Challenges Encountered by Libyan Students in Learning through implementing English as a Medium of Instruction (EMI): A Study in the Faculty of Engineering at Sirte University

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Abstract

Several countries around the globe are beginning to implement EMI particularly at tertiary level. However, this presents numerous challenges, mostly in English as a Foreign language settings where the students generally have low proficiency in the language. Libya represents a case in point. This paper reports the results of a case study of implementing EMI in the Faculty of Engineering at Sirte University in Libya. In the study, 179 Libyan engineering students were selected to complete an online questionnaire reflecting their challenges in learning through implementing EMI. Findings from quantitative and qualitative data analysis indicate that most Libyan engineering students encounter a number of challenges mainly namely psychological, linguistic and challenges related to teachers.

Keywords: *challenges in English-medium instruction, English as medium of instruction, EMI, higher education, Libya, Engineering Science*

1. Introduction

In the last decades, the English language has always been a concern in the educational field in non-English speaking countries and in recent times there has been an ongoing debate on the subject of English as the medium of instruction (EMI) in Higher Education institutions (Yıldız,

Griffiths and Soruç, 2018), to the extent that Macaro (2015:7) called this phenomenon an " unstoppable train". Even though there is a degree of resentment toward the ongoing spread of English as a pattern of "linguistic imperialism", as stated by Phillipson (1992), the demand for English medium instruction in Higher Education institutions seems to have spread all over the globe, including the Middle East. In many Arab countries where English has traditionally occupied the status of a foreign language status, there has been a shift from a school education that provides Arabic medium instruction to tertiary education providing EMI for learners with science majors. In other words, most Arab education institutions use the English language to teach academic subjects other than English itself, such as Engineering, Science, and Medicine. However, "the rapid spread of EMI does not imply immediate success." (Vu and Burns, 2014:2). Hamid, Nguyen and Baldauf (2013:11), who examined medium-of-instruction policies in ten Asian countries, conclude that implementation is "fraught with difficulties and challenges", especially in the absence of well-organised English preparatory programmes (Al Zumor, 2019).

Different views come into play regarding the role and function of English in Higher Education institutions, where it is the medium of instruction. However, this educational shift in the medium of instruction, sometimes institutionally justified, conveys several challenges to learners, and most of these challenges are linguistic challenges, challenges related to teaching staff and psychological challenges.

Given this significant shift, this study was designed to identify the challenges encountered by Libyan engineering students due to this change in the medium of instruction in the Faculty of Engineering at Sirte University. Since the

scope of this paper is limited, the focus will be on elaborating selected challenges which the researcher currently identifies as the most prominent ones.

1.1. The nature of the problem

In fact, throughout my teaching experience in the Department of English at Sirte University for Libyan secondary school graduates, it has been observed that the majority of students suffer from a lack of proficiency in the English language. In addition, many students of the Faculty of Engineering were observed frequently visiting the Department of English to help them understand and ask for translations of the academic content by English language lecturers and assistants. This means that secondary education has failed to provide adequate preparation for some students to study in English at a higher education level. Despite this fact, EMI is being implemented in the Faculty of Engineering at Sirte University and this may negatively affect the quality of education and learning experiences of students in the light of the students' weakness in English. Qorro (2006:3) provides the following argument: Only when teachers and students understand the language of instruction are they able to discuss, debate, ask and answer questions, ask for clarification and therefore construct and generate knowledge. These are activities are a pre-requisite to learning and their level determines the quality of education. Thus, the language of instruction is an important factor in determining the quality of education.

1.2. Research question

This research attempts to answer the following research question:

Q1: What challenges do Libyan engineering students at Sirte University encounter in learning through EMI?

1.3. Aims and Significance of the Study

The core objective of this paper is to identify some of the challenges Libyan engineering students face in studying on the engineering course at Sirte University, due to the use of a foreign language as the medium of education, to guide stakeholders in developing English for engineering curricula to suit the Libyan students.

The importance of the study is that, to the author's knowledge, no previous research has addressed the challenges Libyan engineering students encounter in tertiary education in Libya. Therefore, this research may be useful for content lecturers in showing the areas of difficulty that the engineering students encounter in studying the engineering course through the English language. Thus, they can implement different teaching methods or effective teaching behaviour to overcome these challenges, support the EMI learning situation, and better facilitate the implementation of EMI. Besides, since the two subjects (English 1 and 2) are oriented towards students' needs in their studies in the Faculty of Engineering, this research could be a base on which syllabus designers can establish an English language syllabus oriented towards engineering students' actual learning needs.

2. Literature review

2.1 Definitions of EMI

There are many different views on the definition of EMI, but some of them seem to share several common things. Dearden (2014:4) defines EMI as "The use of the English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English". Similarly, Madhavan and McDonald (2014) consider it as the teaching of a subject utilising the English language, which is not the official language. In a number of other research papers, EMI is seen

as a strategy of teaching and learning that comprises "focus on non-language subject-matter, and focus on the language, in terms of both communication and cognition" (Tamtam et al., 2012:1418). In this paper, EMI refers to applying English as a medium of instruction by instructors to teach academic/specific subjects to their learners.

2.2 Classifications of challenges

2.2.1 Linguistics challenges

The insufficient linguistic competence of learners learning through EMI has been extensively debated in the literature. A pre-requisite for understanding academic content is that learners should have sufficient linguistic competence (AlBakri, 2017).

