more time to prepare by sending instructions in advance by email, or sharing them on Blackboard would be beneficial. Ideally, EMI lecturers should also be able to advise students on the best learning strategies. Obviously, this would require a better understanding on EMI on part of the lecturers and considering that most lecturers reported prioritising teaching scientific content, rather than focusing on English, better training opportunities should be provided to all EMI lecturers both with regards to their EMI competence and their English proficiency. Additionally, as suggested by some of my interviewees, the

current policy can be expanded to facilitate closer collaboration between EMI lecturers and EFL teachers.

Finally, this study found that EMI students tend to rely on social learning strategies more than any other type of strategies. This suggests that university create opportunities to involve the students' families or provide the families with information on how to support their daughters. Similarly, the university should train lecturers how to interact more effectively with students (especially new students) in and outside lectures, such as in their office hours. Similarly, students can be taught how to efficiently seek and access support.

One way that the university can address the above recommendations is by discussing the students' transition and adjustment issues in an introductory course or orientation sessions where students, families and faculty members are present and involved in the process. Lastly, as this study suggested that peer support is one strategy that is widely used by EMI students, universities should spread awareness among students and inform them about the positive outcome of collaboration and peer support. For example, universities should promote group and peer work and discussing their benefits such as developing stronger communication skills and improve understanding through discussion.

7.3 Challenges and limitations

The present study has several limitations. Due to the COVID-19 pandemic and the subsequent introduction of various restrictions in Saudi Arabia, the university where I conducted my research went into complete lockdown in March 2020. For my research, this entailed cancelling several planned parts of the investigation, including conducting observations in the EMI classroom, visiting the Ministry of Education to get access to the documents that were planned for analysis, as well as extending the data collection period due to poor availability of some of the stakeholders (e.g., managers). Another challenge was finding the participants, recruiting them remotely, and—something that is crucial for a qualitative study—establishing rapport with them during the interviews. Due to cultural norms in place at the research site, none of the study participants agreed to be video recorded, so the interview data were limited to audio recordings. For me as the researcher, this considerably limited my capacity to evaluate the interviewees' emotions and the implications of what they said in the interviews.

Other limitations of the present study include its sample size and the characteristics of that sample. With only a total of 14 participants, generalisable conclusions cannot be drawn from the findings. Further, the sample only represented a relatively small scope of the STEM courses available, and the sample was limited to female students and lecturers (with the exception of two male managers) since the case university was a female-only university. Adding male respondents might have added different perspectives.

Other limitations relate to the study design. First, the present thesis is a qualitative investigation of implementation of EMI at a Saudi university which was believed to be the most suitable approach however, the interviews were supposed to be combined with observation and due to the global pandemic, this was not possible to achieve at the data collection process. Using

observation alongside interview is believed to enrich and triangulate the findings. Additionally, it would have provided the researcher with the opportunity to collect direct information about what people do instead of relying on what they say they do (Dörnyei, 2007).Observations allow investigators to check what participants referred to when they were interviewed, observe events that participants may be reluctant to share or discuss, thus making investigators aware of distortions or imprecisions in the description provided by those participants (Marshall & Rossman, 1995). In addition, observations help researchers to check for nonverbal expression of feelings, determine who interacts with whom, notice how participants communicate with each other and check time spent on activities (Kawulich, 2005).

Second, with regard to the scope, the present study was limited to interviewing students (who had already completed the PYP) at one point of their studies and thus was not longitudinal and did not follow the students as they progress to their final stages of the EMI programme. This might have added another perspective on EMI and students' perceptions which might have changed over time and with longer exposure to EMI. Furthermore, while I recruited and interviewed respondents from three important groups (students, lecturers, and managers), another group that could have provided valuable insights for the present investigation would be English language practitioners involved in the PYP who, like myself, prepare students for their subsequent EMI studies. These language practitioners might have enriched the present study with important perspectives, since they meet students before the latter start their EMI programme.

7.4 Future research directions

Considering the limitations of present thesis, both qualitative and quantitative studies could be conducted to further explore the themes that emerged in my interview data analysis. One such

important theme mentioned by the study participants was the distinct experiences of private and state school graduates. To further explore this issue, future studies documenting the transition from secondary education to university would be needed. The outcomes of these studies could be reasonably expected to provide valuable insights on the ways to smoothen this transition for students from different backgrounds. Importantly, the findings from such studies would also help policymakers to improve the ways in which support is currently provided to EMI students. Moreover, the benefits could be extended to policymakers in the schooling phase for a better preparation of school graduates for EMI on the university level.

Another important area of research is the EMI training for lecturers and cooperation between different parties to achieve EMI course objectives. To this end, it would be of a great benefit to study and evaluate ways in which EFL lecturers and content lecturers could work together in a complementary fashion to help meet students' needs with regards to both language and content, which in turn would help to achieve the desired objectives of the EMI course.

Furthermore, considering that, as revealed by the present results, EMI lecturers frequently use L1 in classroom, it would be of interest to explore the feasibility and utility of introducing bilingual courses in the EMI domain, as whether such courses could facilitate school graduates' transition to university. As suggested above, further research could explore the best ways to introduce and implement translanguaging approaches within the context of Saudi universities for the benefit of all students, especially those who struggle the most with the demands of EMI.

Finally, in view of the methodological limitations of the present investigation, such as a small sample and the use of interviews as the main method of data collection, future studies could use classroom observation. Doing so could bring more informative results with regards to the actual implementation of EMI.

7.5 Reflection

My motivation for conducting the present investigation stemmed from my personal concern about the challenges that students encounter in the EMI education, and I hope that me addressing these issues in this thesis would advocate meaningful changes for the better. As a teacher in a PYP, I hope that my research findings will be helpful for colleagues, EMI researchers and policy makers, allowing them to better understand students' experience with and perceptions of EMI.

This PhD journey was both challenging and enlightening. Conducting this investigation required staying focused and learning a range of new skills. Moreover, all the learning and research had to be done in a challenging time, both personally and globally. The latter challenge—the COVID-19 pandemic—had a profound impact on my research plan, particularly during the data collection phase.

While my PhD journey has ended, my research journey regarding EMI will continue. I hope that this thesis will inspire other researchers to investigate EMI in Saudi Arabia and other contexts so that, eventually, more efficient language policies will be adopted to the benefit of the many stakeholders involved in this process.

Bibliography

Adams, D., Kee, G. H., & Lin, L. (2001). Linking Research, Policy, and Strategic Planning to Education Development in Lao People's Democratic Republic. Comparative Education Review, 45(2), 220–241. https://doi.org/10.1086/447662

Aguilar, M., & Muñoz, C. (2014). The effect of proficiency on CLIL benefits in Engineering students in Spain: The effect of proficiency on CLIL benefits. *International Journal of Applied Linguistics*, *24*(1), 1–18. https://doi.org/10.1111/ijal.12006

Aguilar, M., & Rodríguez, R. (2012). Lecturer and student perceptions on CLIL at a Spanish university. *International Journal of Bilingual Education and Bilingualism*, *15*(2), 183–197. https://doi.org/10.1080/13670050.2011.615906

Ahmad, S. Z. (2016). The Flipped Classroom Model to Develop Egyptian EFL Students' Listening Comprehension. *English Language Teaching*, *9*(9), 166. https://doi.org/10.5539/elt.v9n9p166

Ahmadi, Q. S. (2017). Unwelcome? English as a Medium of Instruction (EMI) in the Arabian Gulf. *English Language Teaching*, *10*(8), 11. https://doi.org/10.5539/elt.v10n8p11

Ahmed, K. (2011). Casting Arabic culture as the „other": Cultural issues in the English curriculum. In *Teaching and learning in the Arab world (pp. 119-137). International Academic Publisher: Peter Lang.* (pp. 119–137). International Academic Publisher. https://www.academia.edu/37447398/Casting_the_Arabic_culture_as_other

Airey, J. (2011). *Talking about Teaching in English. Swedish university lecturers' experiences of changing their teaching language*. https://www.researchgate.net/publication/260310981_Talking_about_Teaching_in_English_Swedish_university_lecturers'_experiences_of_changing_their_teaching_language

Airey, J. (2012). “I don’t teach language”: The linguistic attitudes of physics lecturers in Sweden. *AILA Review, 25,* 64–79. https://doi.org/10.1075/aila.25.05air

Airey, J., & Linder, C. (2006). Language and the experience of learning university physics in Sweden. *European Journal of Physics, 27*(3), 553–560. https://doi.org/10.1088/0143-0807/27/3/009

Aizawa, I., & Rose, H. (2019a). An analysis of Japan’s English as medium of instruction initiatives within higher education: The gap between meso-level policy and micro-level practice. *Higher Education, 77*(6), 1125–1142. https://doi.org/10.1007/s10734-018-0323-5

Aizawa, I., & Rose, H. (2019b). An analysis of Japan’s English as medium of instruction initiatives within higher education: The gap between meso-level policy and micro-level practice. *Higher Education, 77*(6), 1125–1142. https://doi.org/10.1007/s10734-018-0323-5

Al Zumor, A. Q. (2019). Challenges of Using EMI in Teaching and Learning of University Scientific Disciplines: Student Voice. *International Journal of Social Sciences & Educational Studies*, *5*(3), Article 3. https://doi.org/10.23918/ijsses.v5i3p1

Al-Adwani, S., & Al-Abdulkareem, A. (2013). *English: A nightmare for students of the preparatory year programs.* https://www.al-madina.com/article/238080/-الإنجليزية-كابوس-الطلاب-في-السنة-التحضيرية-!!-(2-2)

Alamri, M. (2011). Higher Education in Saudi Arabia. *Journal of Higher Education Theory and Practice, 11*(4), 88–91.

Al-Bakri, S. (2013). Problematizing English Medium Instruction in Oman. *International Journal of Bilingual & Multilingual Teachers of English*. https://pdfs.semanticscholar.org/879e/0fcea756fa403a4721615c404ea9168160a7.pdf

AlBakri, S. (2017). *Effects of English medium instruction on students' learning experiences and quality of education in content courses in a public college in Oman* [University of Exeter]. https://ore.exeter.ac.uk/repository/bitstream/handle/10871/27743/AlbakriS.pdf?sequence=1&isAllowed=y

Al-Bataineh, A. (2021). Language policy in higher education in the United Arab Emirates: Proficiency, choices and the future of Arabic. *Language Policy*, *20*(2), 215–236. https://doi.org/10.1007/s10993-020-09548-y

Alblowi, A. (2016). *An Evaluation of the effectiveness and validity of the preparatory year programme in preparing students for studying in Taibah university in Saudi Arabia*. Dublin City University.

Al-Faqih, M. (2011). *English Grammar Achievement Level Among Secondary School Leavers in Saudi Arabia* [Master, Leeds Metropolitan University]. https://rcj.gov.sa/JubailIndustrialCity/Overview/assets/pdf/research/English%20Grammar%20Achievement%20Level%20Among%20Secondary%20School%20Leavers%20In%20Saudi%20Arabia.pdf

Alfehaid, A. (2018). Using English as a Medium of Instruction in a Saudi University: Experiences and Implications. *Asian EFL Journal Research Articles*, *20*(12.2).

Alghamdi, A. (2017). Nominating 9000 male and female students in the new scholarship Programme (your scholarship, your job) ترشيح 9 آلاف طالب وطالبة في برنامج الابتعاث الخارجي وظيفتك وبعثتك»»»https://www.okaz.com.sa/local/na/1584598

Alhamami, M., & Almelhi, A. (2021). English or Arabic in Healthcare Education: Perspectives of Healthcare Alumni, Students, and Instructors. *Journal of Multidisciplinary Healthcare, Volume 14*, 2537–2547. https://doi.org/10.2147/JMDH.S330579

AlHarbi, M. (2022). EMI policy in the Saudi transnational higher education landscape: A case study of BSc Statistics teachers and students. *Ournal of Language and Linguistic Studies*, *18*(1), 1135–1156.

Alharbi, N. (2017). English as a lingua franca in the Gulf Cooperation Council states. In *The Routledge Handbook of English as a Lingua Franca*. https://www.routledgehandbooks.com/doi/10.4324/9781315717173.ch10#

Alhawsawi, S. (2013). *Investigating Student Experiences of Learning English as a Foreign Language in a Preparatory Programme in a Saudi university* [University of Sussex]. http://sro.sussex.ac.uk/id/eprint/48752/1/Alhawsawi%2C_Sajjadllah.pdf

Alhmadi, N. (2014). English speaking learning barriers in Saudi Arabia: A case study of Tibah University. *Arab World English Journal*, *5*(2), 38–53.

Ali, N. L. (2013). A changing paradigm in language planning: English-medium instruction policy at the tertiary level in Malaysia. *Current Issues in Language Planning*, *14*(1), 73–92. https://doi.org/10.1080/14664208.2013.775543

Al-Jarf, R. (2008). The Impact of English as an International Language (EIL) upon Arabic in Saudi Arabia. T. *He Asian EFL Journal*, *10*(4), 193–210.

Al-Kahtany, A. H., Faruk, S. M. G., & Zumor, A. W. Q. A. (2016). English as the Medium of Instruction in Saudi Higher Education: Necessity or Hegemony? *Journal of Language Teaching and Research*, *7*(1), 49. https://doi.org/10.17507/jltr.0701.06

AllahMorad, S. (2020). Education in Saudi Arabia. *Education system profiles*. https://wenr.wes.org/2020/04/education-in-Saudi-arabia

Al-Mashikhi, E., Al-Mahrooqi, R., & Denman, C. (2014). *Investigating college of science student attitudes towards using English as a medium of instruction.* The 2014 WEI International Academic Conference Proceedings, New Orleans, USA. http://www.westeastinstitute.com/wp-content/uploads/2014/11/Eiman-Rahma-Christopher.pdf

Al-Mubaraki, A. A. S. (2011). National and Global Challenges to Higher Education in Saudi Arabia: Current Development and Future Strategies. In S. Marginson, S. Kaur, & E. Sawir (Eds.), *Higher Education in the Asia-Pacific* (Vol. 36, pp. 413–430). Springer Netherlands. https://doi.org/10.1007/978-94-007-1500-4_22

Al-Nofaie, H. (2010). The Attitudes of Teachers and Students towards Using Arabic in EFL Classrooms in Saudi Public Schools- A Case Study. *Novitas-Royal(Research on Youth and Language*, *4*(1), 64–95.

Alotaiby, F., Foda, S., & Alkharashi, I. (2014). Arabic vs. English: Comparative Statistical Study. *Arabian Journal for Science and Engineering*, *39*(2), 809–820. https://doi.org/10.1007/s13369-013-0665-3

Alqahtani, M. S. M., Bhaskar, C. V., Elumalai, K. V., & Abumelha, M. (2019). *WhatsApp: An Online Platform for University-Level English Language Education* [Preprint]. SocArXiv. https://doi.org/10.31235/osf.io/j4vr9

Alrabai, F. (2016). Factors Underlying Low Achievement of Saudi EFL Learners. *International Journal of English Linguistics*, *6*(3), 21. https://doi.org/10.5539/ijel.v6n3p21

Al-Rubaie, R. (2010). *Future Teachers, Future Perspectives the Story of English in Kuwait*. The University of Exeter.

Al-Saggaf, Y., & Williamson, K. (2004). *Online Communities in Saudi Arabia: Evaluating the Impact on Culture Through Online Semi-Structured Interviews*. *5*(3). http://www.qualitative-research.net/index.php/fqs/rt/printerFriendly/564/1225

Al-Seghayer, K. (2013). The Actuality, Inefficiency, and Needs of EFL Teacher-Preparation Programs in Saudi Arabia. *International Journal of Applied Linguistics & English Literature*, *3*(1), 143–151. https://doi.org/10.7575/aiac.ijalel.v.3n.1p.143

Al-Seghayer, K. (2014). *Teach us English but without its cultural values*. https://saudigazette.com.sa/article/30286

ALshammari, H. (2022). Electronic platform to promote Arabic language usage across the Kingdom. *Arabnews*. https://www.arabnews.com/node/2129201/media

Alshareef, M., Mobaireek, O., Mohamud, M., Alrajhi, Z., Alhamdan, A., & Hamad, B. (2018). Decision Makers' Perspectives on the Language of Instruction in Medicine in Saudi Arabia: A Qualitative Study. *Health Professions Education*, *4*(4), 308–316. https://doi.org/10.1016/j.hpe.2018.03.006

Al-Shehri, S. (2017). A Developmental Paradigm for English Language Instruction at Preparatory Year Programs. *Arab World English Journal*, *8*(3), 432–447. https://doi.org/10.24093/awej/vol8no3.28

Alzhanova, S. (2020). *EMI Content Teachers' Perspectives on Translanguaging in Secondary Education* [Master, Nazarbayev University Graduate School of Education].

https://nur.nu.edu.kz/bitstream/handle/123456789/4913/Thesis_Sara_Alzhanova_2020.pdf?sequence=1&isAllowed=y

An, J., & Macaro, E. (2022). Exclusive use of the second language in classroom interaction in English Medium Instruction science classrooms: The beliefs of students and their monolingual teachers. *Language Teaching Research*, 136216882210757. https://doi.org/10.1177/13621688221075786

Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments, 7*(1), 9. https://doi.org/10.1186/s40561-020-00118-7

Arkın, İ. E. (2013). *English-medium Instruction in Higher Education: A Case Study in a Turkish University Context*. Eastern Mediterranean University.

Badry, F. (2012). Education in the UAE: Local identity and global developments. Essentials of School Education in the United Arab Emirates. *The Emirates Center for Strategic Studies and Research.*, 85–108.

Baldauf, R. B., Kaplan, R. B., Kamwangamalu, N., & Bryant, P. (2011). Success or failure of primary second/foreign language programmes in Asia: What do the data tell us? *Current Issues in Language Planning, 12*(2), 309–323. https://doi.org/10.1080/14664208.2011.609715

Barnard, R., & Hasim, Z. (2018). *English Medium Instruction Programmes: Perspectives from South East Asian Universities*. https://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=5303544

Barnawi, O. Z. (2012). CEFR, one size, fits all. *Achieving Excellence through Life Skills Education*. Paper presented at the 18th Annual TESOL Arabia Conference, Dubai UAE.

Barnawi, O. Z., & Al-Hawsawi, S. (2017). English Education Policy in Saudi Arabia: English Language Education Policy in the Kingdom of Saudi Arabia: Current Trends, Issues and Challenges. In R. Kirkpatrick (Ed.), *English Language Education Policy in the Middle East and North Africa* (Vol. 13, pp. 199–222). Springer International Publishing. https://doi.org/10.1007/978-3-319-46778-8_12

Başıbek, N., Dolmacı, M., Cengiz, B. C., Bür, B., Dilek, Y., & Kara, B. (2014). Lecturers' Perceptions of English Medium Instruction at Engineering Departments of Higher Education: A Study on Partial English Medium Instruction at Some State Universities in Turkey. *Procedia - Social and Behavioral Sciences*, *116*, 1819–1825. https://doi.org/10.1016/j.sbspro.2014.01.477

Bassey, M. (1999). *Case study research in educational settings*. Open University Press.

Bataineh, R. F., & Mayyas, M. B. M. (2017). The utility of blended learning in efl reading and grammar: a case for moodle. *Teaching English with Technology*, *17*(3), 35–49.

Beckett, G., & Li, F. (2012). Content-Based English Education in China: Students' Experiences and Perspectives. *Journal of Contemporary Issues in Education*, *7*(1). https://doi.org/10.20355/C5B59J

Belhiah, H., & Elhami, M. (2015). English as a medium of instruction in the Gulf: When students and teachers speak. *Language Policy*, *14*(1), 3–23. https://doi.org/10.1007/s10993-014-9336-9

Bell, L., & Stevenson, H. (2015). Towards an analysis of the policies that shape public education: Setting the context for school leadership. Management in Education, 29(4), 146–150. https://doi.org/10.1177/0892020614555593

Blattès, M. (2018). *English-Medium Instruction in French Higher Education Competing Ideologies, Policies and Practices*. King's College London.

Bolton, K., Botha, W., & Bacon-Shone, J. (2017). English-medium instruction in Singapore higher education: Policy, realities and challenges. *Journal of Multilingual and Multicultural Development, 38*(10), 913–930. https://doi.org/10.1080/01434632.2017.1304396

Bolton, K., & Kuteeva, M. (2012). English as an academic language at a Swedish university: Parallel language use and the 'threat' of English. *Journal of Multilingual and Multicultural Development, 33*(5), 429–447. https://doi.org/10.1080/01434632.2012.670241

Bonner, A., & Tolhurst, G. (2002). Insider-outsider perspectives of participant observation</i>. *Nurse Researcher*, *9*(4), 7–19. https://doi.org/10.7748/nr2002.07.9.4.7.c6194

Borg, S. (2016). English medium instruction in iraqi kurdistan perspectives from lecturers at state universities. *The british council*. https://englishagenda.britishcouncil.org/sites/default/files/attachments/teaching_english_publication_en_web_version_v1.pdf

Bot, K. de, & Hulsen, M. (2002). Language Attrition: Tests, Self-assessments and Perceptions. In V. Cook (Ed.), *Portraits of the L2 User* (pp. 251–274). Multilingual Matters. https://doi.org/10.21832/9781853595851-012

Bourland, B. (2010). *Saudi Arabia: Lessons from the global crisis*. https://www.arabnews.com/node/333011

Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input*. Pathfinder International.

https://nyhealthfoundation.org/wp-content/uploads/2019/02/m_e_tool_series_indepth_interviews-1.pdf

Bozdoğan, D., & Buket, K. (2013). A Case of CLIL Practice in the Turkish Context: Lending an ear to Students. *Asian EFL Journal Research Articles, 15*(4). https://www.academia.edu/15038119/A_Case_of_CLIL_Practice_in_the_Turkish_Context_Lending_an_ear_to_Students

Bragg, M. (2003). *The Adventure of English*. https://www.teflworld-koh-samui.com/wp-content/uploads/2015/03/The-Adventure-of-English-Melvyn-Bragg.pdf

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bravo-Sotelo, K. P., & Metila, R. A. (2021). Determining the pedagogical value of code-switching: Functions of teacher code-switching in tertiary level mathematics classrooms. International Journal of Multilingualism, 1–18. https://doi.org/10.1080/14790718.2021.2002332

Breetvelt, I. (2018). English-medium instruction in Dutch higher education: A policy reconstruction and impact study. *L1 Educational Studies in Language and Literature, 18, Running Issue* (Running Issue), 1–24. https://doi.org/10.17239/L1ESLL-2018.18.03.10

Brewer, G. D., & DeLeon, P. (1983). The foundations of policy analysis. Brooks/Cole.

Briggs, J. G., Dearden, J., & Macaro, E. (2018). English medium instruction: Comparing teacher beliefs in secondary and tertiary education. *Studies in Second Language Learning and Teaching*, *8*(3), 673–696. https://doi.org/10.14746/ssllt.2018.8.3.7

Brock-Utne, B. (2004). English as the language of instruction or destruction—How do teachers and students in Tanzania cope? In *researching the language of instruction in tanzania and south africa*. African Minds.

Brown, H. (2014). Contextual factors driving the growth of undergraduate English-1 medium instruction programmes at universities in Japan. *The Asian Journal of Applied Linguistics*, *1*(1), 50–63.

Brown, H., & Bradford, A. (2016). EMI, CLIL, & CBI: Differing Approaches and Goals. *Transformation in Language Education*, 328–334.

Bull, T. (2013). Linguistic emancipation and the linguistic marketplace. *Sociolinguistic Studies*, *7*(1–2), 33–55. https://doi.org/10.1558/sols.v7i1-2.33

Byun, K., Chu, H., Kim, M., Park, I., Kim, S., & Jung, J. (2011). English-medium teaching in Korean higher education: Policy debates and reality. *Higher Education*, *62*(4), 431–449. https://doi.org/10.1007/s10734-010-9397-4

Çağatay, S. (2019). The Pros and Cons of English-medium Instruction in Higher Education in an EFL Context. *Journal of Foreign Language Education and Technology*. https://www.academia.edu/38341555/Pros_and_Cons_of_English-Medium_Instruction_in_Higher_Education_in_an_EFL_Context

Canagarajah, A. S. (2010). *Resisting linguistic imperialism in English teaching* (Nachdr.). Oxford Univ. Press.

Canagarajah, S. (2011). Codemeshing in Academic Writing: Identifying Teachable Strategies of Translanguaging. *The Modern Language Journal*, *95*(3), 401–417. https://doi.org/10.1111/j.1540-4781.2011.01207.x

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The Use of Triangulation in Qualitative Research. Oncology Nursing Forum, 41(5), 545–547. https://doi.org/10.1188/14.ONF.545-547

Carson, D., Gilmore, A., Perry, C., & Gronhaug, K. (2001). *Qualitative Marketing Research*. SAGE Publications, Ltd. https://doi.org/10.4135/9781849209625

Cenoz, J., & Gorter, D. (2020). Teaching English through pedagogical translanguaging. *World Englishes*, *39*(2), 300–311. https://doi.org/10.1111/weng.12462

Chalmers, H. W. (2019). *everaging the L1: The role of EAL learners' first language in their acquisition of English vocabulary* [Oxford Brookes University]. https://www.researchgate.net/profile/Hamish-Chalmers/publication/333855659_Leveraging_the_L1_The_role_of_EAL_learners'_first_language_in_their_acquisition_of_English_vocabulary/links/5d091aa2458515ea1a704dc3/Leveraging-the-L1-The-role-of-EAL-learners-first-language-in-their-acquisition-of-English-vocabulary.pdf

Chapple, J. (2015). Teaching in English Is Not Necessarily the Teaching of English. *International Education Studies*, *8*(3), p1. https://doi.org/10.5539/ies.v8n3p1

Charalambous, C., Charalambous, P., Zembylas, M., & Theodorou, E. (2020). Translanguaging, (In)Security and Social Justice Education. In J. A. Panagiotopoulou, L. Rosen, & J. Strzykala (Eds.), *Inclusion, Education and Translanguaging* (pp. 105–123). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-28128-1_7

Chen Hsieh, J. S., Wu, W.-C. V., & Marek, M. W. (2017). Using the flipped classroom to enhance EFL learning. *Computer Assisted Language Learning*, *30*(1–2), 1–21. https://doi.org/10.1080/09588221.2015.1111910

Cho, D. (2012). *English-medium instruction in the university context of korea: Tradeoff between teaching outcomes and media-initiated university ranking*. https://search.proquest.com/docview/2266426254?accountid=11862

Choi, S. J. (2013). Issues and Challenges in Offering English-Medium Instruction: A Close Examination of the Classroom Experiences of Professors. *Studies in English Language & Literature*, *39*(2), 275–306. https://doi.org/10.21559/AELLK.2013.39.2.013

Chou, M.-H. (2018). Speaking Anxiety and Strategy Use for Learning English as a Foreign Language in Full and Partial English-Medium Instruction Contexts. *TESOL Quarterly*, *52*(3), 611–633. https://doi.org/10.1002/tesq.455

Civan, A., & Coşkun, A. (2016). The Effect of the Medium of Instruction Language on the Academic Success of University Students. *Educational Sciences: Theory & Practice*. https://doi.org/10.12738/estp.2016.6.0052

Clark, C. (2018). The Case of the Non-Native English Speaker in EMI [PDF]. In *Studi e ricerche*. Università Ca' Foscari Venezia, Italia. https://doi.org/10.14277/6969-227-7/SR-13-33

Clark, M. (2013). The Use of Technology to Support Vocabulary Development of English Language Learners. *Fisher Digital Publications, Education Masters, 238*. https://fisherpub.sjf.edu/cgi/viewcontent.cgi?article=1239&context=education_ETD_masters

Cohen, A. D. (1998). Strategies in Learning and Using a Second Language. *Teaching English as a Second or Foreign Language*. http://www.tesl-ej.org/ej12/r10.html

Cohen, A. D. (2003). The Learner's Side of Foreign Language Learning: Where Do Styles, Strategies, and Tasks Meet? *International Review of Applied Linguistics in Language*

Teaching, *41*(4), 279–291. https://www.researchgate.net/publication/241369687_The_Learner%27s_Side_of_Foreign_Language_Learning_Where_Do_Styles_Strategies_and_Tasks_Meet

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education*. http://www.dawsonera.com/depp/reader/protected/external/AbstractView/S9781315456539

Coleman, J. A. (2006). English-medium teaching in European higher education. *Language Teaching*, *39*(1), 1–14. https://doi.org/10.1017/S026144480600320X

Coleman, J., Hultgren, K., Li, W., Tsui, C.-F. C., & Shaw, P. (2018). Forum on English-medium Instruction. *TESOL Quarterly*, *52*(3), 701–720. https://doi.org/10.1002/tesq.469

Cook, V. (2003). Effects of Second Language on the First. In *Changing the first language in the L2 user's mind* (pp. 1–19). Multilingual Matter. http://www.viviancook.uk/Writings/Papers/FXintro.htm

Cooper, R. (1989). *Language planning and social change*. Cambridge: Cambridge University Press.

Corrales, K. A., Paba Rey, L. A., & Santiago Escamilla, N. (2016). Is EMI Enough? Perceptions from University Professors and Students. *Latin American Journal of Content & Language Integrated Learning*, *9*(2), 318–344. https://doi.org/10.5294/laclil.2016.9.2.4

Costa, F. (2012). Focus on form in ICLHE lectures in Italy: Evidence from English-medium science lectures by native speakers of Italian. *AILA Review*, *25*, 30–47. https://doi.org/10.1075/aila.25.03cos

Costa, F., & Coleman, J. A. (2013). A survey of English-medium instruction in Italian higher education. *International Journal of Bilingual Education and Bilingualism*, *16*(1), 3–19. https://doi.org/10.1080/13670050.2012.676621

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.)*. SAGE.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed). SAGE Publications.

Crystal, D. (1997). *English as a Global Language*. Cambridge University Press.

Dafouz, E., Camacho, M., & Urquia, E. (2014). 'Surely they can't do as well': A comparison of business students' academic performance in English-medium and Spanish-as-first language-medium programmes. *Language and Education*, *28*(3), 223–236. https://doi.org/10.1080/09500782.2013.808661

Dafouz, E., & Smit, U. (2020). *Road-mapping English Medium Education in the Internationalised University*. Springer International Publishing. https://doi.org/10.1007/978-3-030-23463-8

Dane, F. C. (1990). *Research methods* (pp. xviii, 348). Thomson Brooks/Cole Publishing Co.

Dang, H.-A., & Rogers, F. H. (2008). The Growing Phenomenon of Private Tutoring: Does It Deepen Human Capital, Widen Inequalities, or Waste Resources? *The World Bank Research Observer*, *23*(2), 161–200. https://doi.org/10.1093/wbro/lkn004

Dang, T. K. A., Nguyen, H. T. M., & Le, T. T. T. (2013). The impacts of globalisation on EFL teacher education through English as a medium of instruction: An example from Vietnam. *Current Issues in Language Planning*, *14*(1), 52–72. https://doi.org/10.1080/14664208.2013.780321

Daryai-Hansen, P., Barfod, S., & Schwarz, L. (2016). A Call for (Trans)language: The Language Profiles at Roskilde University. In C. M. Mazak & K. S. Carroll (Eds.), *Translanguaging in Higher Education* (pp. 29–49). Multilingual Matters. https://doi.org/10.21832/9781783096657-005

Datnow, A., & Park, V. (2009). Conceptualizing Policy Implementation. In Handbook of Education Policy Research. Routledge.

De Costa, P. I., Green-Eneix, C. A., & Li, W. (2022). Problematizing EMI language policy in a transnational world: China's entry into the global higher education market. *English Today*, *38*(2), 80–87. https://doi.org/10.1017/S026607842000005X

De Oliveira, c. (2016). Much more than a reclassification issue: ELLs in K-12. *Reclaiming The Language for Social Justice A Site about Language, Social Justice, and Socially Just Linguistics as Informed by Halliday*. https://reclaimingthelanguage.wordpress.com/2016/02/02/much-more-than-a-reclassification-issue-ells-in-k-12/

Dearden, J. (2015). English as a medium of instruction—A growing global phenomenon. *British Council*. https://www.britishcouncil.es/sites/default/files/british_council_english_as_a_medium_of_instruction.pdf

Dearden, J., & Macaro, E. (2016). Higher education teachers' attitudes towards English medium instruction: A three-country comparison. *Studies in Second Language Learning and Teaching*, *6*(3), 455. https://doi.org/10.14746/sllt.2016.6.3.5

Dearden, L., Ferri, J., & Meghir, C. (2002). Effect of School Quality on Educational Attainment and Wages. *The Review of Economics and Statistics*, *84*(1), 1–20.

Denzin, N. K. (1978). Sociological methods: A sourcebook. McGraw-Hill.

DeSantis, L., & Ugarriza, D. N. (2000). The Concept of Theme as Used in Qualitative Nursing Research. *Western Journal of Nursing Research*, *22*(3), 351–372. https://doi.org/10.1177/019394590002200308

Díaz, N. R. (2015). Students' Preferences Regarding Native and Non-native Teachers of English at a University in the French Brittany. *Procedia - Social and Behavioural Sciences*, *173*, 93–97. https://doi.org/10.1016/j.sbspro.2015.02.036

Djafri, F., & Wimbarti, S. (2018). Measuring foreign language anxiety among learners of different foreign languages: In relation to motivation and perception of teacher's behaviors. *Asian-Pacific Journal of Second and Foreign Language Education*, *3*(1), 17. https://doi.org/10.1186/s40862-018-0058-y

Doiz, A., & Lasagabaster, D. (2016). 9. Teachers' Beliefs about Translanguaging Practices. In C. M. Mazak & K. S. Carroll (Eds.), *Translanguaging in Higher Education* (pp. 157–176). Multilingual Matters. https://doi.org/10.21832/9781783096657-011

Doiz, A., Lasagabaster, D., & Sierra, J. M. (2011). Internationalisation, multilingualism and English-medium instruction: Internationalisation, multilingualism and English-medium instruction. *World Englishes*, *30*(3), 345–359. https://doi.org/10.1111/j.1467-971X.2011.01718.x

Doiz, A., Lasagabaster, D., & Sierra, J. M. (Eds.). (2013). *English-medium instruction at universities: Global challenges*. Multilingual Matters.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford University Press.

Downing, V. R., Cooper, K. M., Cala, J. M., Gin, L. E., & Brownell, S. E. (2020). Fear of Negative Evaluation and Student Anxiety in Community College Active-Learning Science Courses. *CBE—Life Sciences Education*, *19*(2), ar20. https://doi.org/10.1187/cbe.19-09-0186

Dwyer, S. C., & Buckle, J. L. (2009). The Space Between: On Being an Insider-Outsider in Qualitative Research. *International Journal of Qualitative Methods*, *8*(1), 54–63. https://doi.org/10.1177/160940690900800105

Earls, C. W. (2016). *Evolving agendas in European English-medium higher education: Interculturality, multilingualism and language policy*. Palgrave Macmillan.

EFA. (n.d.). *Education for all: Literacy for life; EFA global monitoring report, 2006, summary*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000144270

Eisele, J. C. (2017). Whither Arabic?: From possible worlds to possible futures. In A. Gebril (Ed.), *AILA Applied Linguistics Series* (Vol. 15, pp. 307–342). John Benjamins Publishing Company. https://doi.org/10.1075/aals.15.14eis

Ellili-Cherif, M., & Alkhateeb, H. (2015). College Students' Attitude toward the Medium of Instruction: Arabic versus English Dilemma. *Universal Journal of Educational Research*, *3*(3), 207–213. https://doi.org/10.13189/ujer.2015.030306

Ellis, R. (1992). LEARNING TO COMMUNICATE IN THE CLASSROOM: A Study of Two Language Learners' Requests. *Studies in Second Language Acquisition*, *14*(1), 1–23.

Elyas, T. (2008). The attitude and the impact of the American English as a global language within the Saudi education system. *Research on Youth and Language*, *2*(1), 28–48.

England, B. J., Brigati, J. R., & Schussler, E. E. (2017). Student anxiety in introductory biology classrooms: Perceptions about active learning and persistence in the major. *PLOS ONE, 12*(8), e0182506. https://doi.org/10.1371/journal.pone.0182506

England, B. J., Brigati, J. R., Schussler, E. E., & Chen, M. M. (2019). Student Anxiety and Perception of Difficulty Impact Performance and Persistence in Introductory Biology Courses. *CBE—Life Sciences Education, 18*(2), ar21. https://doi.org/10.1187/cbe.17-12-0284

Evans, S. (2008). Classroom Language Use in Hong Kong's Reformed English-Medium Stream. *Journal of Multilingual and Multicultural Development, 29*(6), 483–498. https://doi.org/10.1080/01434630802147940

Evans, S., & Green, C. (2007). Why EAP is necessary: A survey of Hong Kong tertiary students. *Journal of English for Academic Purposes*, *6*(1), 3–17. https://doi.org/10.1016/j.jeap.2006.11.005

Evans, S., & Morrison, B. (2011). The student experience of English-medium higher education in Hong Kong. *Language and Education*, *25*(2), 147–162. https://doi.org/10.1080/09500782.2011.553287

Evans, S., & Morrison, B. (2018). Adjusting to higher education in Hong Kong: The influence of school medium of instruction. *International Journal of Bilingual Education and Bilingualism*, *21*(8), 1016–1029. https://doi.org/10.1080/13670050.2016.1228600

Evnitskaya, N., & Morton, T. (2011). Knowledge construction, meaning making and interaction in CLIL science classroom communities of practice. *Language and Education*, *25*(2), 109–127. https://doi.org/10.1080/09500782.2010.547199

Fairclough, N. (1989). *Language and power*. Longman.