Doiz, Lasagabaster, and Sierra (2013) divide the concept of learners' linguistic competence into Basic Interpersonal Communication Skills and Cognitive Academic Language Proficiency, based on Cummins' (1979) distinction. Accordingly, Hellekjær (2009) argues that improvement of basic interpersonal communication skills is inadequate for learners to deal with the demands of tertiary level education in English; nonetheless, they need to improve cognitive academic language proficiency. There is evidence in research literature that the majority of learners who study English as a foreign subject at different stages in their school career in a variety of contexts, graduate from the school with a low command of English (Al-Mahrooqi, 2012; Kirkpatrick, 2017). This situation applies to Libya where undergraduate students are still weak in the English language, as they cannot utilise materials written in English (Mohsen, 2014; Mohamed, 2016).

Reading academic texts is considered to be one of the most important skills for university learners studying through English (Shen, 2013). Concerning challenges in

comprehending textbooks/course materials, in their studies Navaz (2012) and Kiliçkaya, 2006) draw attention to the fact that EMI brings learners different challenges in understanding lectures and textbook /lecture materials, reading texts in English and taking tests and exams, because of learners' limited language competence.

In the Arab world, many researchers have pointed out that Arab learners have great difficulty regarding reading in English (In Libya: Mohamed, 2016; Mourtaga, 2006 in Palestine; Al-Mahrooqi, 2012 in Oman). According to her study, Mohamed, (2016) states that Libyan students lack both sufficient reading skills, which is very significant to function in tertiary education through the English-medium, and the culture of reading and encountering difficulties in English reading comprehension.

Furthermore, vocabulary was perceived as the main obstacle for comprehension. This is in line with research on second and foreign language reading where vocabulary knowledge is closely related to reading ability (Chang, 2010). Likewise, most related studies (Al-Mahrooqi (2012) and Al-Bakri (2013)) are based on previous research findings and the findings of their actual studies argue that the reading difficulties stem from factors such as the lack of a reading culture, limited English competence, a paucity of vocabulary, a lack of, or ineffectual utilise of, reading strategies and poor teaching. Therefore, Phuong and Nguyen (2019) point out that to understand the learning content, EMI learners have to search for new words or vocabulary items using a dictionary and then translate the edition into their mother tongue. This is ineffective and time-consuming. Consequently, Joe and Lee (2013) report that EMI learners in Korea frequently ask their lecturers for first language summaries as support materials in EMI lectures, indicating

that they were facing difficulties. Similarly, Tong and Shi (2012) confirm that even in the best universities in China, lecturers or professors often have to summarise the learning content previously delivered in English since the students' academic reading is slow which results in their reliance on notes and summaries instead of reading textbooks.

In addition to challenges in reading comprehension, Bacha (2002:161) argues that learners studying in tertiary education institutions through EMI "have been found to face challenges mainly in writing, making them unable to cope with the institution's literacy expectations". In fact, Evans and Green (2007:8) point out that "Writing is arguably the most important language skill at university because students' grades are largely determined by their performance in written assignments, tests and examinations".

However, writing skill has received little attention during teaching the English language as a subject in preparatory and secondary schools, so students' proficiency does not improve. As Mohsen (2014:62) points out, in Libya, "the performance of most of the students is poor in language, so that they cannot have real language" because schools have emphasised only grammar and general texts for reading in their curriculum which add no advantages to the students and cannot provide a reason to be optimistic about their performance in their productive skills (Ibrahim, 2004; Mohsen, 2014).

Though research into English as a foreign language writing is enormous, there appears to be insufficient investigation into university students' writing difficulties which they face in their content courses. In Hong Kong, academic writing has been identified as the central source of challenges for university learners (Hyland, 1997). According to Fukao and Fujii (2001 cited in Ankawi, 2015: 8-9) "Academic writing

requires students to have the ability to integrate skills which include gathering information, paraphrasing and summarising resources, organising ideas in a logical order, editing and finally proofreading."

In addition, longitudinal studies in Hong Kong by Evans and Green (2007) that examined university students' challenges in writing when studying through EMI revealed that learners' writing difficulties were essentially related to language rather than content. Particularly, vocabulary and grammar were found to be the most problematic aspects of academic writing. In the context of China, Xiao and Chen (2015) examined engineering students' difficulties in English writing and the findings reveal that lack of language knowledge is the severest challenge for engineering learners when undertaking writing tasks, with content presentation being the second problem and structure planning the last one. That is to say, learners think that they struggle in producing new and original ideas when required to carry out English writing assignments.

The situation in the Arab world is not different from the above-mentioned context. Several studies have found that Arab students face difficulties in academic writing in English (Huwari & Al-Khasawneh, 2013, in Saudi Arabia; Aswad, 2018, in Libya). For example, Aswad (2018:14) states that "The students' poor repertoire of grammar and lexicon had negatively affected their writing performance." Likewise, Hisham (2008) examined the problems that Arab learners of business might have at University Utara Malaysia. He found that those learners encounter problems in grammar, vocabulary register, and referencing.

In contrast, regarding research skills, according to the findings of an item of research conducted by AlBakri (2017:70), Omani learners stated that they encountered

challenges in understanding the references which they had to read. "This is not surprising because these references are usually written in a language that is higher than the competence level of the students." Learners' inability to comprehend references, paraphrasing, summarising, in-text citation and end-text referencing were listed as the greatest challenges after grammar and spelling. Therefore, several researchers argue that learners frequently plagiarise because they are not familiar with suitable ways to write academic assignments that necessitate the use of resources.

2.2.2 Challenges related to teacher

The pedagogic and linguistic competence of content lecturers is considered as another central challenge affecting efficient provision of academic content through EMI. An insufficient level of English among content lecturers appears to be a universal problem which has not yet received much attention to the extent that it has been described as a "threat" to EMI (Ibrahim, 2004:125). For instance, Basibek, *et al.*, (2014), studied the challenges affecting engineering departments of Turkish public universities as a result of implementing EMI and the findings show that the weakness of the teaching staff's English, teaching methods, the availability of appropriate resources and language proficiency of the students are seen as challenges in EMI implementation. However, it has been found that even content lecturers who have the linguistic competence might not have the pedagogical ability "to deliver conceptually complex matters in a second language" (Barnard, 2015:9). That is to say, EMI lecturers' methods and teaching practices could turn out not to support students' learning, and significantly frustrate their efforts for learning instead. Consequently, Klaassen (2001) argues that it is significant for content lecturers to be aware of the techniques which

they can use to support learners' learning process, and this is particularly essential in an EMI instructional setting. As Tarnopolsky and Goodman (2014) point out, in actual fact content lecturers feel more comfortable in classes where they can utilise their first language. Therefore, both core subject lecturers in the Ukraine and their learners were having to code-switch to their mother tongue for many pedagogic functions such as checking comprehension of content, which is an unfortunate consequence of low student proficiency.

 The situation in the Arab world is not diverse from the aforementioned settings where numerous investigations have addressed similar challenges in Saudi Arabia and the United Arab Emirates (Al Zumor, 2019). However, Ariffin and Husin, 2011 cited in HUA, 2019:324) draw attention to the fact that while code-switching (CS) or code-mixing (CM) may be preferred by the less proficient learners,

It may jeopardise students' ability to answer examination questions in English,   and not prepare them for the linguistic competence for their future career. CS/CM appears to be a short-   term tactic rather than a long-term solution to EMI students' comprehension problems.

Another crucial challenge is that in most English medium settings core subject lecturers were more concerned about the content than stylistic refinement and grammatical accuracy when assessing learners' writing although such lecturers acknowledge the linguistic difficulties of learners (AlBakri, 2017). He believes the suggested reason is that language improvement is the responsibility of the English language instructors and their role is basically to deliver content in English whether their learners comprehend it or not. In addition, according to Klaassen (2001), correcting learner errors, checking for comprehension and pair and

group work as aspects of interactions in EMI settings were represented in different studies as factors of effective teaching behaviours.

However, as Hellekjær (2010:12) argues, it is considered that the overall quality of the lecture concerning clarity of presentation, structure, pacing, the use of visual aids and taking the audience into account, might be more significant for understanding than the students' or lecturers' language proficiency. Indeed, Klaassen's (2001) study confirmed that "effective lecturing behavior", such as the application of structure, interaction, and presentation, is credited by Dutch learners as being a superior influence on comprehending EMI lectures and useful to their focus, learning, and attention span compared with the language utilised, whereas the absence of such effective teaching behaviour appears to negatively affect student learning.

2.2.3 Psychological challenges

The implementation of English as a medium of instruction had a negative psychological influence on learners with low English language proficiency (AlBakri, 2017). Relevant literature confirms that emotions play a major role in learning and emphasises that learners "turn away from learning when they experience negative emotions" (Boekaerts, 2011:91). Furthermore, when those learners fail in spite of their efforts to be successful, they lose face. Al Zumor (2019: 1) claims that without a doubt, the implementation of EMI in higher education in Arab countries is "evidence of psychological defeat, especially if we admit that the graduates do not often have the ability to write one page in English without making many mistakes." Additionally, they avoid participation in academic discussions because of their low English proficiency which is caused by a hybrid of both Arabic and English.

Similar findings are reported by Kiliçkaya (2006), many content lecturers oppose EMI by stating that it leads to feelings of alienation and detachment, and the smallest amount of involvement in the classrooms as a result of linguistic difficulties foreign language learners encounter in learning and using English language (Hashemi, 2011). Moreover, the findings of Bang's (2013) questionnaire survey and interview with 130 learners in an EMI instructional setting indicate that low English proficiency learners indicated a great deal of anxiety and frustration concerning their lack of proficiency in the English language and embarrassment regarding limited understanding of the subject matter. The most frequent reason for reticence among EFL students was usually fear of making mistakes in English when speaking in the presence of their classmates (Al -Bakri, 2013).