Farhan, A. (2019). *Who is to blame for Malaysia's jobless youths?* https://theaseanpost.com/article/who-blame-malaysias-jobless-youths

Fenton-Smith, B., & Gurney, L. (2016). Actors and agency in academic language policy and planning. *Current Issues in Language Planning*, *17*(1), 72–87. https://doi.org/10.1080/14664208.2016.1115323

Finardi, k, Moore, p, & Guimar ã es, F. (2021). Globalization and internationalization in university language policy making. In *Developing and evaluating quality bilingual practices in higher education*. Multilingual Matters.

Flick, U. (2009). *An introduction to qualitative research* (4th ed). Sage Publications.

Frenette, M., & Chan, P. C. W. (2015). *Academic outcomes of public and private high school students: What lies behind the differences?* Statistics Canada. https://www150.statcan.gc.ca/n1/en/pub/11f0019m/11f0019m2015367-eng.pdf?st=lafBadaO

Fullan, M. (2016). The NEW meaning of educational change (Fifth edition). Teachers College Press.

Fujimoto-Adamson, N., & Adamson, J. (2018). From EFL to EMI: Hydrid Practices in English as a Medium of Instruction in Japanese Tertiary Contexts. In Y. Kırkgöz & K. Dikilitaş (Eds.), *Key Issues in English for Specific Purposes in Higher Education* (Vol. 11, pp. 201–221). Springer International Publishing. https://doi.org/10.1007/978-3-319-70214-8_12

Fusch, P., & Ness, L. (2015). Are We There Yet? Data Saturation in Qualitative Research. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2015.2281

Gaffas, Z. M. (2016). *The Impact of English Language Preparator Programmes in Saudi Arabian University: An Investigation of Students' Perceptions of their Language Difficulties, Experiences and Suggestions*. The University of Sheffield.

Gair, S. (2012). Feeling Their Stories: Contemplating Empathy, Insider/Outsider Positionings, and Enriching Qualitative Research. *Qualitative Health Research, 22*(1), 134–143. https://doi.org/10.1177/1049732311420580

Galali, A., & Cinkara, E. (2017). The Use of L1 in English as a Foreign Language Classes: Insights from Iraqi Tertiary Level Students. *Advances in Language and Literary Studies*, *8*(5), 54. https://doi.org/10.7575/aiac.alls.v.8n.5p.54

Gall, M. D., Gall, J. P., & Borg, W. R. (2002). *Educational research: An introduction*. Recording for the Blind & Dyslexic.

Galloway, N. (2017, 09). How effective is English as a medium of instruction (EMI)? *British Council*. https://www.britishcouncil.org/voices-magazine/how-effective-english-medium-instruction-emi

Galloway, N., Curle, S., Jablonkai, R., Mittelmeier, J., Sahan, K., & Veitch, A. (2020). English in higher education: English medium instruction literature review. *British Council*. https://www.teachingenglish.org.uk/sites/teacheng/files/M025_ELTRA_English%20Literature_FINAL_WEB.pdf

Galloway, N., Jaroslaw, K., & Takuya, N. (2017). *Internationalisation, higher education and the growing demand for English: An investigation into the English medium of instruction (EMI) movement in China and Japan*. https://www.teachingenglish.org.uk/sites/teacheng/files/H035%20ELTRA%20Internation

alisation_HE_and%20the%20growing%20demand%20for%20English%20A4_FINAL_WEB.pdf

Galloway, N., & Ruegg, R. (2020). The provision of student support on English Medium Instruction programmes in Japan and China. *Journal of English for Academic Purposes*, *45*, 100846. https://doi.org/10.1016/j.jeap.2020.100846

Gao, X. (2010). To Be or Not To Be 'Part of Them': Micropolitical Challenges in Mainland Chinese Students' Learning of English in a Multilingual University. *TESOL Quarterly*, *44*(2), 274–294. https://doi.org/10.5054/tq.2010.219944

García Mateus, O. (2020). Singularity, Complexities and Contradiction: A Commentary about Translanguaging, Social Justice, and Education. In *Inclusion, Education and TranslanguagingInclusion, Education and Translanguaging: How to Promote Social Justice in (Teacher) Education?* https://doi.org/10.1007/978-3-658-28128-1

García Mateus, O., & Wei, L. (2014). Translanguaging: Language, Bilingualism, and Education. *Bilingual Research Journal*, *37*(3), 366–369. https://doi.org/10.1080/15235882.2014.965361

García-Mateus, S., & Palmer, D. (2017). Translanguaging Pedagogies for Positive Identities in Two-Way Dual Language Bilingual Education. *Journal of Language, Identity & Education*, *16*(4), 245–255. https://doi.org/10.1080/15348458.2017.1329016

GLMM. (2016). Gulf Labour Markets, Migration and Population Programme. Gulf Research Centre. https:// gulfmigration.org/ gcc- total- population- percentage nationals- foreign-nationals- gcc- countries- national- statistics- 2010- 2016- numb

Godfrey, T. (2014). The language of instruction issue in Tanzania: Pertinent determining factors and perceptions of education stakeholders. *Journal of Languages and Culture, 5*(1), 9–16. https://doi.org/10.5897/JLC12.039

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, *27*(1), 70–105. https://doi.org/10.1080/09588221.2012.700315

Goodman, B. A. (2014). Implementing English as a medium of instruction in a Ukrainian University: Challenges, adjustments, and opportunities. *International Journal of Pedagogies and Learning*, *9*(2), 130–141. https://doi.org/10.1080/18334105.2014.11082026

Goodman, B., & Tastanbek, S. (2021). Making the Shift from a Codeswitching to a Translanguaging Lens in English Language Teacher Education. *TESOL Quarterly*, *55*(1), 29–53. https://doi.org/10.1002/tesq.571

Görlach, M. (2002). *Still more Englishes*. John Benjamins Pub.

Graddol, D. (2010). *English next India: The future of English in India*. British Council.

Green, F., Henseke, G., & Vignoles, A. (2017). Private schooling and labour market outcomes. *British Educational Research Journal*, *43*(1), 7–28. https://doi.org/10.1002/berj.3256

Gregersen, T., & Horwitz, E. K. (2002). Language Learning and Perfectionism: Anxious and Non-Anxious Language Learners' Reactions to Their Own Oral Performance. *The Modern Language Journal*, *86*(4), 562–570. https://doi.org/10.1111/1540-4781.00161

Griffiths, C. (2015). What have we learnt from 'good language learners'? *ELT Journal*, *69*(4), 425–433. https://doi.org/10.1093/elt/ccv040

Griffiths, E. J. (2013). *English as a Medium of Instruction in Higher Education Institutions in Norway: A Critical Exploratory Study of Lecturers' Perspectives and Practices* [University of Exeter]. http://hdl.handle.net/10871/14538

Grix, J. (2010). *The foundations of research* (2. ed). Palgrave Macmillan.

Gu, P. (2003). Vocabulary Learning in a Second Language: Person, Task, Context and Strategies. *Teaching English as a Second or Foreign Language, 7*(2). https://tesl-ej.org/ej26/a4.html

Habbash, M., & Troudi, S. (2015). The Discourse of Global English and its Representation in the Saudi Context: A Postmodernist Critical Perspective. In R. Raddawi (Ed.), *Intercultural Communication with Arabs* (pp. 57–75). Springer Singapore. https://doi.org/10.1007/978-981-287-254-8_5

Hahl, K., Järvinen, H., & Juuti, K. (2016). Accommodating to E nglish-medium instruction in teacher education in F inland. *International Journal of Applied Linguistics, 26*(3), 291–310. https://doi.org/10.1111/ijal.12093

Hamel, R. E. (2007). The dominance of English in the international scientific periodical literature and the future of language use in science. *AILA Review*, *20*, 53–71. https://doi.org/10.1075/aila.20.06ham

Hamid, M. O., Jahan, I., & Islam, M. M. (2013). Medium of instruction policies and language practices, ideologies and institutional divides: Voices of teachers and students in a private university in Bangladesh. *Current Issues in Language Planning*, *14*(1), 144–163. https://doi.org/10.1080/14664208.2013.771417

Harlen, W., & Qualter, A. (2004). *The teaching of science in primary schools* (4th ed). David Fulton.

Harvey, D. (2005). A Brief History of Neoliberalism. Oxford University Press. https://doi.org/10.1093/oso/9780199283262.001.0001

Hasan, T., & abdalaziz, K. (2012). Perceptions of pharmacy students regarding language of instruction in health education. *IOSR Journal of Pharmacy*, *2*(3), 429–433.

Heigham, J., & Croker, R. A. (Eds.). (2009). *Qualitative research in applied linguistics: A practical introduction*. Palgrave Macmillan.

Hellekjaer, G., & Westergaard, M. (2003). An Exploratory Survey of Content Learning through English at Scandinavian Universities. In *Teaching and Learning Foreign Languages* (pp. 47–61). https://www.researchgate.net/publication/260288611_An_Exploratory_Survey_of_Content_Learning_through_English_at_Scandinavian_Universities

Hess, F. (2013). The Missing Half of School Reform. https://www.nationalaffairs.com/publications/detail/the-missing-half-of-school-reform

Hengsadeekul, C., Koul, R., & Kaewkuekool, S. (2014). Motivational orientation and preference for English-medium programs in Thailand. *International Journal of Educational Research*, *66*, 35–44. https://doi.org/10.1016/j.ijer.2014.02.001

Henning, E., Van, R., & Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaik.

Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital technology supporting English learning among Indonesian university students. *Research and Practice in Technology Enhanced Learning*, *17*(1), 23. https://doi.org/10.1186/s41039-022-00198-8

Hillman, S., Selvi, A. F., & Yazan, B. (2021). A scoping review of world Englishes in the Middle East and North Africa. *World Englishes*, *40*(2), 159–175. https://doi.org/10.1111/weng.12505

Holbah, W. A. (2015). *Motivation for learning English in the Saudi Arabian context: Perceptions of learners, teachers and parents.* [PhD thesis, Flinders University]. https://flex.flinders.edu.au/file/45ab6402-36b3-49b4-9c98-d672d12aad95/1/WAEL.%20Thesis%20Final-Lodged%20onto%20Flinders%27%20Library%20%281%29.pdf

Holi Ali, H. I. (2020). Omani Students' Coping Strategies in an English Medium Engineering Programme. *Arab World English Journal*, *11*(2), 361–382. https://doi.org/10.24093/awej/vol11no2.25

Hopkyns, S., & Elyas, T. (2022). Arabic vis-à-vis English in the Gulf. In S. Hopkyns & W. Zoghbor, *Linguistic Identities in the Arab Gulf States* (1st ed., pp. 17–32). Routledge. https://doi.org/10.4324/9781003149637-3

Hu, G. (2019). English-Medium Instruction in Higher Education: Lessons from China. *The Journal of AsiaTEFL*, *16*(1), 1–11. https://doi.org/10.18823/asiatefl.2019.16.1.1.1

Hu, G., & Lei, J. (2014). English-medium instruction in Chinese higher education: A case study. *Higher Education*, *67*(5), 551–567. https://doi.org/10.1007/s10734-013-9661-5

Hu, G., Li, L., & Lei, J. (2014). English-medium instruction at a Chinese University: Rhetoric and reality. *Language Policy*, *13*(1), 21–40. https://doi.org/10.1007/s10993-013-9298-3

Huang Y.-P. (2012). Design and Implementation of English-Medium Courses in Higher Education in Taiwan: A Qualitative Case Study. *Spring*, *36*(1), 1–51. https://doi.org/10.6330/ETL.2012.36.1.01

Hultgren, A. K. (2014). Whose parallellingualism? Overt and covert ideologies in Danish university language policies. Multilingua, 33(1–2). https://doi.org/10.1515/multi-2014-0004

Hunt, N. D. (2012). Managing Method: A Critical Inquiry into Language Policy in a Tertiary Institution in the United Arab Emirates. *RELC Journal*, *43*(3), 295–311. https://doi.org/10.1177/0033688212463295

Huong, T. (2010). Learning through English: Insights from Vietnam. In *Learning through English: Policies, challenges, and prospects* (pp. 96–114). British Council. https://www.teachingenglish.org.uk/sites/teacheng/files/publication_1_-_learning_through_english.pdf

Hussain, M., Albasher, K., & Salam, A. (2016). An Evaluation of Preparatory Year Program at Qassim University,Saudi Arabia: Possible Innovations and Reforms in the ExistingAdministrative/Academic System in English Language Unit. *Journal of American Academic Research*, *4*(4), 1–27.

Hussein, E., & Al-Emami, A. (2016). Challenges to Teaching English Literature at the University of Hail: Instructors' Perspective. *Arab World English Journal*, *7*(4), 125–138. https://doi.org/10.24093/awej/vol7no4.9

Hyland, K. (2013). Faculty feedback: Perceptions and practices in L2 disciplinary writing. *Journal of Second Language Writing*, *22*(3), 240–253. https://doi.org/10.1016/j.jslw.2013.03.003

IELTS. (2021). *Test taker performance 2021 Band score information Academic mean performance by nationality*. https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

Inbar-Lourie, O., & Donitsa-Schmidt, S. (2020). EMI Lecturers in international universities: Is a native/non-native English-speaking background relevant? *International Journal of Bilingual Education and Bilingualism*, *23*(3), 301–313. https://doi.org/10.1080/13670050.2019.1652558

Irfan, H. (2019). *The policy and practice of English medium of instruction (EMI) in Pakistani universities*. Cambridge Scholars Publishing.

Islam, M. (2013). ENGLISH MEDIUM INSTRUCTION IN THE PRIVATE UNIVERSITIES IN BANGLADESH. *Indonesian Journal of Applied Linguistics*, *3*(1), 126. https://doi.org/10.17509/ijal.v3i1.195

Ismail, M. (2011). *Language planning in Oman: Evaluating linguistic and sociolinguistic fallacies* [PhD thesis]. Newcastle University.

Iyobe, B., Brown, H., & Coulson, D. (2011). *Teaching Lab: Gearing up for English medium classes*. Stewart (Ed.), JALT 2010 Conference Proceedings, Tokyo. https://www.researchgate.net/publication/236165742_Teaching_Lab_Gearing_up_for_English_Medium_Classes

Jain, T. (2017). Common Tongue: The Impact of Language on Educational Outcomes. *The Journal of Economic History*, *77*(2), 473–510. https://doi.org/10.1017/S0022050717000481

Janesick, V. J. (2015). Peer Debriefing. In G. Ritzer (Ed.), *The Blackwell Encyclopedia of Sociology* (p. wbeosp014.pub2). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781405165518.wbeosp014.pub2

Jang, E.-Y. (2017). Sustainable internationalization in South Korean higher education: Languages and cultures in a foreign professor's course. *Higher Education, 73*(5), 673–689. https://doi.org/10.1007/s10734-016-9987-x

Javed, F. (2016). *PAKISTANI LEARNERS' TRANSITION INTO UNIVERSITY*. Massey University [Manawatū].

Jensen, C., & Thøgersen, J. (2011). *University lecturers' attitudes towards English as the medium of instruction*. 13–33.

Jerrim, J. J. (2017). Private tuition and out-of-school study, new international evidence. *EXTRA TIME*. https://www.suttontrust.com/wp-content/uploads/2017/09/Extra-time-report_FINAL.pdf

Jewels, T., & Albon, R. (2012). "We don't teach English; we teach in English": Teaching non-native English speaking university students. *Earning and Teaching in Higher Education: Gulf Perspectives, 9*(1), 3–31.

Jiang, L., Zhang, L. J., & May, S. (2019). Implementing English-medium instruction (EMI) in China: Teachers' practices and perceptions, and students' learning motivation and needs. *International Journal of Bilingual Education and Bilingualism*, *22*(2), 107–119. https://doi.org/10.1080/13670050.2016.1231166

Jieyin, L., & Gajaseni, C. (2018). A Study of Students' Preferences Towards Native and Non-native English Teachers at Guangxi University of Finance and Economics, China. *LEARN Journal: Language Education and Acquisition Research Network Journal*, *11*(2), 134–174.

Kagwesage, A. (2013). Coping with English as Language of Instruction in Higher Education in Rwanda. *International Journal of Higher Education, 2*(2), p1. https://doi.org/10.5430/ijhe.v2n2p1

Kaliyadan, F., Thalamkandathil, N., Parupalli, S. R., Amin, T. T., Balaha, M. H., & Al Bu Ali, W. H. (2015). English language proficiency and academic performance: A study of a medical preparatory year program in Saudi Arabia. *Avicenna Journal of Medicine*, *05*(04), 140–144. https://doi.org/10.4103/2231-0770.165126

Kamasak, R., & Ozbilgin, M. (2021). English Medium Instruction as a Vehicle for Language Teaching or a Product for Marketing? The Case of Turkey. In J. D. Branch & B. Christiansen (Eds.), *The Marketisation of Higher Education* (pp. 321–341). Springer International Publishing. https://doi.org/10.1007/978-3-030-67441-0_14

Kang, S., & Park, H. (2005). English as the medium of instruction in Korean Engineering education. *Korean Journal of Applied Linguistics*, *21*, 155–174.

Karakas, A. (2016). Turkish lecturers' views on the place of mother tongue in the teaching of content courses through English medium. *Asian Englishes*, *18*(3), 242–257. https://doi.org/10.1080/13488678.2016.1229831

Karakaş, A. (2017). *Teacher Preferences in Content and Language-focused Courses in Higher Education: The Case of Turkish EMI Students*. 20.

Karlsson, A., Nygård Larsson, P., & Jakobsson, A. (2020). The continuity of learning in a translanguaging science classroom. *Cultural Studies of Science Education*, *15*(1), 1–25. https://doi.org/10.1007/s11422-019-09933-y

Karmani, S. (2010). *On Perceptions of the Socialising Effects of English Meduim Education on Students at a Gulf Arab University with Particular Refrenece to the United Arab*

Emirates [University of Exeter]. https://ore.exeter.ac.uk/repository/bitstream/handle/10036/99373/KarmaniS.pdf?sequence=2&isAllowed=y

Kawulich, B. B. (2005). *Participant Observation as a Data Collection Method*. http://nbn-resolving.de/urn:nbn:de:0114-fqs0502430

Kehm, B. M., & Teichler, U. (2007). Research on Internationalisation in Higher Education. *Journal of Studies in International Education*, *11*(3–4), 260–273. https://doi.org/10.1177/1028315307303534

Kerklaan, V., Moreira, G., & Boersma, K. (2008). The Role of Language in the Internationalisation of Higher Education: An example from Portugal. *European Journal of Education*, *43*(2), 241–255. https://doi.org/10.1111/j.1465-3435.2008.00349.x

Khan, H. I. (2013). *An investigation of two universities' postgraduate students and their teachers' perceptions of policy and practice of English Medium of Instruction (EMI) in Pakistani universities* [PhD thesis]. University of Glasgow.