2.3 Previous studies

2.3.1 Previous studies in the Arab context

In Oman, Ali (2020) conducted a study to consider the perceptions of Omani engineering students concerning their lecture comprehension challenges in EMI settings. It investigates the coping strategies applied regarding these challenges. A qualitative research design was employed to collect data through semi-structured interviews conducted with 12 engineering students. The findings indicate that the engineering students encountered a range of challenges and that various coping strategies were used to complement their studies. Their challenges concerning comprehending lectures appeared to be exacerbated by lecturers' speed of delivery and the use of unsuitable teaching methodologies. Learners may not be able to interrupt their lecturers and ask questions for clarification because of their low English proficiency and lack of communication skills. Their key

coping strategies include the use of first language (Arabic) as a compensatory strategy; usage of peer, group and family support; using translation; opting for English tuition classes. Many studies address EMI in higher education in the Saudi context. A study conducted by Al Zumor (2019) identified that the main challenges resulting from EMI in teaching scientific disciplines have an extremely negative influence on comprehending scientific content and assessment of most of the learners in this field of study in the Kingdom of Saudi Arabia. The results showed that EMI causes frustration, anxiety, tension, embarrassment, fear and, eventually, weak learning outcomes. Moreover, EMI deprives the learners of their basic rights to effectively comprehend, communicate, interact, discuss and inquire during lectures.

However, a small-scale study in Oman was conducted by Al-Bakri (2017) to critically explore the perceptions of students on the implementation of EMI in higher education. A questionnaire was distributed to 328 students studying in seven different faculties, and 14 classroom observations and 14 student interviews were used for data collection. The findings indicated that most learners were supportive of EMI regardless of the challenges they encounter, mainly for the reason that it is a prerequisite for employment, particularly in the private sector. However, a number of learners expressed their preference for a bilingual approach in their study due to their insufficient language competence as they argue that the implementation of EMI had a negative psychological impact on them and had a disempowering influence on their academic achievement, especially in productive skills.

Pessoa, Miller and Kaufer's (2014) four-year longitudinal study examined the challenges multilingual secondary

students encounter when transitioning into university. They recorded the progress of Qatari learners' literacy skills at an EMI university where 7 samples of writing of 86 students on two academic English courses had been analysed. Findings showed that students had obvious difficulties with reading comprehension because of insufficient vocabulary knowledge, a lack of background knowledge, and the absence of reading stamina. In addition, they faced challenges with English academic writing; nevertheless, learners better comprehended the expectations of academic writing, and their writing seemed to improve, when they had been taught strategies to apply to their writing.

2.3.2 Previous studies in other contexts

Flowerdew, Miller and Li (2000) conducted a study to examine student perceptions, problems and strategies in learning from second language lectures. Data was collected regarding the engineering lecture comprehension experience of 30 first year Hong Kong Chinese students on a B.A. course, by means of questionnaires, diary studies, classroom observation, and in-depth interviews. The results show that these students encountered lecture comprehension problems regarding to their linguistic skills, their concentration, the required terminology and concepts, the mismatch between learners and lecturers' expectations, and difficulties relating to lecturers' strategies. and the lecturers' speed of delivery.

Moreover, Navaz, (2012), examined lecturers' and students' experiences with lecture comprehension difficulties at the Faculty of Applied Sciences in a Sri Lankan university. Questionnaires, interviews and observations were used to collect the data. The findings show that students' lecture understanding difficulties and classroom interactions were affected and shaped by their language proficiency. However, students confirmed that the

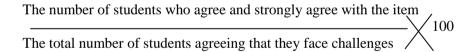lecturers' delivery style is more significant than their language proficiency.

In addition, a longitudinal case study that covered numerous written assignments from EFL business undergraduate students over a period of four semesters was conducted by Hung, (2009), at Hong Kong University, to report the types of difficulties the participants experience with writing tasks in their marketing programme. The findings show that students encounter challenges accomplishing the writing tasks and it was also found that they lacked the genre knowledge of their given tasks which leads to their lack of ability to draw on the disciplinary context as a resource to assist them to construct the suitable texts with the accurate form and content to meet the expectations of the discipline.

Gözüyeşil (2014) investigated the engineering students' and lecturers' point of view regarding the academic English requirements of engineering departments at Nigde University in Turkey. Data were collected through interviews and questionnaires in two engineering departments. The questionnaire was completed by 133 engineering learners and interviews were conducted with 11 lecturers. The aim of this study was to investigate which skill, of the four skills, has the highest priority for the engineering departments at NU and to determine the significance of specific language activities and tasks related to these skills for the departments. The findings revealed that engineering students primarily need to develop their English reading skills in an attempt to conduct research and they regard speaking skills as essential.

A quantitative study by Hellekjær (2009) examined the understanding of lectures in EMI at tertiary level by comparing learners' lecture comprehension in English and the their native language at three Norwegian and two

German universities. 364 Norwegian and 47 German students were surveyed, and the findings indicated that the difference between English and L1 scores was considerable, with a substantial number of learners having challenges understanding the lecture in English. Among the main difficulties, which were similar in the L1 and English, were difficulties in distinguishing and understanding the meaning of words, unfamiliar vocabulary and difficulty in taking notes while listening to lectures.

3. Methodology

Quantitative and qualitative research methods were adopted in this study to collect and analyse a variety of data. The quantitative analysis was based on Statistical Package for the Social Sciences (SPSS) Statistics version 20 descriptive statistics. However, to measure the correlation among the challenges (categories related to each other and the sub-categories related to the main category), the data were analysed manually as follows:

$$\frac{\text{The number of students who agree and strongly agree with the item}}{\text{The total number of students agreeing that they face challenges}} \times 100$$

The qualitative analysis was based on thematic analysis of the responses to the open question in which respondents were asked to consider further challenges, if any, would add concerning EMI. Data were collected through the students' questionnaires.