Khan, M. O. (2020). Necessity of ESP (English for Specific Purpose) Courses for Medical and Science Students at Najran University, Saudi Arabia: An Exploratory-cum-remedial Study. *Theory and Practice in Language Studies*, *10*(2), 208. https://doi.org/10.17507/tpls.1002.09

Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical Teacher*, *42*(8), 846–854. https://doi.org/10.1080/0142159X.2020.1755030

Kiliçkaya, F. (2006). *Instructors' Attitudes towards English-Medium Instruction in Turkey*. https://files.eric.ed.gov/fulltext/ED570169.pdf

Kim, k. (2011). *Korean Professor and Student Perceptions of the Efficacy of English-Medium Instruction*.

Kim, E. G., & Shin, A. (2014). Seeking an Effective Program to Improve Communication Skills of Non-English-Speaking Graduate Engineering Students: The Case of a Korean Engineering School. *IEEE Transactions on Professional Communication*, *57*(1), 41–55. https://doi.org/10.1109/TPC.2014.2310784

Kim, J., Tatar, B., & Choi, J. (2014). Emerging culture of English-medium instruction in Korea: Experiences of Korean and international students. *Language and Intercultural Communication*, *14*(4), 441–459. https://doi.org/10.1080/14708477.2014.946038

King, N. (2004). Using Templates in the Thematic Analysis of Text. In C. Cassell & G. Symon, *Essential Guide to Qualitative Methods in Organizational Research* (pp. 256–270). SAGE Publications Ltd. https://doi.org/10.4135/9781446280119.n21

Kioko, A. (2015). Why schools should teach young learners in home language. *British Council*, 13:25.

Kir, E., & Akyüz, A. (2020). An Exploration of Perceptions of Faculty Members and Students: The Effects of English-Medium Instruction on Language Ability. In M. L. Carrió-Pastor (Ed.), *Internationalising Learning in Higher Education* (pp. 155–177). Springer International Publishing. https://doi.org/10.1007/978-3-030-21587-3_8

Kirkgoz, Y. (2007). English Language Teaching in Turkey: Policy Changes and their Implementations. *RELC Journal*, *38*(2), 216–228. https://doi.org/10.1177/0033688207079696

Kirkpatrick, A. (2011). *Internationalization or Englishization: Medium of instruction in today's universities*. Centre for Governance and Citizenship, The Hong Kong Institute of Education.

Kırkgöz, Y. (2009). Students' and lecturers' perceptions of the effectiveness of foreign language instruction in an English-medium university in Turkey. *Teaching in Higher Education*, *14*(1), 81–93. https://doi.org/10.1080/13562510802602640

Knight, J. (2003). Updated Definition of Internationalization. *International Higher Education*, *33*. https://doi.org/10.6017/ihe.2003.33.7391

Kodir Al-Baekani, A., & Ridwan, I. (2018). Integrated of Mobile Phone as Interactive Media in Extensive Listening. *SHS Web of Conferences*, *42*, 00006. https://doi.org/10.1051/shsconf/20184200006

Kongsuebchart, J., & Suppasetsere, S. (2018). The Effect of a Weblog-Based Electronic Portfolio on Thai EFL Undergraduate Students' English Writing Skills. *CALL-EJ*, *19*(2), 28–46.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, *24*(1), 120–124. https://doi.org/10.1080/13814788.2017.1375092

Krathwohl, D. R. (2009). *Methods of educational and social science research: The logic of methods* (3rd ed). LWaveland Press.

Kudo, S., HARADA, T., EGUCHI, M., & MORIYA, R. (2017). Investigating English Speaking Anxiety in English-Medium Instruction. *Essays on English Language and Literature [Eigo Eibungaku Soushi]*, *46*, 7–23.

Kurtz, J. B., Lourie, M. A., Holman, E. E., Grob, K. L., & Monrad, S. U. (2019). Creating assessments as an active learning strategy: What are students' perceptions? A mixed methods study. *Medical Education Online*, *24*(1), 1630239. https://doi.org/10.1080/10872981.2019.1630239

Kuteeva, M. (2020). Revisiting the 'E' in EMI: Students' perceptions of standard English, lingua franca and translingual practices. *International Journal of Bilingual Education and Bilingualism*, *23*(3), 287–300. https://doi.org/10.1080/13670050.2019.1637395

Kvale, S. (2007). *Doing Interviews*. SAGE Publications, Ltd. https://doi.org/10.4135/9781849208963

Lather, P. (1992). Critical frames in educational research: Feminist and post-structural perspectives. *Theory Into Practice*, *31*(2), 87–99. https://doi.org/10.1080/00405849209543529

Lau, W. W. F., & Yuen, A. H. K. (2011). The impact of the medium of instruction: The case of teaching and learning of computer programming. *Education and Information Technologies*, *16*(2), 183–201. https://doi.org/10.1007/s10639-009-9118-8

Le Ha, P., & Barnawi, O. Z. (2015). Where English, neoliberalism, desire and internationalization are alive and kicking: Higher education in Saudi Arabia today. *Language and Education*, *29*(6), 545–565. https://doi.org/10.1080/09500782.2015.1059436

LeCompte, M. D., Preissle, J., & Tesch, R. (1993). *Ethnography and qualitative design in educational research* (2nd ed). Academic Press.

Lehikoinen, A. (2004). Foreign-language-medium education as national strategy. In *Integrating content and language: Meeting the challenge of a multilingual higher education*. Maastricht : Universitaire Pers Maastricht.

Lei, J., & Hu, G. (2014). Is English-medium instruction effective in improving Chinese undergraduate students' English competence? *International Review of Applied Linguistics in Language Teaching*, *52*(2). https://doi.org/10.1515/iral-2014-0005

Lei, X. (2008). Exploring a sociocultural approach to writing strategy research: Mediated actions in writing activities. *Journal of Second Language Writing*, *17*(4), 217–236. https://doi.org/10.1016/j.jslw.2008.04.001

Lemke, J. (2012). Analyzing verbal data: Principles, methods, and problems. In *Second international handbook of science education* (pp. 1471–1484). Springer.

Lemke, J. L. (1990). *Talking science: Language, learning, and values*. Ablex Pub. Corp.

Lempert, L. B. (2007). Asking Questions of the Data: Memo Writing in the Grounded Theory Tradition. In A. Bryant & K. Charmaz, *The SAGE Handbook of Grounded Theory* (pp. 245–264). SAGE Publications Ltd. https://doi.org/10.4135/9781848607941.n12

Lin, H.-Y. (2019). Perceptions of the Englishization of higher education in Taiwan: Implementation and implications. *International Journal of Bilingual Education and Bilingualism*, *23*(5), 617–634. https://doi.org/10.1080/13670050.2019.1579778

Lin, L. H. F., & Morrison, B. (2010). The impact of the medium of instruction in Hong Kong secondary schools on tertiary students' vocabulary. *Journal of English for Academic Purposes*, *9*(4), 255–266. https://doi.org/10.1016/j.jeap.2010.09.002

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Ljungdahl, L. (2004). The English language and linguistic imperialism: The Trojan Horse? *Journal Journal Article*, 1–17.

Long, M. H. (1996). The Role of the Linguistic Environment in Second Language Acquisition. In *Handbook of Second Language Acquisition* (pp. 413–468). Elsevier. https://doi.org/10.1016/B978-012589042-7/50015-3

Louber, I., & Troudi, S. (2019). "Most of the Teaching is in Arabic Anyway", English as a Medium of Instruction in Saudi Arabia, Between De Facto and Official Language Policy: *International Journal of Bias, Identity and Diversities in Education*, *4*(2), 59–73. https://doi.org/10.4018/IJBIDE.2019070105

Macaro, E. (2015). English Medium Instruction: Time to start asking some difficult questions. *Modern English Teacher*, *24*(2). https://www.modernenglishteacher.com/media/5377/macaro.pdf

Macaro, E. (2018). *English medium instruction: Content and language in policy and practice*. Oxford University Press.

Macaro, E. (2020). Exploring the role of language in English medium instruction. *International Journal of Bilingual Education and Bilingualism*, *23*(3), 263–276. https://doi.org/10.1080/13670050.2019.1620678

Macaro, E. (2022). English Medium Instruction: What do we know so far and what do we still need to find out? *Language Teaching*, 1–14. https://doi.org/10.1017/S0261444822000052

Macaro, E., & Akincioglu, M. (2018). Turkish university students' perceptions about English Medium Instruction: Exploring year group, gender and university type as variables. *Journal of Multilingual and Multicultural Development*, *39*(3), 256–270. https://doi.org/10.1080/01434632.2017.1367398

Macaro, E., Akincioglu, M., & Dearden, J. (2016). English Medium Instruction in Universities: A Collaborative Experiment in Turkey. *Studies in English Language Teaching*, *4*(1), 51. https://doi.org/10.22158/selt.v4n1p51

Macaro, E., Akincioglu, M., & Han, S. (2019). English medium instruction in higher education: Teacher perspectives on professional development and certification. *International Journal of Applied Linguistics*, ijal.12272. https://doi.org/10.1111/ijal.12272

Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching*, *51*(1), 36–76. https://doi.org/10.1017/S0261444817000350

Macaro, E., & Han, S. (2020). English medium instruction in China's higher education: Teachers' perspectives of competencies, certification and professional development. *Journal of Multilingual and Multicultural Development*, *41*(3), 219–231. https://doi.org/10.1080/01434632.2019.1611838

Macaro, E., Hultgren, A. K., Kirkpatrick, A., & Lasagabaster, D. (2019). English medium instruction: Global views and countries in focus. *Language Teaching*, *52*(02), 231–248. https://doi.org/10.1017/S0261444816000380

Macaro, E., Tian, L., & Chu, L. (2018). First and second language use in English medium instruction contexts. *Language Teaching Research*, 136216881878323. https://doi.org/10.1177/1362168818783231

Mack, L. (2010). The philosophical underpinnings of educational research. *Polyglossia*, *19*, 5–11.

Mahboob, A., & Elyas, T. (2014). English in the Kingdom of Saudi Arabia: English in the Kingdom of Saudi Arabia. *World Englishes*, *33*(1), 128–142. https://doi.org/10.1111/weng.12073

Maiworm, F., & Wächter, B. (2002). *English-language-taught degree programmes in European higher education: Trends and success factors*. Lemmens.

Majhanovich, S., & Deyrich, M.-C. (2017). Language learning to support active social inclusion: Issues and challenges for lifelong learning. *International Review of Education*, *63*(4), 435–452. https://doi.org/10.1007/s11159-017-9656-z

Manan, S. A., Dumanig, F. P., & David, M. K. (2017). The English-medium fever in Pakistan: Analyzing policy, perceptions and practices through additive bi/multilingual education lens. *International Journal of Bilingual Education and Bilingualism*, *20*(6), 736–752. https://doi.org/10.1080/13670050.2015.1080659

Manh, L. D. (2012). English as a Medium of Instruction at Tertiary Education System in Vietnam. *THE JOURNAL OF ASIA TEFL*, *9*(2), 97–122.

Marsh, D. (2006). English as medium of instruction in the new global linguistic order: Global characteristics, local consequences. *METSMa*.

Marshall, C., & Rossman, G. B. (1995). *Designing qualitative research* (2nd ed). Sage Publications.

Marshall, S. (2020). Understanding plurilingualism and developing pedagogy: Teaching in linguistically diverse classes across the disciplines at a Canadian university. *Language, Culture and Curriculum*, *33*(2), 142–156. https://doi.org/10.1080/07908318.2019.1676768

Mason, M. (2016). Is Thorough Implementation of Policy Change in Education Actually Possible? What Complexity Theory Tells Us About Initiating and Sustaining Change. European Journal of Education, 51(4), 437–440. https://doi.org/10.1111/ejed.12193

Masri, T. (2020). English Medium Instruction and Human Linguistic Rights: Academic, Psychological and Cultural Suffering. *International Journal on Minority and Group Rights*, *28*(3), 514–543. https://doi.org/10.1163/15718115-28030003

Masri, T. I. (2019). A Critical Examination of the Arab Undergraduate Students' Perceptions of their Academic Arabic Proficiency in Three EMI Universities in the UAE. *English Language Teaching*, *12*(4), 21. https://doi.org/10.5539/elt.v12n4p21

Master, P. (1998). Positive and Negative Aspects of the Dominance of English. *TESOL Quarterly*, *32*(4), 716. https://doi.org/10.2307/3588002

Mauranen, A. (2015). English as a global Lingua Franca: Changing language in changing global academia. In *Exploring ELF in Japanese Academic and Business Contexts* (pp. 29–46). John Benjamins.

Mauthner, M., Birch, M., Jessop, J., & Miller, T. (Eds.). (2008). *Ethics in qualitative research* (Reprinted). SAGE.

May, S. (2015). Language rights and language policy: Addressing the gap(s) between principles and practices. *Current Issues in Language Planning*, *16*(4), 355–359. https://doi.org/10.1080/14664208.2014.979649

Mazak, C. M., & Herbas-Donoso, C. (2014). Translanguaging Practices and Language Ideologies in Puerto Rican University Science Education. *Critical Inquiry in Language Studies*, *11*(1), 27–49. https://doi.org/10.1080/15427587.2014.871622

McLaren, P. (2011). *English Medium in the United Arab Emirates: Serving Local or Global Needs?* [University of Exeter]. https://ore.exeter.ac.uk/repository/bitstream/handle/10036/3580/McLarenP.pdf?isAllowed=y&sequence=2

McMullen, M. (2014a). The Value and Attributes of an Effective Preparatory English Program: Perceptions of Saudi University Students. *English Language Teaching*, *7*(7), p131. https://doi.org/10.5539/elt.v7n7p131

McMullen, M. (2014b). The Value and Attributes of an Effective Preparatory English Program: Perceptions of Saudi University Students. *English Language Teaching*, *7*(7), p131. https://doi.org/10.5539/elt.v7n7p131

Merriam, S. B. (1988). *Case study research in education: A qualitative approach* (1st ed). Jossey-Bass.

Met, M., & Lorenz, E. (1997). *Immersion Education: Lessons from U.S. immersion programs: Two decades of experience.*

Miller, L. (2009). Engineering Lectures in a Second Language: What Factors Facilitate Students' Listening Comprehension? *The Asian EFL Journal Quarterly*, *11*(2), 8-30.

Mitchell, B., & Alfuraih, A. (2017). English Language Teaching in the Kingdom of Saudi Arabia: Past, Present and Beyond. Mediterranean Journal of Social Sciences, 8(2), 317–325. https://doi.org/10.5901/mjss.2017.v8n2p317

MOE. (1993). *Education policy in Saudi Arabia*. https://edu.moe.gov.sa/Riyadh/WorkPlace/females/RawabiOffice/PublishingImages/Pages/page2/1-%20المملكة%20في%20التعليم%20سياسة.pdf

Monk, M., & Dillon, J. (Eds.). (1995). *Learning to teach science: Activities for student teachers and mentors*. Falmer Press.

Montoya, S. (2018). Defining literacy. *GAML Fifth Meeting*. https://gaml.uis.unesco.org/wp-content/uploads/sites/2/2018/12/4.6.1_07_4.6-defining-literacy.pdf

Moore, P. J. (2017). Unwritten Rules: Code Choice in Task-Based Learner Discourse in an EMI Context in Japan. In B. Fenton-Smith, P. Humphreys, & I. Walkinshaw (Eds.), *English Medium Instruction in Higher Education in Asia-Pacific* (Vol. 21, pp. 299–320). Springer International Publishing. https://doi.org/10.1007/978-3-319-51976-0_16

Mouhanna, M. (2016). *English as a Medium of Instruction in the Tertiary Education Setting of the UAE: The Perspectives of Content Teachers*. University of Exeter.

Muguruza, B., Cenoz, J., & Gorter, D. (2020). Implementing translanguaging pedagogies in an English medium instruction course. *International Journal of Multilingualism*, 1–16. https://doi.org/10.1080/14790718.2020.1822848

Muhammad, I., & Abdul Raof, A. H. (2019). *Assessing the ESP Needs of Saudi Engineering Undergraduates: A Diagnostic View – AWEJ*. https://awej.org/assessing-the-esp-needs-of-saudi-engineering-undergraduates-a-diagnostic-view/

Mustafawi, E., & Shaaban, K. (2019). Language policies in education in Qatar between 2003 and 2012: From local to global then back to local. *Language Policy*, *18*(2), 209–242. https://doi.org/10.1007/s10993-018-9483-5

Mustafawi, E., Shaaban, K., Khwaileh, T., & Ata, K. (2022). Perceptions and attitudes of Qatar University students regarding the utility of arabic and english in communication and education in Qatar. *Language Policy*, *21*(1), 75–119. https://doi.org/10.1007/s10993-021-09590-4

Mwinsheike, mohammed. (2003). Kiswahili as a medium of science teaching in Tanzanian Secondary Schools. In *Language of instruction in Tanzania and South Africa (LOITASA).*

Nomlomo, V. S. (2007). *SCIENCE TEACHING AND LEARNING THROUGH THE MEDIUM OF ENGLISH AND ISIXHOSA: A COMPARATIVE STUDY IN TWO PRIMARY SCHOOLS IN THE WESTERN CAPE* [PhD thesis, University of the Western Cape]. https://core.ac.uk/display/58913369?utm_source=pdf&utm_medium=banner&utm_campaign=pdf-decoration-v1

Noriko, S. (2017). Foreign Language Speaking Anxiety in the English-Medium Instruction (EMI)Program in a Japanese University. *National Institute of Technology*.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, *16*(1), 160940691773384. https://doi.org/10.1177/1609406917733847

OECD. (2019). *PISA 2018 Assessment and Analytical Framework*. OECD. https://doi.org/10.1787/b25efab8-en

Ogunniyi, M. B. (2005). Cultural Perspectives on Science and Technology Education. In *Issues in African Education sociological perspectives*. Palgrave macmillan.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.

O'Toole, L. J. (2000). Research on Policy Implementation: Assessment and Prospects. Journal of Public Administration Research and Theory, 10(2), 263–288.

Onsman, A. (2011). It is better to light a candle than to ban the darkness: Government led academic development in Saudi Arabian universities. *Higher Education, 62*(4), 519–532. https://doi.org/10.1007/s10734-010-9402-y

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know* (Nachdr.). Heinle & Heinle.

Oxford, R. L. (2003). *Language learning styles and strategies: an overview.* https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1047.1465&rep=rep1&type=pdf

Ozer, O. (2020). Lecturers' experiences with English-medium instruction in a state university in Turkey: Practices and challenges Omer Ozer. *Issues in Educational Research*, *30*(2), 612–634.

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis.

Paliwoda-Pękosz, G., & Stal, J. (2015). ICT in Supporting Content and Language Integrated Learning: Experience from Poland. *Information Technology for Development*, *21*(3), 403–425. https://doi.org/10.1080/02681102.2014.1003521

Panagiotopoulou, J. A., Rosen, L., & Strzykala, J. (Eds.). (2020). *Inclusion, Education and Translanguaging: How to Promote Social Justice in (Teacher) Education?* Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-28128-1

Pang, J., Zhou, X., & Fu, Z. (2002). English for international trade: China enters the WTO. *World Englishes*, *21*(2), 201–216. https://doi.org/10.1111/1467-971X.00242

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, *25*(1), 104–112. https://doi.org/10.1080/02673843.2019.1596823

patalong, francis. (2016). *Vision 2030 and the Transformation of Education in Saudi Arabia*. https://www.tamimi.com/law-update-articles/vision-2030-and-the-transformation-of-education-in-saudi-arabia/

Patton, M. Q., & Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3 ed). Sage Publications.

Pawan, F., & Ortloff, J. H. (2011). Sustaining collaboration: English-as-a-second-language, and content-area teachers. *Teaching and Teacher Education*, *27*(2), 463–471. https://doi.org/10.1016/j.tate.2010.09.016

Paxton, M. I. J. (2009). 'It's easy to learn when you using your home language but with English you need to start learning language before you get to the concept': Bilingual concept development in an English medium university in South Africa. *Journal of Multilingual and Multicultural Development*, *30*(4), 345–359. https://doi.org/10.1080/01434630902780731

Pecorari, D., & Malmström, H. (2018). At the Crossroads of TESOL and English Medium Instruction. *TESOL Quarterly*, *52*(3), 497–515. https://doi.org/10.1002/tesq.470

Pekrun, R. (2014). *Emotions and Learning*. International academy of education. http://www.ibe.unesco.org/fileadmin/user_upload/Publications/Educational_Practices/EdPractices_24eng.pdf

Peng, J.-E., & Xie, X. (Serina). (2021). English-Medium Instruction as a Pedagogical Strategy for the Sustainable Development of EFL Learners in the Chinese Context: A Meta-Analysis of Its Effectiveness. *Sustainability*, *13*(10), 5637. https://doi.org/10.3390/su13105637

Pennycook, A. (1994). *The Cultural Politics of English as an International Language*. Longman.

Pennycook, A. (2000). The Social Politics and the Cultural Politics of the Language Classroom. In *The Sociopolitics of English Language Teaching. Tonawanda: Multilingual Matters*.

Pennycook, A. (2001). *Critical Applied Linguistics: A Critical Introduction*. Routledge.

Phillipson, R. (1992). *Linguistic imperialism*. Oxford University Press.

Phillipson, R. (2009). *Linguistic imperialism continued*. Orient Blackswan Private Ltd.; Distributed by Routledge.

Phillipson, R. (2013). *Linguistic Imperialism Continued*. Routledge.

Phillipson, R., & Skutnabb-Kangas, T. (1996). English Only Worldwide or Language Ecology? *TESOL Quarterly*, *30*(3), 429. https://doi.org/10.2307/3587692

Phuong, Y. H., & Nguyen, T. T. (2019). Students' Perceptions Towards the Benefits and Drawbacks of EMI Classes. *English Language Teaching*, *12*(5), 88. https://doi.org/10.5539/elt.v12n5p88

Probyn, M. (2001). Teachers Voices: Teachers Reflections on Learning and Teaching through the Medium of English as an Additional Language in South Africa. *International Journal of Bilingual Education and Bilingualism*, *4*(4), 249–266. https://doi.org/10.1080/13670050108667731

Pun, J. (2019). *Exploring the language challenges and coping strategies of science students in English-medium instruction: A case study of teachers and students in Hong Kong secondary classroom*.

Pun, J., & Macaro, E. (2019). The effect of first and second language use on question types in English medium instruction science classrooms in Hong Kong. *International Journal of Bilingual Education and Bilingualism*, *22*(1), 64–77. https://doi.org/10.1080/13670050.2018.1510368

Qiu, X., & Fang, C. (2022). Creating an effective English-Medium Instruction (EMI) classroom: Chinese undergraduate students' perceptions of native and non-native English-speaking

content teachers and their experiences. *International Journal of Bilingual Education and Bilingualism*, *25*(2), 641–655. https://doi.org/10.1080/13670050.2019.1707769

Qiyas. (2019). *The National Center for Assessment and Evaluation in Higher Educatio*. https://etec.gov.sa/en/About/Centers/Pages/qiyas.aspx

Qorro, M. A. (2006). Does Language of Instruction Affect Quality of Education? *Dar Es Salaam: HakiElimu.* https://www.yumpu.com/en/document/read/37078229/does-language-of-instruction-affect-quality-of-education-hakielimu

Raddawi, R., & Meslem, D. (2015). *Loss of Arabic in the UAE: Is Bilingual Education the Solution?*

Rafada, S., & Madini, A. (2017). Effective Solutions for Reducing Saudi Learners' Speaking Anxiety in EFL classrooms. *Arab World English Journal*, *8*(2), 308–322. https://doi.org/10.24093/awej/vol8no2.22

Ranasinghe, S. (2012). Perceptions of University Students on the Role of English Language Proficiency in Career Choice and Mobility. *The Journal of Humanities and Social Sciences, 7/8.*

Rashad, M. (2018, March 21). Saudi Arabia says revamping education to combat 'extremist ideologies'. *Reuters*. https://www.reuters.com/article/us-saudi-brotherhood-idUSKBN1GX0XH

Rastegar, M., & Karami, M. (2013). On the Relationships among Emotional Intelligence, Affective and Social Strategy Use, and Academic Achievement of Iranian EFL Learners. *Theory and Practice in Language Studies*, *3*(2), 389–396. https://doi.org/10.4304/tpls.3.2.389-396

Rathore, B., & Pancholi, M. (2013). A study of the effect of medium of instruction on students' anxiety at colleges of education. *Voice of Research, 2*(3). http://voiceofresearch.org/Doc/Dec-2013/Dec-2013_3.pdf

Raza, K., Nasir, A., Sadiq, A. H., & Manzoor Ahmed, M. (2015). Education in Mother Tongue: Its Importance and Significance. *Balochistan Study Centre Annual Research Journal*, *XXXII*(1), 119–126.

Richards, K. (2003). *Qualitative Inquiry in TESOL*. Palgrave Macmillan UK. https://doi.org/10.1057/9780230505056

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (Second edition). SAGE Publications Ltd.

Rodrigues, R. (2014). *A Brief History of the English Language – Old Middle and Modern English Periods*. https://www.academia.edu/9463445/A_Brief_History_of_the_Development_of_the_English_Language_Old_Middle_and_Modern_Periods

Rogier, D. (2012). *The Effects of English-Medium Instruction on Language Proficiency of Students Enrolled in Higher Education in the UAE* [The University of Exeter]. http://hdl.handle.net/10036/4482

Romanowski, P. (2020). Perceptions of translanguaging among the students and teachers of emi classrooms in poland. *Lenguas Modernas*, *55*, 151–165.

Roothooft, H. (2022). Spanish lecturers' beliefs about English medium instruction: STEM versus Humanities. *International Journal of Bilingual Education and Bilingualism*, *25*(2), 627–640. https://doi.org/10.1080/13670050.2019.1707768

Rose, H., Curle, S., Aizawa, I., & Thompson, G. (2020). What drives success in English medium taught courses? The interplay between language proficiency, academic skills, and motivation. *Studies in Higher Education*, *45*(11), 2149–2161. https://doi.org/10.1080/03075079.2019.1590690

Rose, H., Macaro, E., Sahan, K., Aizawa, I., Zhou, S., & Wei, M. (2021). Defining English Medium Instruction: Striving for comparative equivalence. *Language Teaching*, 1–12. https://doi.org/10.1017/S0261444821000483

Rose, H., McKinley, J., Xu, X., & Zhou, S. (2020). *Investigating policy and implementation of English-medium instruction in higher education institutions in China A report by EMI Oxford Research Group in collaboration with the British Council in China* (Teaching English, pp. 2–34). British Council. https://www.teachingenglish.org.uk/sites/teacheng/files/K155_Investigating_policy_implementation_EMI_China_web.pdf

Rouf, Md. A. (2012). Linguistic Transition at Tertiary Level: A Case Study. *New Media and Mass Communication*, *3*. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.896.9857&rep=rep1&type=pdf

Ryhan, E. (2014). The Role and Impact of English as a Language and a Medium of Instruction in Saudi Higher Education Institutions: Students-Instructors Perspective. *Studies in English Language Teaching*, *2*(2), 140. https://doi.org/10.22158/selt.v2n2p140

Saarikoski, L., & Rauto., E. (2008). Breaking the Barrier between Content and Language in Tertiary Education. In *Foreign- language-medium Instruction in Tertiary Education: A Tool for Enhancing Language Learning. Research Reports* (pp. 13–21). University of

Applied Sciences Publications. https://paperzz.com/doc/8049590/foreign-language-medium-instruction-in-tertiary-education

Sabbour, S. M., Dewedar, S. A., & Kandil, S. K. (2012). Language barriers in medical education and attitudes towards Arabization of medicine: Student and staff perspectives. *Eastern Mediterranean Health Journal = La Revue De Sante De La Mediterranee Orientale = Al-Majallah Al-Sihhiyah Li-Sharq Al-Mutawassit*, *16*(12), 1263–1271.

Sah, P. K., & Li, G. (2018). English Medium Instruction (EMI) as Linguistic Capital in Nepal: Promises and Realities. *International Multilingual Research Journal*, *12*(2), 109–123. https://doi.org/10.1080/19313152.2017.1401448

Sahan, K. (2020). *Variations of English-medium instruction: Comparing policy and practice in Turkish higher education* [PhD thesis]. University of Oxford.

Saki, K. M. 0. (2005). Reflections on the Problem of Medium of Instruction and Interaction: A Focus on Science Teaching and Learning. In *LOITASA Research in Progress. Dar-es-Salaam: KAD Associates*.

Sayahi, L. (2015). A moving target: Literacy development in situations of diglossia and bilingualism. *Arab Journal of Applied Linguistics*, *1*(1), 1–18.

Schiffman, H. (1996). Linguistic Culture and Language Policy. Routledge.

Schofield, J. W. (2009). Increasing the Generalizability of Qualitative Research. In R. Gomm, M. Hammersley, & P. Foster, *Case Study Method* (pp. 69–97). SAGE Publications Ltd. https://doi.org/10.4135/9780857024367.d8

Scott, D., & Usher, R. (2011). *Researching education: Data, methods and theory in educational enquiry* (2nd ed). Continuum International Pub. Group.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd ed). Teachers College Press.

Selwyn, N. (2016). Digital downsides: Exploring university students' negative engagements with digital technology. *Teaching in Higher Education*, *21*(8), 1006–1021. https://doi.org/10.1080/13562517.2016.1213229

Shadiev, R., & Yang, M. (2020). Review of Studies on Technology-Enhanced Language Learning and Teaching. *Sustainability*, *12*(2), 524. https://doi.org/10.3390/su12020524

Shamim, F., Abdelhalim, A., & Hamid, N. (2016). English Medium Instruction in the Transition Year: Case from KSA. *Arab World English Journal*, *7*(1).

Shohamy, E. (2006). Language Policy: Hidden Agendas and New Approaches. *Language Policy: Hidden Agendas and New Approaches*, 1–185. https://doi.org/10.4324/9780203387962

Shrum, J. L., & Glisan, E. W. (2000). *Teacher's handbook: Contextualized language instruction* (2nd ed). Heinle & Heinle.

Simbolon, N. (2017). Partial English instruction in English-medium instruction (EMI) practice: Perspectives from lecturers in a University in Indonesia. In *Ntegrating content and language in higher education: Perspectives on professional practice* (pp. 67–185). Peter Lang.

Simbolon, N. E. (2016). *Lecturers' Perspectives on English Medium Instruction (EMI) practice in Indonesian Higher Education*. Curtin University.

Simons, H. (2009). *Case study research in practice*. SAGE.

Skutnabb-Kangas, T. (1999). Handbook of Language & Ethnic Identity. In *Language and ethnic identity* (pp. 42–95).

Skutnabb-Kangas, T. (2004). *The right to mother tongue medium education—The hot potato in human rights instrument*. https://www.researchgate.net/publication/251811827_The_right_to_mother_tongue_medium_education_-_the_hot_potato_in_human_rights_instruments

Skutnabb-Kangas, T. (2006). Language Policy and Linguistic Human Rights. In *An Introduction to Language Policy: Theory and Method* (pp. 273–291). Blackwell.

Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, state, and higher education* (Paperback ed). Johns Hopkins Univ. Press.

Smith, L., & Abouammoh, A. (2013). *Higher Education in Saudi Arabia Achievements, Challenges and Opportunities*. Springer Netherlands : Imprint : Springer.

Solloway, A. (2016). *English-Medium Instruction in Higher Education in the United Arab Emirates: The Perspectives of Students* [Doctor of Education in TESOL]. https://ore.exeter.ac.uk/repository/bitstream/handle/10871/26316/SollowayS.pdf?sequence=1&isAllowed=y

Soren, J. (2013). *eacher Identity in English-Medium Instruction: Teacher Cognitions from a Danish Tertiary Education Context.* [Linguistics, University of Copenhagen]. https://tel.archives-ouvertes.fr/tel-00863816/document

Soruç, A., & Griffiths, C. (2018). English as a medium of instruction: Students' strategies. *ELT Journal*, *72*(1), 38–48. https://doi.org/10.1093/elt/ccx017

Spolsky, B. (2004). *Language policy*. Cambridge University Press.

Staller, K. M. (2013). Epistemological boot camp: The politics of science and what every qualitative researcher needs to know to survive in the academy. *Qualitative Social Work*, *12*(4), 395–413. https://doi.org/10.1177/1473325012450483

Statista. (2022). The most spoken languages worldwide in 2022 (p. 1). research department.

Thomas, G. (2010). Doing Case Study: Abduction Not Induction, Phronesis Not Theory. Qualitative Inquiry, 16(7), 575–582. https://doi.org/10.1177/1077800410372601

Stroupe, R. (2012). Culture and Context: Challenges to the Implementation of English Language Curricula in Asia. *Language Education in Asia*, *3*(2), 126–131. https://doi.org/10.5746/LEiA/12/V3/I2/A01/Stroupe

Suliman, W. A., & Tadros, A. (2011). Nursing students coping with English as a foreign language medium of instruction. *Nurse Education Today*, *31*(4), 402–407. https://doi.org/10.1016/j.nedt.2010.07.014

Sullivan, k, & Ebrahim, G. (1995). Qualitative field research. In *Mother and child health: Research methods* (pp. 196–211). Book Aid.

Sullivan, A., Parsons, S., Wiggins, R., Heath, A., & Green, F. (2014). Social origins, school type and higher education destinations. *Oxford Review of Education*, *40*(6), 739–763. https://doi.org/10.1080/03054985.2014.979015

Sultana, S. (2014). English as a Medium of Instruction in Bangladesh's Higher Education. Empowering or Disadvantaging Students? *1 The Asian EFL Journal Quarterly*, *16*(1). https://www.academia.edu/53686012/English_as_a_medium_of_instruction_in_Bangladeshs_higher_education_Empowering_or_disadvantaging_students

Taguchi, N. (2014). English-medium education in the global society. *International Review of Applied Linguistics in Language Teaching*, *52*(2). https://doi.org/10.1515/iral-2014-0004

Tai, K. W. H. (2022). Translanguaging as Inclusive Pedagogical Practices in English-Medium Instruction Science and Mathematics Classrooms for Linguistically and Culturally

Diverse Students. *Research in Science Education*, *52*(3), 975–1012. https://doi.org/10.1007/s11165-021-10018-6

Tai, K. W. H., & Wei, L. (2021). The affordances of iPad for constructing a technology-mediated space in Hong Kong English medium instruction secondary classrooms: A translanguaging view. *Language Teaching Research*, 136216882110278. https://doi.org/10.1177/13621688211027851

Tamtam, A. G., Gallagher, F., Olabi, A. G., & Naher, S. (2012). A Comparative Study of the Implementation of EMI in Europe, Asia and Africa. *Procedia - Social and Behavioral Sciences*, *47*, 1417–1425. https://doi.org/10.1016/j.sbspro.2012.06.836

Tan, E., Calabrese Barton, A., Varley Gutiérrez, M., & Turner, E. E. (2012). *Empowering science and mathematics education in urban schools*. The University of Chicago Press.

Tarnopolsky, O. B., & Goodman, B. A. (2014). The ecology of language in classrooms at a university in eastern Ukraine. *Language and Education*, *28*(4), 383–396. https://doi.org/10.1080/09500782.2014.890215

Tawalbeh, T. (2014). *Teaching-Learning Challenges Facing Students of English in the Preparatory Year at the Taif University, Kingdom of Saudi Arabia*.

Taylor, C., & Albasri, W. (2014). The Impact of Saudi Arabia King Abdullah's Scholarship Program in the U.S. *Open Journal of Social Sciences*, *02*(10), 109–118. https://doi.org/10.4236/jss.2014.210013

Taylor, C. (1998). The politics of recognition. In Multiculturalism and the politics of recognition.

Temple, B., & Young, A. (2004). Qualitative Research and Translation Dilemmas. *Qualitative Research*, *4*(2), 161–178. https://doi.org/10.1177/1468794104044430

The Law of Universities. (2020). Kingdom of Saudi Arabia Council of Universities, Affairs General Secretary. https://units.imamu.edu.sa/colleges/en/LanguageAndTranslation/FilesLibrary/Documents/Universities%20Regulation.pdf

Tian, Z. (2022). Challenging the 'Dual': Designing translanguaging spaces in a Mandarin-English dual language bilingual education program. *Journal of Multilingual and Multicultural Development, 43*(6), 534–553. https://doi.org/10.1080/01434632.2022.2085732

Tollefson, J. W. (1991). *Planning language, planning inequality: Language policy in the community*. Longman.