3.1 Participants

The study sample consisted of 179 engineering students from different stages of study; 113 (63.1%) of them were males and 66 (36.9%) were females. They were enrolled in different departments in the Faculty of Engineering

(Electrical and Electronics Engineering, Mechanical Engineering, Chemical Engineering and Civil Engineering) at Sirte University during the data collection period. The learners ranged in age from 19 to 28 and the majority of them with (49.7%) were studying in the final three semesters of their courses, namely the 8th, 9th and 10th, whereas the minority (22.9%) were study in the second stage of their study.

3.2 Data Collection and Analysis

In order to gather appropriate data to answer the research question, an online survey was created and posted on the Facebook page of the Faculty of Engineering after obtaining official permission from the Administrators of the page. The survey link remained on the website for a month. One hundred and seventy-nine students accessed the survey and answered the questions. The reason for the adoption of the electronic questionnaire (rather than a live one) is the interruption of live study at the university due to the corona virus pandemic.

As shown in the appendix 1, The survey consisted of 26 statements related to the challenges regarding EMI implementation intended to answer the research question. Some of them were adapted from AlBakri (2017) and Al Zumor (2019) and the others were formulated according to the research question, relevant literature on EMI and my own experience and knowledge of teaching learners in an EFL setting. In addition, The survey includes an open-ended question that required the respondents to provide any further challenge they encountered concerning EMI education.

Then, the English version of the questionnaire was translated into Arabic to ensure that learners would comprehend all the statements clearly. The Arabic version was then sent to five lecturers in the same university for

review and comment on the clarity of each item. After that, the questionnaire was piloted with 6 students in the same field. The questionnaire (in Arabic) was similar to the target sample.

4. Findings

4.1 Challenges EMI Engineering Students Encounter in their Study

Obviously, as shown in the table below, engineering students face many challenges in studying through the English language. In other words, there is agreement among the majority of engineering students who participated in this study that they encounter linguistic and psychological challenges and challenges related to the strategies and teaching methods that lecturers use in their teaching through EMI. In addition, it is clear that the ratios between the three challenges are very similar to some extent, where the psychological challenges are noted among 37.1%, the linguistic challenges equal 32.5% and the challenges related to teachers are equal to 30.4%.

Table 1: Correlation among Challenges EMI Engineering Students Encounter in their Study

Categories	Strongly DA	DA	N	A	Strongly A	challenges percentages
Linguistic challenges	7.5%	15.6%	13.9%	28.3%	34.7%	32.5%
challenges related to teachers	12.4%	12.7%	16%	32.5%	26.5%	30.4%
Psychological challenges	6.3%	11.4%	10.2%	27.8%	44.3%	37.1%

4.2 Linguistic challenges

4.2.1 EMI and Content Comprehension

According to the three items that measure the effect of EMI implementation on scientific content comprehension, in

Table 2, there is agreement from the majority of engineering students who participated in this study that there is a problem with scientific content comprehension. The reason for this is due to the fact that the language of textbooks/course materials is mainly English, which was confirmed by two thirds of the students responding to the questionnaire (66.5% approx.) as they face challenges in understanding the content because their English is not sufficiently good to study it. However, the percentage of those who strongly and disagree with the statements was very small. In addition, the students were not well-equipped linguistically to read English scientific content in textbooks and lecture materials and attend English engineering lectures. The table below shows that a high percentage of respondents, about 47.5%, do not agree that their proficiency in the language is sufficient to comprehend the scientific material presented in the lectures and the textbooks, while only 27.4% stated that their English language proficiency qualified them to understand EMI. 25.1% of students were neutral about the statement.

Table 2: EMI and Content Comprehension

Statements	1 %	2 %	3 %	4 %	5 %
Part II (A) Linguistic Challenges					
Part II (A) 1: EMI and Content Comprehension					
1. Challenges in comprehending scientific content are mainly caused by the fact that textbooks/course materials are in English.	6.7	16.8	11.2	24.5	40.8
2. I feel that my English language is not good enough to study in English.	8.4	9.5	15.6	31.8	34.7
3. My linguistic proficiency in English is adequate for comprehending scientific content in books/course materials and lectures.	19.6	27.9	25.1	19	8.4

4.2.2 The Challenges of Reading on Content Courses

As can be seen from Table 3, all the statements received high percentages of agreement from the participants. 62.6% (n=112) of the questionnaire participants believed that reading is difficult because of limited knowledge in grammar and inadequate vocabulary. In contrast, smaller numbers of participants strongly disagreed with the statements. In addition, the majority of the respondents, about 38.5%, greed with the need to understand every word they encounter in the text. The main strategy they used in order to comprehend a text is the use of translation, as 54.7% of them strongly agreed that they need to translate many words into Arabic in order to understand the course material. Besides, the majority of the respondents, 72.1% approx. (n=129) agreed that translating takes a lot of time and effort, as 45.3% of them strongly agreed that they spend most of the time doing translation work while only 5% strongly disagreed with that. Therefore, 73.7% of the participants rely on summarised and translated notes rather than on the textbooks because of the English language barrier.

Table 3: The Challenges of Reading in Content Courses

Part II (A) 2: The challenges of reading in content courses					
Statements	1 %	2 %	3 %	4 %	5 %
4. Reading in English is difficult because my grammar is weak.	8.4	17.3	11.7	32.4	30.2
5. I have difficulty in understanding textbooks and course materials written in English due to limited vocabulary.	4.5	15.6	17.3	27.4	35.2
6. I need to translate many words into Arabic to understand the course material.	1.7	10.6	17.3	38.6	31.8
. I spend most of my study time at home doing 7 the translation from English into Arabic.	3.9	9.5	3.4	28.5	54.7
. I depend on note summaries and translated 8 notes more than on the textbook because of my low proficiency in English.	5	16.8	6.1	26.8	45.3
9. I make sure I understand every word in the text.	4.5	11.2	10.6	32.4	41.3

4.2.3 The Challenges of Writing in Content Courses

Table 4 shows that more than three-quarters of the respondents confirmed that writing is an important skill in their major. Foreseeably, vocabulary and grammar again cause problems for more than half of the students when writing their assignments in English, with 65.9% and 81.6% respectively, whereas the minority of the students strongly disagree with this: with 4.5% and 1.6% respectively. Therefore, the majority of the subjects around 67.1% agreed with the statement " When I have to write an assignment in my specialisation, I often copy sentences/paragraphs from the internet because my English language is weak" because academic writing is agreed to be one of the challenges they encounter in learning through implementing EMI, as confirmed by a large proportion of the participants (75.5%). Consequently, 54.2% of the participants demonstrated that they asked someone from outside the college to support them in writing their projects. In addition, 43.6% of the respondents strongly agreed that since the questions in the exam are written in the English language, they cannot understand the questions and produce the answers, and therefore, their achievement in the exam is poor and their lack of command of English prevents 45.8% of them from expressing their thoughts and ideas more accurately when they sit their exams in English.

Table 4: The Challenges of Writing in Content Courses

Part II (A) 3: The challenges of writing in content courses					
Statements	1 %	2 %	3 %	4 %	5 %
10. Writing is an important skill in my specialisation.	1.1	3.9	11.7	32.5	50.8
11. I find it difficult to write in English because I do not know a lot of vocabulary.	4.5	17.9	11.7	27.4	38.5
12. When I write in English I make grammar mistakes.	1.6	9.5	7.3	36.3	45.3
.When I have to write an assignment in 31 my specialisation, I often copy sentences/paragraphs from the internet because my English language is weak.	5.6	14.5	12.8	31.8	35.3
14. The painstaking effort in academic writing is one of the challenges I encounter in Learning through implementing EMI.	2.2	6.7	15.6	36.3	39.2
15. I ask someone from outside the college to support me in my writing projects.	11.7	21.8	12.3	23.5	30.7
16. I usually do not do well in exams because questions are in English which hinders my comprehension of questions and production of answers.	8.3	16.8	10.1	21.2	43.6
17. I can present my ideas well and logically when I do my exams in English.	15.6	30.2	24.6	22.3	7.3

4.3 The Correlation among Linguistic Challenges EMI Engineering Students Encounter in their Study

The findings in Table 5 show that the greatest percentage of the students agree that

they encounter challenges in engineering content comprehension, reading lecture materials and textbooks in English and have difficulties in writing their assignments in English. In addition, the results demonstrate that the greatest linguistic challenge that engineering students face in their studies through EMI is the challenges related to reading engineering content in the English language noted among

37.4%. Followed by the challenges of writing, 34.5% and 28.1% of them encounter challenges in understanding the scientific content through EMI implementation. On the other hand, only a few respondents strongly disagreed in this regard, with the percentage of the challenges in reading in content courses being 4.7%. 6.3% faced challenges in writing in content courses, and 11.6% in understanding scientific content.

Table 5: The Correlation among Linguistic Challenges

Sub-categories	Strongly DA	DA	N	A	Strongly A	challenges percentages
EMI and scientific content comprehension	11.6%	18%	17.3%	25.1%	28%	28.1%
The challenges of reading in content courses	4.7%	13.5%	11%	31%	39.8%	37.4%
The challenges of writing in content courses	6.3%	15.2%	13.3%	28.9%	36.3%	34.5%

4.4 Challenges related to teachers

Noticeably, as presented in Table 6 below, the greatest proportion of agreement was accorded to the statement 'I sometimes do not comprehend the lecture if the overall structure of the lesson is not organised' (87.6%). However, slightly more than half of the respondents disagreed that their lecturers help them develop their writing skills through correcting their mistakes and organising pair discussion and group discussion activities among them during the lecture to help in enhancing content comprehension, with 55.8% (pair discussions) and 50.3% (group discussions). The reason for this is because their lecturers are more concerned about the content of their assignment than the correctness of their English language, as confirmed by a high percentage of agreement (69.8%) while the percentage of disagreements was very small, (12.3%). Moreover, regarding the

understanding of lectures, more than three-quarters of the participants agreed that the lecturer's speed of delivery plays an important role in comprehension, whereas visual aids are considered to be less important by the majority of students as they still had difficulty understanding the lecture even if visuals were used by lecturers.