Tollefson, J. W. (1995). Introduction: Language policy, power, and inequality. In *Power and Inequality in Language Education* (pp. 1–14). Cambridge University Press.

Tollefson, J. W. (2000). Policy and ideology in the spread of English. In *The Sociopolitics of English Language Teachin* (pp. 7–21). Multilingual Matters.

Tollefson, J. W. (Ed.). (2002). *Language policies in education: Critical issues*. Erlbaum.

Tollefson, J. W. (2006). Critical Theory in Language Policy. In *An Introduction to Language Policy: Theory and Method* (pp. 42–59). Blackwell Publishing.

Tollefson, J. W. (2008). Language Planning in Education. In N. H. Hornberger (Ed.), *Encyclopedia of Language and Education* (pp. 1–14). Springer US. https://doi.org/10.1007/978-0-387-30424-3_1

Tollefson, J. W. (2013). *Language Policies in Education: Critical Issues*. Routledge & CRC Press. https://www.routledge.com/Language-Policies-in-Education-Critical-Issues/Tollefson/p/book/9780415894593

Troudi, S. (2009). The effects of English as a medium of instruction on Arabic as a language of science and academia. In *Power in the EFL classroom: Critical pedagogy in the Middle East* (pp. 199–216). Cambridge Scholars Publishing.

Troudi, S., & Al Hafidh, G. (2017). The Dilemma of English and its Roles in the United Arab Emirates and the Gulf. In *Challenges to Education in the GCC during the 21st Century*. Gulf Research Centre Cambridge.

Troudi, S., & Jendli, A. (2011). Emirati Students' experiences of English as a medium of instruction. In *Global English and Arabic*. Peter Lang UK. https://doi.org/10.3726/978-3-0353-0120-5

Tsai, Y.-R. (2021). Promotion of learner autonomy within the framework of a flipped EFL instructional model: Perception and perspectives. *Computer Assisted Language Learning*, *34*(7), 979–1011. https://doi.org/10.1080/09588221.2019.1650779

Tsokalidou, R., & Skourtou, E. (2020). Translanguaging as a Culturally Sustaining Pedagogical Approach: Bi/Multilingual Educators' Perspectives. In J. A. Panagiotopoulou, L. Rosen, & J. Strzykala (Eds.), *Inclusion, Education and Translanguaging* (pp. 219–235). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-28128-1_13

Tsui, A. (1996). Reticence and anxiety in second language learning. In *Voices from the language classroom.* Cambridge University Press.

Tsui, A., & Tollefson. (2009). Language Policy, Culture, and Identity in Asian Contexts. *Applied Linguistics*, *29*. https://doi.org/10.1093/applin/amn031

Tsuneyoshi, R. (2005). Internationalization strategies in Japan: The dilemmas and possibilities of study abroad programs using English. *Journal of Research in International Education*, *4*(1), 65–86. https://doi.org/10.1177/1475240905050291

Tuckett, A. G. (2005). Applying thematic analysis theory to practice: A researcher's experience. *Contemporary Nurse*, *19*(1–2), 75–87. https://doi.org/10.5172/conu.19.1-2.75

Turhan, B., & Kırkgöz, Y. (2018). Motivation of engineering students and lecturers toward English medium instruction at tertiary level in Turkey. *JOURNAL OF LANGUAGE AND linguistic studies*. https://www.jlls.org/index.php/jlls/article/view/842/356

Unesco. (2015). *Education and Literacy: Saudi Arabia*. http://uis.unesco.org/en/country/sa?theme=education-and-literacy

Urquhart, A. H., & Weir, C. J. (2016). *Reading in a second language: Process, product and practice* (First issued in hardback). Routledge.

Viennet, R., & Pont, B. (2017). Education policy implementation: A literature review and proposed framework. OECD Education Working Papers Series, 1–63.

Vision 2030 Documents. (2016). https://www.vision2030.gov.sa/v2030/achievements/

Vogel, S., & Schwabe, L. (2016). Learning and memory under stress: Implications for the classroom. *Npj Science of Learning*, *1*(1), 16011. https://doi.org/10.1038/npjscilearn.2016.11

Vu, N., & Burns, A. (2014). English as a medium of instruction: Challenges for Vietnamese tertiary lecturers. *Journal of Asia TEFL*.

Vulliamy, G., Lewin, K., & Stephens, D (1990). *Doing educational research in developing countries: Qualitative strategies*. Falmer Press.

Vygotskiĭ, L. S., Rieber, R. W., & Carton, A. S. (1987). *The collected works of L.S. Vygotsky*. Plenum Press.

Wachob, P. (2009). *Power in the EFL classroom critical pedagogy in the Middle East*. Cambridge Scholars. http://site.ebrary.com/id/10655317

Wächter, B., & Maiworm, M. (2014). *English-Taught Programmes in European Higher Education*.

Wang, W., & Curdt-Christiansen, X. L. (2019). Translanguaging in a Chinese–English bilingual education programme: A university-classroom ethnography. *International Journal of Bilingual Education and Bilingualism*, *22*(3), 322–337. https://doi.org/10.1080/13670050.2018.1526254

Wagstaff, A. (2013). Reconciling the two "sciences of delivery". https://blogs.worldbank.org/developmenttalk/reconciling-the-two-sciences-of-delivery

Wedikkarage, L. (2010). *English Medium for Collegiate Level Science Classes in Sri Lanka: Theory, Policy and Practice*. AP LAMBERT Academic Publishing.

Wellington, J. (Ed.). (2015). *Educational research: Contemporary issues and practical approaches* (2. ed). Bloomsbury Acad.

Wellington, J., & Szczerbinski, M. (2007). *Research Methods for the Social Sciences.* Bloomsbury Publishing. http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=1744040

West, R. (2015). *The state of English in higher education in Turkey: A baseline study*. British Council TEPAV.

Wijayatunga, A. (2018). *English as a medium of instruction in secondary schools in sri lanka: challenges*. 151–161. https://doi.org/10.17501/icedu.2018.4117

Wijewardene, L., Yong, D., & Chinna, K. (2014). *English for Employability – the need of the hour for Sri Lankan graduates*. https://pdfs.semanticscholar.org/b81d/51b6f90e304c6fb942ee90c878efb5a58e16.pdf

Wikfeldt, E. (2016). Generalising from Case Studies.

http://www.diva-portal.org/smash/get/diva2:1051446/FULLTEXT01.pdf

Wilkinson, D., & Yasuda, R. (2013). The International Program: Curriculum design and assessment for an English-medium economics program. *Asian EFL Journal . Curriculum Contexts, 15*(4). https://www.academia.edu/12057404/The_International_Program_curriculum_design_and_assessment_for_an_English_medium_economics_program

Wlosowicz, T. M. (2020). The Advantages and Limitations of Translanguaging in Teaching Third of Additional Languages at the University Level. *Multidisciplinary Journal of School Education*, *9*(1(17)), 135–169. https://doi.org/10.35765/mjse.2020.0917.08

Woodley, H., & Brown, A. (n.d.). alancing windows and mirrors: Translanguaging in a linguistically diverse classroom. In *Ranslanguaging with Multilingual Students: Learning from Classroom Moments* (pp. 83–99). Taylor and Francis.

Wright, S. (2004). English: From Language of Empire to Language of Globalisation. In S. Wright, *Language Policy and Language Planning* (pp. 136–156). Palgrave Macmillan UK. https://doi.org/10.1057/9780230597037_7

Wu, J. (2018). Mobile Collaborative Learning in a Chinese Tertiary EFL Contex. *The Electronic Journal for English as a Second Language*, *22*(2). https://www.researchgate.net/publication/326677595_Mobile_Collaborative_Learning_in_a_Chinese_Tertiary_EFL_Context

Xiao, J., & Zou, X. (2020). Strategy use to Overcome Difficulties in EMI Courses in Higher Education. *International Journal of Innovation and Research in Educational Sciences*, *7*(6), 503–519.

Yang, R. (2002). University internationalisation: Its meanings, rationales and implications. *Intercultural Education*, *13*(1), 81–95. https://doi.org/10.1080/14675980120112968

Yednak, C. (2016). *What does "college prep" school really mean? Many schools claim to be college preparatory, but do they do anything outside the ordinary to set kids on the road to college?* https://www.greatschools.org/gk/articles/college-prep-school/

Yeh, C.-C. (2014). Taiwanese Students' Experiences and Attitudes towards English-Medium Courses in Tertiary Education. *RELC Journal*, *45*(3), 305–319. https://doi.org/10.1177/0033688214555358

Yeung, M., & Lu, V. (2018). English-Medium Instruction in Self-Financing Tertiary Institutions in Hong Kong – Views and Practices from the Students. *English Language Teaching*, *11*(8), 28. https://doi.org/10.5539/elt.v11n8p28

Yin, R. K. (1981). The Case Study Crisis: Some Answers. *Administrative Science Quarterly*, *26*(1), 58. https://doi.org/10.2307/2392599

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed). Sage Publications.

Yip, D. Y., & Tsang, W. K. (2007). Evaluation of the effects of the medium of instruction on science learning of hong kong secondary students: students' self-concept in science. *International Journal of Science and Mathematics Education*, *5*(3), 393–413. https://doi.org/DOI: 10.1007/s10763-006-9043-x

Yu, S., Wang, Y., Jiang, L., & Wang, B. (2021). Coping with EMI (English as a medium of instruction): Mainland China students' strategies at a university in Macau. *Innovations in Education and Teaching International*, *58*(4), 462–472. https://doi.org/10.1080/14703297.2020.1784248

Yusuf, N. (2017). Changes Required in Saudi Universities Curriculum to Meet the Demands of 2030 Vision. *International Journal of Economics and Finance, 9*(9), 111. https://doi.org/10.5539/ijef.v9n9p111

APPENDICES

(A) Interview schedule/ teachers

- **Context and background questions**

- Teacher's qualifications, experience, training (any EMI training?) (in SA, abroad?)
- (e.g. how long. Have been working here? How do you like it? Have you received any EMI training? Where have you been trained/ studied? SA? Abroad?
- Subject taught, students' level
- Resources, time allocated for the class, available materials, exams

- **Broad description of the teachers' experience with EMI**

Main question

- How would you describe your experience of teaching science through English?

Secondary questions (if needed)

- Find more about the teachers own learning experience (AMI or EMI)
- How would you compare the two approaches if you had experience with AMI?
- What are the challenges that you faced when you started teaching through EMI?
- How do you address those challenges?
- Do you receive any type of support from the university? (training opportunity, collaboration with language teachers?
- do you think the quality of your teaching depends on what language you are teaching in? How?
- What do you know about the university's policy regarding EMI? how is this communicated? Are there any official documents/ guidelines? How do you know what you are supposed to be doing?
- Can you describe your teaching approach/ method inside the classroom (using Arabic/ English/ both) what about teaching materials? Exams? Textbooks?

- **Teachers' perception/ attitude**

- Do you think that your subject should be taught in Arabic or English? why
- What is your opinion of EMI in this context (STEM)? Do you advocate for this policy? What are the benefits and hindrances of this policy?
- To what extent do you think EMI affect students' learning experience? (if it does)
- Do you allow students to use Arabic in the exams/ class assessment if they struggled to use English? why / why not? is there a penalty of using Arabic?
- Would you continue using English if it was not imposed?
- How do you think your students feel about EMI? Are they able to manage this shift and understand their courses in English? What are some problems they face?

(B) Interview schedule/ students

- **Background information**

- Name, age, English level, previous education (international / private, government school)

- **Students experience with EMI**

Main question

- How would you describe your experience learning science through English?

Secondary questions (if needed)

- What are some challenges you encountered when EMI was implemented?
- Describe the teacher's approach/ method inside the class (e.g. language use, materials given, support)
- Did the preparatory year programme (PYP) help you in your EMI experience?
- Does the university provide any type of linguistic support after the PYP?
- Do you think that you would spend less time studying if the programme was in Arabic? Why?
- How do you feel about your teachers' English proficiency? Would you prefer to be taught by a Saudi or a native English teacher? Why? What is the difference?
- What do you think would support you as an EMI student? Can you give examples of services that would help you?
- How do you evaluate your English level? How do you cope with the challenging and difficult concepts of your content subject?
- **Students' perception/ attitude**
- How do you feel about learning through English? if a Saudi university offered AMI STEM programmes would you rather join that programme? Why?
- How do you feel about your teachers' English proficiency? Would you prefer to be taught by a Saudi or a native English teacher? Why? What is the difference?
- Do you think that learning through EMI has affected your ability to use your first language (Arabic)/ understand content knowledge? How?

(C) Interview schedule/ Manager

- **Background information**

Name, Position

- **The policy Perception/ attitude/practice**

- Can you please explain the institution's language policy? Why did you choose this as your policy in this programme? Can you please elaborate on the advantages and disadvantages of this policy from your perspective?
- Is there any written documentation for this policy? How is it communicated to teacher?
- Were teachers and students consulted before implementing EMI?
- How long have you been using EMI in this institution?
- Does EMI contribute to the institution reputation? Ranking?
- Do you think EMI is blamed for the high dropout rate in the insinuation? Why? Why not?
- What do you think of the idea about EMI being the most effective way to enhance students English? does this affect the quality of content subjects? How?
- What about other phases of education? How do you think they can prepare students for EMI at the university?
- Why is English important to students while studying and after graduation?

- **Practice/ plans**

- What does the institution do to support teachers and students with EMI?
- What are the challenges that you encountered when you implemented EMI in this programme?
- How did you address these problems?
- Do you have any plans to reform or change this policy? Can you give example

(D) Research Ethics Letter

Research Ethics Office

Franklin Wilkins Building
5.9 Waterloo Bridge Wing
Waterloo Road
London SE1 9NH
Telephone 020 7848 4020/4070/4077
rec@kcl.ac.uk

KING'S College LONDON

19/11/2019

Shahd Quotah

Dear Shahd

A CASE STUDY OF ENGLISH-MEDIUM INSTRUCTION IN SAUDI ARABIAN UNIVERSITY STEM PROGRAMME (pilot study) (2)

Thank you for submitting your Minimal Risk Self-Registration Form. This letter acknowledges confirmation of your registration; your registration confirmation reference number is MRSP-19/20-14978

Ethical clearance is granted for a period of **three years** from today's date and you may now commence data collection. However, it is important that you have read through the information provided below before commencing data collection:

As the Minimal Risk Registration Process is based on self-registration, your form has not been reviewed by the College Research Ethics Committee. It is therefore the responsibility of both you and your supervisor to ensure your project adheres to the Minimal Risk Guiding Principles and the agreed protocol does not fall outside of the criteria for Minimal Risk Registration. Your project may be subject to audit by the College Research Ethics Committee and any instances in which the registration process is deemed to have been used inappropriately will be treated as research misconduct.

Record Keeping:

Please be sure to keep a record of your registration number and include it in any materials associated with this research. It is the responsibility of the researcher to ensure that any other permissions or approvals (i.e. R&D, gatekeepers, etc.) relevant to their research are in place, prior to conducting the research.

In addition, you are expected to keep records of your process of informed consent and the dates and relevant details of research covered by this application. For example, depending on the type of research that you are doing, you might keep:

- A record of all data collected and all mechanisms of disseminated results.
- Documentation of your informed consent process. This may include written information sheets or in cases where it is not appropriate to provide written information, the verbal script,or introductory material provided at the start of an online survey.
  Please note: For projects involving the use of an Information Sheet and Consent Form for recruitment purposes, please ensure that you use the KCL GDPR compliant Information Sheet & Consent Form Templates
- Where appropriate, records of consent, e.g. copies of signed consent forms or emails where participants agree to be interviewed.

Audit:

You may be selected for an audit, to see how researchers are implementing this process. If audited, you and your Supervisor will be asked to attend a short meeting where you will be expected to explain how your research meets the eligibility criteria of the minimal risk process and how the project abides by the general principles of ethical research. In particular, you will be expected to provide a general summary of your review of the possible risks involved in your research, as well as to provide basic research records (as above in Record Keeping) and to describe the process by which participants agreed to participate in your research.

Remember that if you at any point have any questions about the ethical conduct of your research, or believe you may have gained the incorrect level of ethical clearance, please contact your supervisor or the Research Ethics Office.

We wish you every success with your project moving forward.
With best wishes,

The Research Ethics Office

On behalf of the College Research Ethics Committee

(E) Consent form – Managers' version

STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

KING'S College LONDON

Title of Study: A CASE STUDY OF ENGLISH-MEDIUM INSTRUCTION IN SAUDI ARABIAN UNIVERSITY STEM PROGRAMME

King's College Research Ethics Committee Ref: MRSU-19/20-17147

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

Please tick or initial

I confirm that I understand that by ticking/initialling each box I am consenting to this element of the study. I understand that it will be assumed that unticked/initialled boxes mean that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element I may be deemed ineligible for the study. ☐

1. ***I confirm that I have read and understood the information sheet dated 09/05/20| for the above study. I have had the opportunity to consider the information and asked questions which have been answered to my satisfaction.** ☐
2. **I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason, up until 09/05/21** ☐
3. ***I consent to the processing of my personal information for the purposes explained to me in the Information Sheet. I understand that such information will be handled in accordance with the terms of the General Data Protection Regulation.** ☐
4. ***I understand that my information may be subject to review by responsible individuals from the College for monitoring and audit purposes.** ☐
5. **I understand that confidentiality and anonymity will be maintained, and it will not be possible to identify me in any research outputs** ☐
6. **I agree that the researcher may access my academic records for the purposes of this research project.** ☐
7. **I understand that the information I have submitted will be published as a report and I wish to receive a copy of it.** ☐
8. **I consent to my interview being audio recorded.** ☐
9. **I consent to be interviewed** ☐
10. **I understand that I must not take part if I fall under the exclusion criteria as detailed in the information sheet and explained to me by the researcher.** ☐

Name of Participant **Date** **Signature**

(F) Consent form – Lecturers' version

CONSENT FORM FOR PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: A CASE STUDY OF ENGLISH-MEDIUM INSTRUCTION IN SAUDI ARABIAN UNIVERSITY STEM PROGRAMME

King's College Research Ethics Committee Ref: MRSU-19/20-17147

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by ticking/initialling each box I am consenting to this element of the study. I understand that it will be assumed that unticked/initialled boxes mean that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element I may be deemed ineligible for the study.

at

Please tick or initial

1. ***I confirm that I have read and understood the information sheet dated 09/05/20 for the above study. I have had the opportunity to consider the information and asked questions which have been answered to my satisfaction.** ☐
2. **I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason, up until 09/05/21** ☐
3. ***I consent to the processing of my personal information for the purposes explained to me in the Information Sheet. I understand that such information will be handled in accordance with the terms of the General Data Protection Regulation.** ☐
4. ***I understand that my information may be subject to review by responsible individuals from the College for monitoring and audit purposes.** ☐
5. **I understand that confidentiality and anonymity will be maintained, and it will not be possible to identify me in any research outputs** ☐
6. **I agree that the researcher may access my academic records for the purposes of this research project.** ☐
7. **I understand that the information I have submitted will be published as a report and I wish to receive a copy of it.** ☐
8. **I consent to my interview being audio recorded.** ☐
9. **I consent to be interviewed and observed** ☐
10. **I understand that I must not take part if I fall under the exclusion criteria as detailed in the information sheet and explained to me by the researcher.** ☐

Name of Participant **Date** **Signature**

(G) Consent form – Students' version

CONSENT FORM FOR PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: A CASE STUDY OF ENGLISH-MEDIUM INSTRUCTION IN SAUDI ARABIAN UNIVERSITY STEM PROGRAMME

King's College Research Ethics Committee Ref: MRSU-19/20-17147

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by ticking/initialling each box I am consenting to this element of the study. I understand that it will be assumed that unticked/initialled boxes mean that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element I may be deemed ineligible for the study.

Please tic or initial

1. ***I confirm that I have read and understood the information sheet dated 09/05/20 for the above study. I have had the opportunity to consider the information and asked questions which have been answered to my satisfaction.** ☐
2. **I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason, up until 09/05/21** ☐
3. ***I consent to the processing of my personal information for the purposes explained to me in the Information Sheet. I understand that such information will be handled in accordance with the terms of the General Data Protection Regulation.** ☐
4. ***I understand that my information may be subject to review by responsible individuals from the College for monitoring and audit purposes.** ☐
5. **I understand that confidentiality and anonymity will be maintained, and it will not be possible to identify me in any research outputs** ☐
6. **I agree that the researcher may access my academic records for the purposes of this research project.** ☐
7. **I understand that the information I have submitted will be published as a report and I wish to receive a copy of it.** ☐
8. **I consent to my interview being audio recorded.** ☐
9. **I consent to be interviewed and observed** ☐
10. **I understand that I must not take part if I fall under the exclusion criteria as detailed in the information sheet and explained to me by the researcher.** ☐

Name of Participant **Date** **Signature**

(H) Example of test Bank-practice for final exam (created by students)

Final Medical Research I Practice

1. Which of the following is considered the most common research misconduct?

A- fabrication
B- falsification
C- plagiarism
D- authorship

2. Which of the following considers you as an author?

A- funding
B- Generally supervised the group
C- Have seniority or outstanding credentials
D- final approval of the version to be published

3. Which of the following is NOT considered a study design?

A- case control
B- case series
C- cohort study
D- chart review

4. Which of the following study types does not have a control group nor a hypothesis and only lead to the generation of the hypothesis?

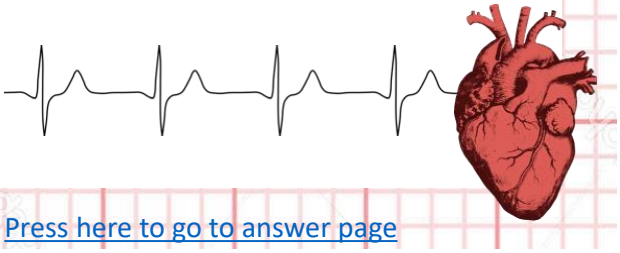
A- case control
B- case series
C- cohort study
D- chart review

5. Detailed written instructions to achieve uniformity 9f the performance of a specific function:

A. SOP
B. IRB
C. AE
D. ICH GCP

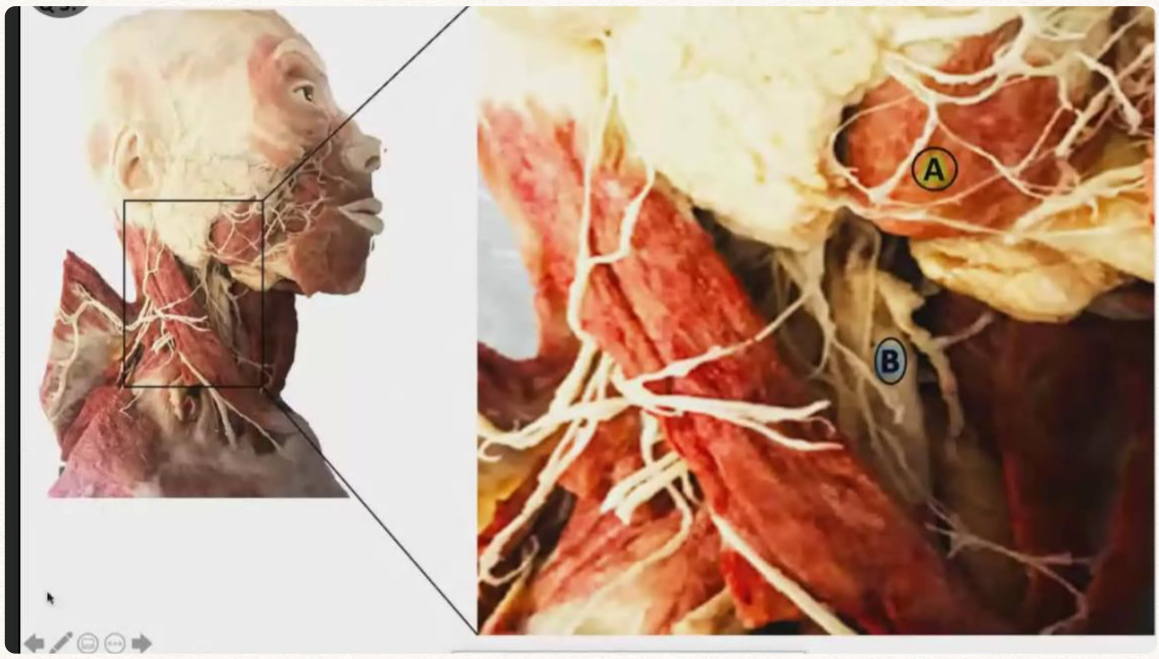
6. The most common form of research misconduct:

A. Plagiarism
B. Falsification
C. Fabrication
D. Different opinions



Press here to go to answer page

(I) Example of a test bank- Available online



Q 3:

A. Mention the nerve that supply the indicated muscle **A**

B. Describe the vertebral level of bifurcation of the structure that indicated by **letter B**

Ans 3:

A. Mandibular nerve of trigeminal nerve (V_3)

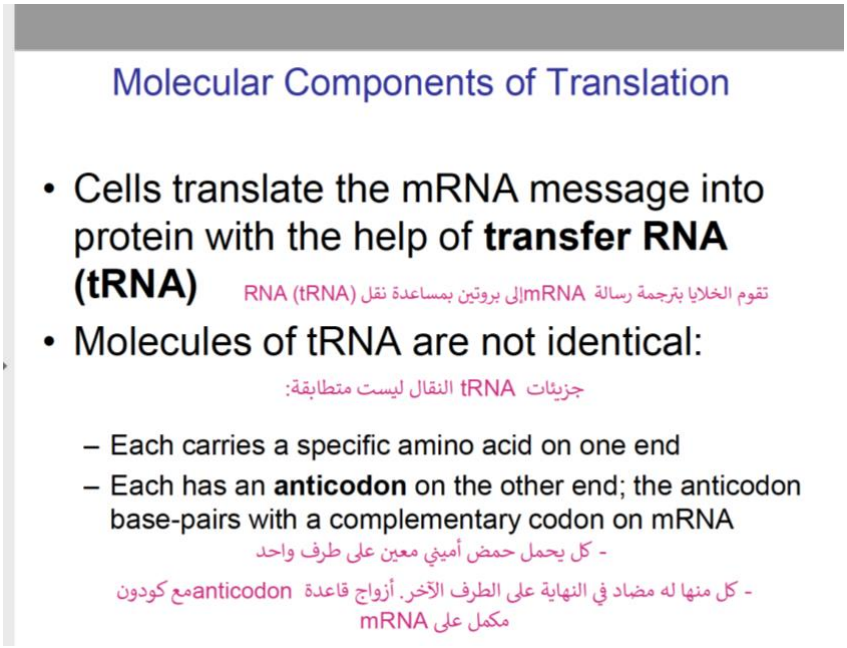
B. C4 (upper border of thyroid cartilage)

Structures :
A= Masseter muscle
B= Common carotid artery

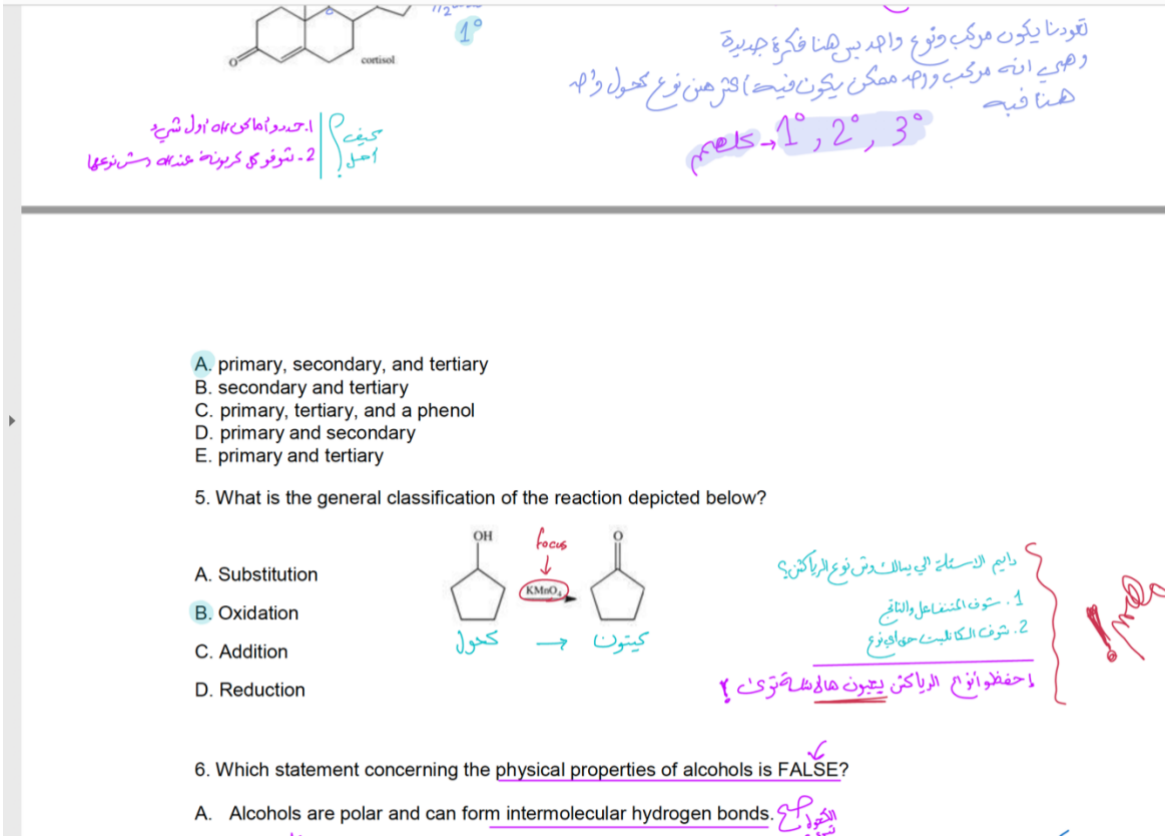
(J) Example of a website used by students to help them study in EMI programme

Khanacadmy.org

(K) Example of lecturer's slide (using English and Arabic in the same slide)



(L) Example of students' notes (translating material)



A. primary, secondary, and tertiary
B. secondary and tertiary
C. primary, tertiary, and a phenol
D. primary and secondary
E. primary and tertiary

5. What is the general classification of the reaction depicted below?

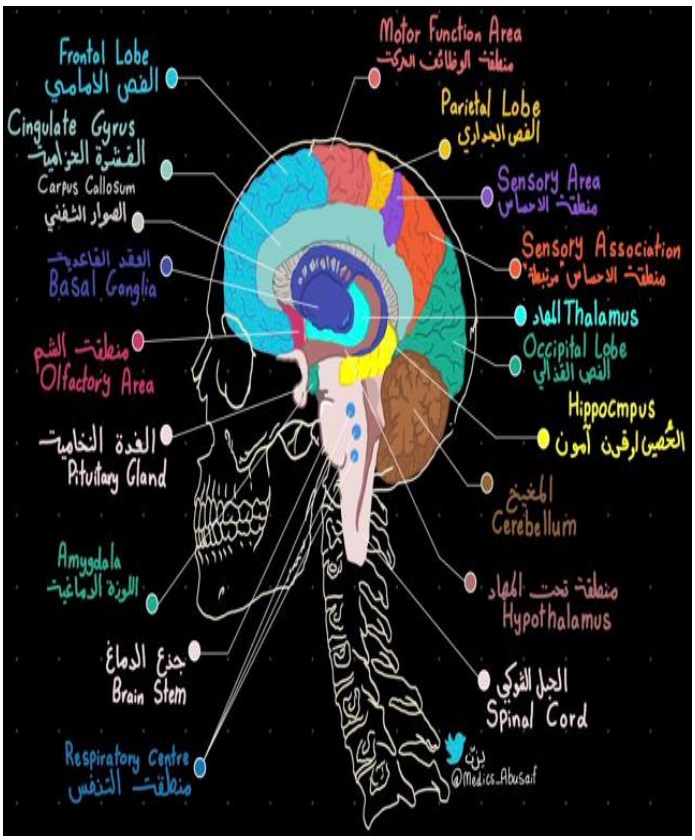
A. Substitution
B. Oxidation
C. Addition
D. Reduction

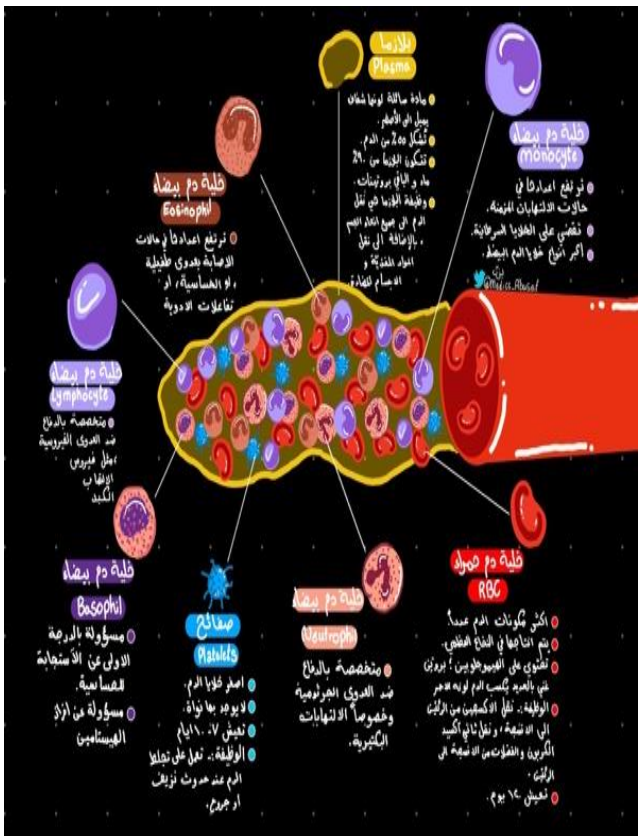
6. Which statement concerning the physical properties of alcohols is FALSE?

A. Alcohols are polar and can form intermolecular hydrogen bonds.

(M) Example of the use of social media as a learning strategy

- Summaries in Arabic (from a famous Twitter account @medics_Abusaif)





(N) Example of Ads shared through social media platform -Telegram

(O) Game created by one lecturer- “Guessology”

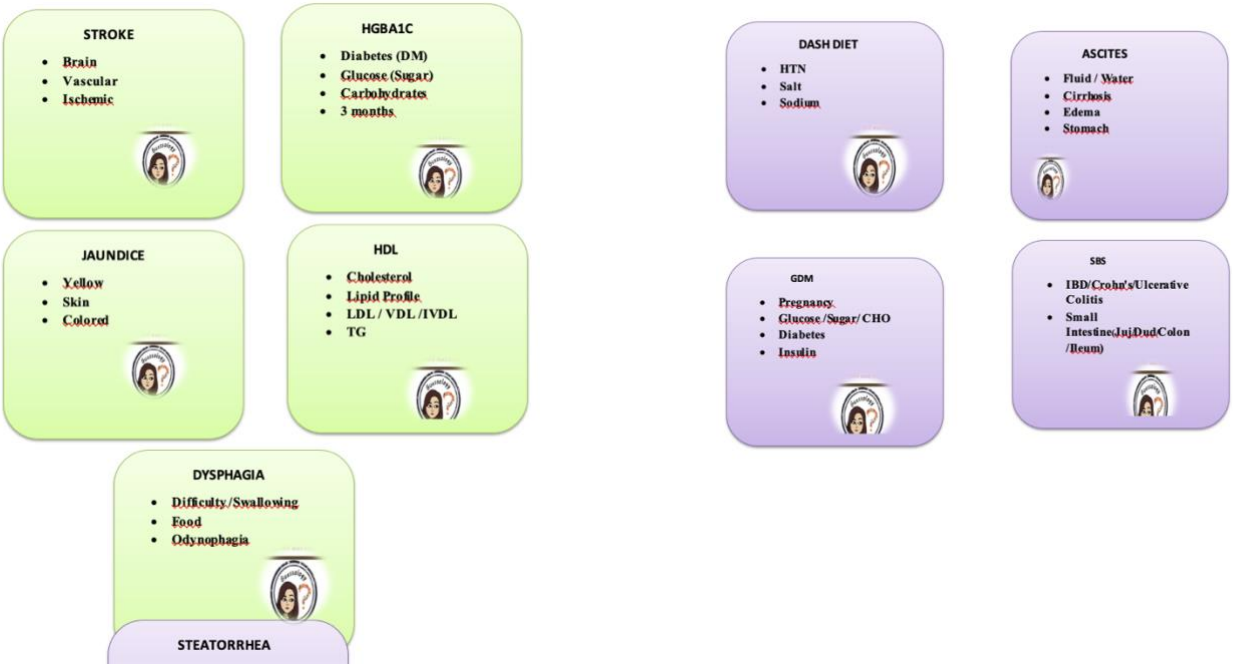
New teaching method for tutorial session:

A game called “Guessology” created to help students remember diseases and distinguish between different diagnoses according to specific (symptoms/signs).

The aim of this game was to enhance student critical thinking and to add some fun to MNT course.

GAME’s INSTRUCTIONS AND RULES:

- The instructor will divide the class into two teams.
- Each team will assign one student to explain 1 card in maximum 2 minutes.
- Each card contains 1 disease/condition/test with key words.
- Students must explain the disease or condition without using any key word mentioned in the card.
- Student must describe the content in scientific way only.
- 1 point will be awarded for the team with every right answer.