Table 6: Challenges Related to Teachers

Part II (B) Challenges related to teachers					
Statements	1 %	2 %	3 %	4 %	5 %
18. I sometimes do not comprehend the lecture if the overall structure of the lesson is not organised.	0.6	3.4	8.4	46.9	40.7
19. My teachers help me improve my writing skills through correcting my mistakes.	31.8	24	17.9	17.9	8.4
20. My teacher is more concerned about the content of my assignment than the correctness of my English language.	6.7	5.6	17.9	38.5	31.3
21. My teacher organises pair discussion and group discussion activities among students during the lecture that can help in enhancing content comprehension.	28.5	21.8	22.3	16.2	11.2
22. Teacher's speed of lecture delivery affects my comprehension.	1.1	7.8	9.5	38.0	43.6
23. Even if visual aids are used by the teacher, I still have difficulty in comprehension	5.6	13.4	20.1	37.4	23.5

4.5 Psychological Challenges

It is clear from Table 7 below that the use of EMI in the teaching of engineering content causes psychological challenges among students. The evidence is that 70.4% of engineering students participating in the study agreed that the transition from AMI (Arabic as the Medium of Instruction) in schools to EMI at university seems to cause psychological problems among students, such as anxiety, frustration, tension and fear. In contrast, the minority of them (approx. 5%) strongly disagreed with this. In the next statement, 73.2% of respondents feel embarrassed in class if

asked to answer a question in English. As a result, 72.6% of the respondents agreed that they rarely participate in class out of fear of making mistakes in speaking English in front of their classmates.

Table 7: Psychological Challenges

Part II (C) Psychological challenges					
Statements	1 %	2 %	3 %	4 %	5 %
24. The shift of medium of instruction from Arabic at school to English at university causes feeling of anxiety, frustration, tension, and fear.	5	10.1	14.5	23.5	46.9
25. I feel embarrassed in class if asked to answer a question in English.	7.3	11.7	7.8	30.2	43
26. I rarely participate in class out of fear to make mistakes in speaking English in front of my classmates.	6.7	12.3	8.4	29.6	43.0

4.6 Other Challenges: Results of the Open-ended Question

Concerning the open question "What are the challenges, if any, that you can add / suggest to the above data regarding EMI?", the results show that the English language constitutes a major obstacle for the vast majority of engineering students during their studies. Writing the project in English, references and citation, translation from English to Arabic and specialist terminologies in English were suggested by the majority of participants as other challenges in their studies through implementing EMI. As some of the respondents stated that their lecturers deal with them as if they are already familiar with engineering terms. A number of students participating in this study proposed changing from EMI to AMI (Arabic as the Medium of Instruction) for some specialisations such as Building Materials, Concrete Technology and Geology that depend on memorisation because they need a long time in translation, and then comprehension, which confirms the fact that students face challenges in reading in English. In

addition, among the challenges facing most engineering students is the fact that they are forced to write their assignments in an academic style, while they lack these skills and have not been taught them in any specialised subject or even in English language subjects 1 and 2. They complained that these two subjects focus on their syllabus with teaching grammar and some engineering terms through reading texts. These do not help them much in understanding the engineering content and studying through EMI.

Another challenge that some engineering students face is the great depression that hits them when they collide with the university reality in the Faculty of Engineering at Sirte university, which is that the lecturers use their mother tongue in giving lectures and explanation, but for the rest of the educational process, including content materials and textbooks and examinations, they use only the English language despite the fact that they graduated from secondary school with a very limited level of English.

In addition to these challenges, many students suggested holding group discussions among engineering students so that discussion could take place and they could benefit from each other in understanding the academic content. Additionally, in order to improve their English competence so that they can study implementing EMI, the majority of the subjects suggested providing English language courses within the university.

5. Discussion

The findings of the current study reveal that the implementation of EMI in the Faculty of Engineering at the University of Sirte has had a negative impact on most of the engineering students participating in this study, as the majority of them face psychological and linguistic

challenges, and challenges related to the strategies, lecturing behaviour and teaching methods used by EMI lecturers in their classrooms. The first major challenge, psychological challenges, is in line with the results of previous studies (Ibrahim, 2001, Al-Bakri, 2017). Most of the participants encounter psychological challenges due to the transition from teaching in their mother tongue in schools to teaching in English at the university because the language proficiency of the participating students is insufficient to study in it at the Faculty of Engineering. These challenges are represented in the form of anxiety, frustration, tension, fear of making mistakes in speaking English and feeling embarrassed in front of their classmates if they are asked to answer a question during a lecture in English. This supports the opinions of Bang, (2013); Al -Bakri, (2013) that the students who have a low level of English are increasingly anxious and frustrated as they do not understand the scientific content in English and they are frightened of making mistakes when speaking English in the presence of their classmates.