(P) lecturer's rubric for group presentation

Case Study Presentation

Guidelines and Grading Rubric

The primary objective of this assignment is to evaluate students' ability to effectively and independently apply the Nutrition Care Process to solve a hospital case study, and present it to professional colleagues.

- Students will choose a hospital, in-patient case.
- They will solve the case as practiced throughout the semester. Then, they will present it during the presentation sessions in front of peers and instructors.
- Students must discuss updated guidelines for the nutritional management of the case they've chosen, based on updated scientific references.
- Students will work in groups as assigned at the beginning of the semester.
- Presentation length: 15 minutes.
- Students will start with introducing the case they chose by discussing disease pathophysiology:
    1. Discuss condition/disease epidemiology (1 point)
    2. Discuss etiology/underlying mechanisms (1 point)
    3. Discuss risk factors (1 point)
    4. Discuss possible outcomes or complication (1 point)
- Students will describe their application of the NCP to manage the case, including:
    1. Patient assessment: anthropometric, biochemical, clinical, dietary (4 points)
    2. Nutrition diagnosis (2 points)
    3. Nutrition intervention (2 points) Inclusion of evidence-based guidelines/recommendations with references (2 points)
    4. Monitoring and evaluation (2 points)
- 2 points allocated for clarity and organization of slides.
- 2 points allocated for presentation skills and comprehension of materials.
- Total points: 20 points Corrected points: 10 points

Case Study Presentation

3D Models

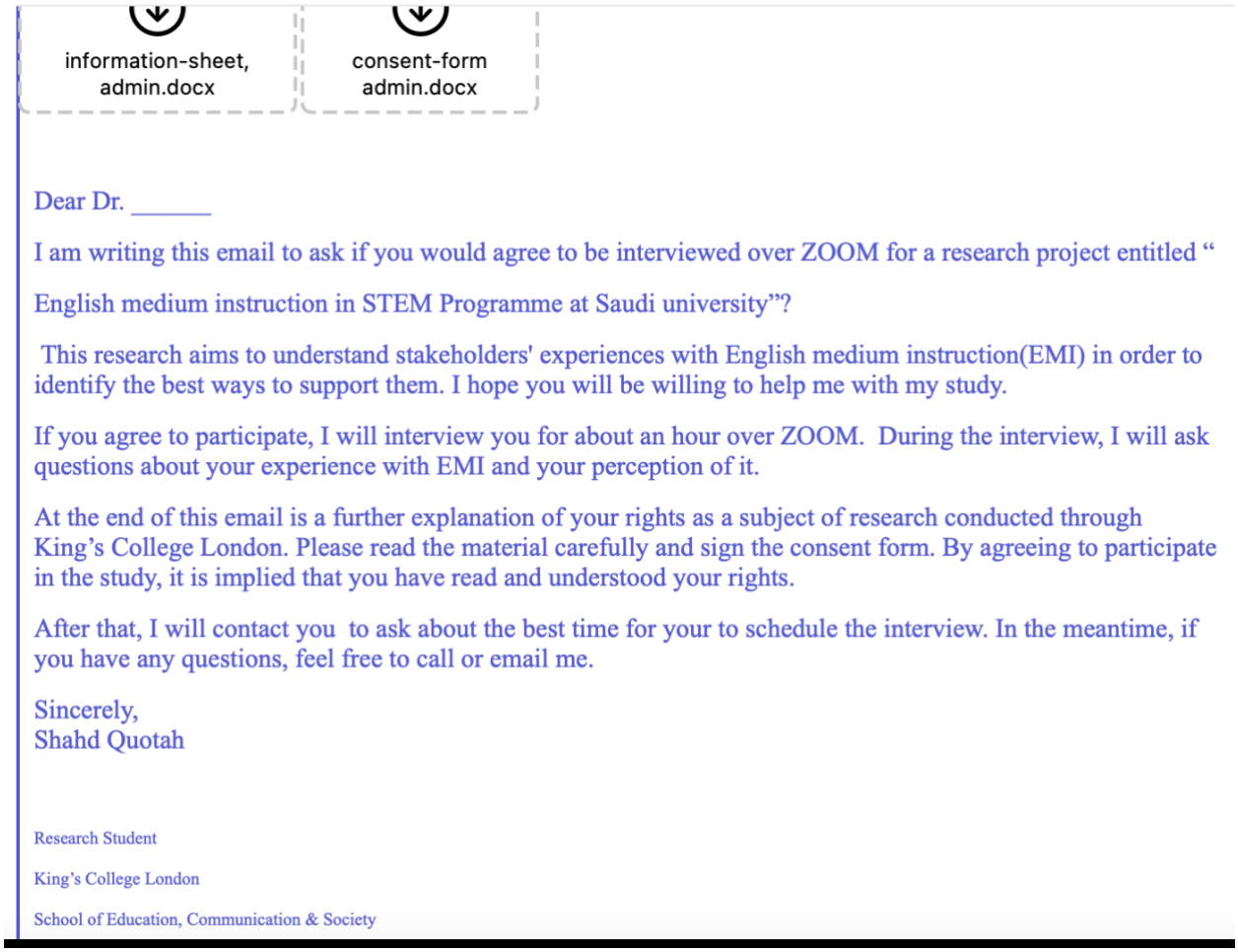
Points of Evaluation (Part A)	Marks for all students		
Disease Pathophysiology • Epidemiology • Etiology/Underlying Mechanisms • Risk factors • Possible outcomes or complication	Sufficient (1 point) Sufficient (1 point) Sufficient (1 point) Sufficient (1 point)	Insufficient (0.5 point) Insufficient (0.5 point) Insufficient (0.5 point) Insufficient (0.5 point)	None (0 point) None (0 point) None (0 point) None (0 point)
Patient Assessment • Anthropometric • Biochemical • Clinical • Dietary	Sufficient (1 point) Sufficient (1 point) Sufficient (1 point) Sufficient (1 point)	Insufficient (0.5 point) Insufficient (0.5 point) Insufficient (0.5 point) Insufficient (0.5 point)	None (0 point) None (0 point) None (0 point) None (0 point)
Nutrition Diagnosis	Sufficient (2 points)	Insufficient (1 point)	None (0 point)
Nutrition Intervention	Sufficient (2 points)	Insufficient (1 point)	None (0 point)
Inclusion of evidence-based guidelines/recommendations with references	Sufficient (2 points)	Insufficient (1 point)	None (0 point)
Monitoring and evaluation	Sufficient (2 points)	Insufficient (1 point)	None (0 point)
Slides: Clarity, organization, flow	Sufficient (2 points)	Insufficient (1 point)	None (0 point)
Total A (out of 18)			

Points of Evaluation **(Part B)**	**Student 1:**	**Student 2:**	**Student 3:**	**Student 4:**	**Student 5:**
Presentation skills: Eye contact, clarity of voice (1 point)					

Comprehension of materials and answering questions from the audience (1 point)					
Total B (out of 2)					
Total A+B (out of 20)					

Name of evaluator:

(Q) Email invitation to participants



(R) lecturer's syllabus

Course Syllabus Guide of

CLN 341 (5 Credits)

2017/18

Coordinator:

Instructors:

Email:

Office hours: Mon 10:00-12:00 and Tuesday 9:00-11:00. Other times by appointments.

Office location:

Office Phone:

Class Meeting Times:

Class will be held on Monday from 8:00 to 10:00 and Tuesday 11:00 to 12:00. Practical session on Wednesdays from 8:00 to 10:00. Tutorials are conducted on Tuesday from 8:00 to 9:00am as needed. Refer to the 'Tentative Course Schedule' for details.

Class Meeting Place:

Building: TBA Classroom: TBA

Purpose of the Course:

This course is an integration of pathophysiology, biochemistry, anatomical and nutrition concepts that form the basis for medical nutrition therapy in health care. A study of nutrition status and assessments; nutrition care strategies; and the modification of normal food intake with emphasis on dietary adjustments necessitated by certain disease and disorder processes and conditions focusing on the hospitalized and/or ambulatory patient.

Course Prerequisites:

ANAT 208 (Anatomy), PHYT 208 (Physiology), CLN 210 (Principles of Food Science & Nutrition), and CLN 211 (Nutrition During Life Cycle).

Course Objectives:

The students will be able to: A. (Knowledge):

1. Describe the pathophysiology disorders listed in the syllabus

2. Identify risk factors and complications associated with each disease.

B. (Cognitive Skills):

3. Evaluate the nutritional status of patients with a variety of diseases and conditions.

4. Plan appropriate diets for the different identified disorders

5. Differentiate between obtained nutrition information and appropriate nutrition management of different disorder

C. (Interpersonal Skills & Responsibility):

6. Demonstrate the ability to apply the NCP in management of cases with nutrition-related disorders

D. (Communication, Information Technology, Numerical)

7. Calculate the dietary needs of patients with a variety of diseases and conditions

8. Use current information technologies to locate and apply evidence-based guidelines and protocols

Course Requirements:

In order for students to successfully complete the course the following requirements must be met:

1. Students must attend lectures.

2. Take and pass midterm and final written tests.

3. Submit assignments.

1. Required Textbooks:

Mahan, K., L. and Raymond, J., L. Krause's Food and the Nutrition Care Process. 14th Edition. Elsevier Saunders. 2017.

2. Optional Textbook:

a. Rolfes, S.R., Pinna, K., and Whitney, E. Understanding Normal and Clinical Nutrition. 10th Edition. Cengage Learning. 2014.

b. Academy of Nutrition & Dietetics. International Dietetics and Nutritional Terminology (IDNT) Reference Manual : Standard Language for the Nutrition Care Process. 4th Edition. Academy of Nutrition & Dietetics. 2012.

c. Iowa Dietetic Association. Maher, A. K. Simplified Diet Manual. 11th Edition. Wiley-Blackwell. 2012

d. Grandy, Joan. Manual of Dietetic Practice. 5th Edition. Wiley-Blackwell. 2014.

3. Other Information Resources:

- Academy of Nutrition and Dietetics <www.eatright.org>

- Center for Nutrition Policy and Promotion <www.cnpp.usda.gov>
- National Health and Nutrition Examination Survey <www.cdc.gov/nchs/nhanes.htm>
- Ethnic and Cultural Food Guides nutrition Education Materials <fnic.nal.usda.gov>
- Food and Nutrition Board/Institute of Medicine/National Academy of Sciences <www.iom.edu/CMS /3788.aspx>
- Food Guide Pyramid <www.mypyramid.gov>
- Health Canada <www.hc-sc.gc.ca/english>
- Healthy Eating Index <www.cnpp.usda.gov/healthyeatingindex.htm>
- International Food Information Council <www.ific.org>
- Kids' Food Guide Pyramid <ypyramid.gov/kids>

NUTRITION FOR ORAL AND DENTAL HEALTH

- American Dental Association <www.ada.org>
- National Institute of Dental and Craniofacial Research www.nidr.nih.gov

MEDICAL NUTRITION THERAPY FOR UPPER GASTROINTEWSTINAL TRACT DISORDERS

- American Gastrointestinal Association www.gastro.org
- Gastroesophageal Reflux Disease (GERD) Information Center www.gerd.com

MEDICAL NUTRITION TL FOR LOWER GASTROINTESTINAL TRACT DISORDERS

- Celiac Disease <digestive.niddk.nih.gov/ddiseases/pubs/celiac/index.htm>
- Crohn's Colitis Foundation www.ccfa.org
- Gastrointestinal Disorders and Treatment www.niddk.nih.gov/health/digest/digest.htm
- Gluten Enteropathy Resources www.gluten.net

MEDICAL NUTRITION THERAPY FOR DIABETES MELLITUS AND HYPOGLYCEMIA OF NONDIABETIC ORIGIN

- American Association of Diabetes Educators www.aadenet.org
- American Diabetes Association www.diabetes.org

- International Diabetes Center www.idcdiabetes.org
- Lifestyle Manuals Used in the Diabetes Prevention Program <www.bsc.gwu.edu/dpp>

MEDICAL NUTRITION THERAPY IN HYPERTENSION

- National High Blood Pressure Education Program <www.nhlbi.nih.gov>
- World Hypertension League <www.worldhypertensionleague.org>

MEDICAL NUTRITION THERAPY FOR HEART FAILURE AND TRANSPLANT

- Heart and Vascular Diseases Information <www.nhlbi.nih.gov/health/public/heart>

4. Class Attendance and Rules: Attendance is required to all classes (as per university policy). Plan to arrive on time to prevent interrupting the class. Arriving late to class for TWO times will be equivalent to ONE ABSCENCE. Announcements will be made and attendance will be recoded at the beginning of the class. Learning in this class is an active, ongoing process. Information will be presented in class that cannot be effectively communicated by reading another student's notes. It is important that students are on time, have few or no absences, and remain in class the full period. Sometimes in-class quizzes or other graded activities occur. These may be individual or in groups, as determined by the instructor. If students miss a class in which one of these takes place, she has a zero for that quiz/activity.

Important Note: If a student must be absent on the day of a test, she must notify the instructor prior to test time in order to be allowed to take a make-up test. A grade of zero (0) will be assigned if the instructor is not notified. If the student exceeds the maximum absences of 10%, this will result in her being dropped from the course.

5. Exams: The exams will consist of multiple choice, true/false and essay questions. No make-up exams will be given unless prior arrangements have been made. There will be two exams in this class. The final exam will be comprehensive. See the course outline for scheduled dates of exams.

6. In accordance with University policy, any cheating will result in a failing grade.

7. Assignments: Assignments are to be turned in at the beginning of class on the days they are due. Assignments that are submitted after the due date will have 10% deduction each day they are late. Diet planning and analysis can be performed using SuperTracker: https://www.supertracker.usda.gov/foodtracker.aspx

Grading:

Course Work %

Midterm Exam (Theoretical) 15

Midterm Exam (PBL) 10

Final Exam- Theoretical (Comprehensive) 25

Final Exam- PBL (Comprehensive) 15

Assignments and case studies*

- 3X Case studies (15 point)
- 2X Group projects:
  - Nutrition management awareness day (5 points)
  - Group case study presentation (15 point)35

Total 100

*Refer to rubrics for grade distribution

Grade Computations:

Percentage of Points	Anticipated Grade
90% and above	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

(S) Example of a translated book

(T) Example of interview transcript (only first page)

T 5 interview

	Thank you very much professor for helping in my research. Can you please start by introducing yourself?	
	My name is…. I am a professor at …… I work in applied sciences departments.	• Background info
	Thank you. I would like to ask you about using EMI in your programme, how was your experience with it ?	
	First let me make it clear that I have never heard about this term before I read about your research but I know what it means which is using English right? For the lecturers and We apply it everywhere but I do not know if someone else use this terminology to describe what we do … yeah changing the language only they used to study in Arabic in school now we use English with them at university some department use to have everything in Arabic we still have everything as it is except for the language	Understanding of EMI
	Interesting . lets move to talk about training did you receive any? And you hiring requirement	
	No to be honest no, I have not received any training for EMI not before or while working. I studied in the UK would that count? Of course they asked if I have PhD and like this. I think it is better if they did actually gave us the chance to be trained I think that, as teachers, we need training, maybe not in the language; although some need it, but, in teaching skills, what I mean is that we need to know how to make students more engaged and present when we teach and communicate clearly with them, like understand how can we give feedback and support our students who are not very good, or when the course have different levels.	Hiring requirement. The need for training
	okay. So generally, how would you describe your experience of teaching science through English?	
	It is fine I try to deliver the content in any language they just must know the information. But because books and everything are increasing in English and ranking or accreditation but we we are forced because of the reasons I mentioned before, so we try to adjust to what they give us and one way I adjust is by speaking in Arabic in lecture or using Arabic when needed for difficult situation and ideas to transfer the, the information clearly because they are asking us for the impossible sometimes, no really, I do not say it is like this with all classes or for everyone but yeah it will not work	The focus of the EMI course Code switching/ use of L1 / translanguaging Perception of L1 use
1	Can you elaborate more? what do you mean by use any language how does this work can you describe it	
2	I'll give the same information in Arabic and English; it's for me at the beginning, I explain in English, and then I give every single detail in English and Arabic again. I do not wait until students complain that they do not understand. So, I, it does not affect like the value of the subject.. Yes, I do the same: I have the same slide divided into English and then the translation in Arabic. I use more English with senior classes and less English with first-year student which is obvious Because senior students are used to English, and they know more English and have a higher level of skills, unlike the freshmen students who need more help understanding the scientific content without having to interrupt the flow of the lecture to translate each and every word which is something that is missing sometime	Using both languages Specific use of the students L1(slides) English with senior vs first year students
1	Why do you use this method? Are you allowed to use Arabic?	
2	I know I am supposed to use English but it is all for the sake of students. I try to do everything step by step	Helping students Using L1 in lecture
	how do you know is there a policy ?policy document ? set of regulations for example ?	
	I do not know but it is known by everyone	Lack of policy
	Some students complained about the lecturers that they are slow and that some lecturers tend to repeat a lot what do you think of that ?	
	Yes, this happens in my class too. I cannot ignore the students who did not understand, if they need me to repeat, I will, which annoys some other students. Sometimes, we intentionally put students with different levels together to help each other but that is not always what happens	• Students challenges : to repeat, slow pace
	What other strategies you use to help students?	
	I try to help, I do not teach them the English language and how to write though because I do not know how but what I do is I try to share how I am going set the exams and show them what to expect so they are not shocked and also I try to go over and revise things with them I give my full attention to the course content; I understand the importance of improving students' language, and I try sometimes. But it is not of the course goals, and I do not give it much of my thinking even though I believe some students need it , is the expertise of someone else	• Strategies to help students • Focus of EMI course
1	That's so helpful thank you, can you tell me when do you use both languages	
2	I use Arabic to help student sometimes because I need to or when I forget how to say something or when I believe the students would take much time understanding the using explanation,	• Using L1) functions)
1	What about students who need help ? how would you ensure they can follow your instructions? Since you mentioned that the focus is science and you do not provide help with the language	
2	As I said before, we are not language teachers there are teachers in the first year for this and yes we try our best to improve our language and spend a lot of time trying to prepare for our lecture, but that is not enough, with the students' level and with the fact that we also need help. Also, when correcting students' exams and assignments, an additional eye is needed to correct students' mistakes, even if we do not grade them, but to make sure our students leave the course with sufficient knowledge. I do other things to help them but no nit directly teach them English. ? then what is the purpose of the they should learn all this in that time	• The PYP • Difficulty with terminology • Lecturers' perception of her role • Not feeling comfortable about one's own
1	What other things that can help those students ? would you like to share them	