The linguistic challenges come in second place among the challenges that most engineering students participating in this study encounter because of studying through EMI. The majority of them emphasised that they face challenges related to reading academic content in the English language due to their lack of scientific terminology, their limited vocabulary and their weakness of grammar rules. This is in accordance with the findings from a study conducted by Al Mahrooqi (2012). As a result of this, they resort to use coping strategies in order to understand such academic content. These coping strategies manifest themselves in translations of their textbooks/course materials from English into Arabic and attempts to find out the meaning of every

word they encounter in reading by translating it. This finding is supported by Phuong and Nguyen (2019). In addition, relying on summaries of the lectures is another coping strategy used by those students in order to understand the content because of reading difficulties. This is consistent with the findings of previous studies (Tong & Shi, 2012; Joe and Lee, 2013). However, these coping strategies may be ineffective because, according to their answers to the questionnaire, they confirmed that they spend most of their study time at home translating from English to Arabic, and this is wasting the time that they were supposed to use in revising their lectures. Knowing the meaning of each word when reading is considered as one of the wrong ways of reading, which can be replaced by the correct and effective strategies for reading, such as scanning and skimming reading. We noticed after reviewing the syllabus of the English 1 and 2 subjects that these effective strategies of reading are not part of the syllabus and most students answered the open-ended question confirming that English 1 and 2 subjects do not help them to understand the content or/and accomplish their assignments. In addition, their reliance on translated notes and summaries rather than reading their textbooks and courses materials may adversely affects the quality and amount of learning taking place using these resources.

Moreover, academic writing in English is one of the important skills in learning at the Faculty of Engineering, and on the other hand, based on the respondents' answers, it is considered as one of the greatest challenges that they face in studying with the implementation of EMI. Throughout their studies in the Faculty of Engineering, students are required to write their assignments and projects in an academic style, which obliges them to use references,

summarise information, paraphrase it and acknowledge the sources. This is consistent with the study conducted by Fukao and Fujii (2001). However, the students did not learn academic writing strategies to apply to their academic studies, and what was apparent after reviewing the syllabus of English Subjects 1 and 2 is that these academic writing strategies are not part of the syllabus either. Besides, weakness in English grammar poses a challenge to most students of the Faculty of Engineering participating in this study when writing their assignments and their answers in the exams. This forces them to use coping strategies in their writing, such as plagiarism or the use of someone writing on their behalf, which does not help them in learning, whether in their specialisation or in developing their English language. The respondents' lack of command of English, especially their limited vocabulary and weakness in grammar, poses a great challenge to their understanding of the examination questions and how to answer them, and if they understand the question, they cannot express their thoughts or ideas accurately. Similar findings can be found in studies conducted by Evans and Green, (2007). It can be concluded that students comprehend the questions, yet their body of vocabulary and a failure to memorise academic words and terminology prevent them from performing well in exams.

Furthermore, lecturers and their teaching behaviour play an important role in the students' understanding of the lectures. The study shows that the lack of organisation of the elements of the lecture and the speed of lecturer in delivering the lecture negatively affects the students' understanding of the content. This confirms what was stated in the previous studies conducted by Klaassen, (2001), whereas this result differed somewhat with the findings of a

study conducted by Hellekjær (2010), as the students' low English language proficiency was posed as a great challenge in studying through EMI despite any effective lecturing behaviour used by the lecturers.

Among the challenges that students of the Faculty of Engineering face related to lectures is that lecturer focuses on the content of the students' writings and ignores any stylistic refinement and grammatical accuracy, despite the fact that giving feedback from their lectures helps them learn from their mistakes. Similar findings can be found in a study conducted by AlBakri (2017). The participants also confirmed that lecturers do not organise peer and group discussions among students during the lecture, which would help them enhance their understanding of engineering content and this is what the students themselves confirm by answering the open-ended question by suggesting that group discussions be held among engineering students in order to benefit from each other regarding content comprehension.

On the whole, students participating in the current study faced many challenges comprehending and learning from lectures in English. Some of these challenges are because of language difficulties among learners on the one hand, and the quality of the lecture on the other.

6. Conclusions and Recommendations

The current study was carried out to identify some of the challenges Libyan engineering students face in studying the engineering course at Sirte University arising from the use of EMI. The majority of participants in the current study reported a number of challenges in implementing EMI in higher education that hinder them from understanding the content and accomplishing their tasks. These challenges are represented in the psychological challenges that arise as a result of changing the language of study from Arabic at

secondary level to studying in English at university level, and the accompanying feelings of anxiety, fear, tension and anxiety. In addition, they encounter linguistic challenges which are: difficulty in understanding, reading and writing in English as well as challenges related to the lecturers' teaching behaviour. Consequently, these students resort to using a variety of erroneous coping strategies to address these challenges.

Based on the findings, it is recommended that students' needs, goals and desires must be taken into account in order for students to reach the intended language level. As Nunan (1999:148) indicates, " rather than fitting students to courses, courses should be designed to fit students." That is to say, they should no longer be expected to fit the syllabus, but the syllabus should be prepared according to the learners' language needs. Therefore, it is important to amend the syllabus of English Language subjects 1 and 2 at the Faculty of Engineering to suit the needs of students. It should match what students learn with what they will encounter in their academic and professional fields.

Moreover, Sirte University should offer a preparatory year programme (a Foundation Year) to support students in improving their English language proficiency. In this course, the focus should be on the four skills and students' preparation for academic study at the Faculty of Engineering in English. In other words, learners' needs and difficulties should be given much more attention when a preparatory year programme is prepared and developed.

Furthermore, content lecturers have to help their students in terms of interpreting specialist terminologies, repeating them in Arabic and English so that they can be firmly established in their minds. The students cannot be expected to already know the terminology. Many engineering

students participating in this study confirmed that most content lecturers deal with students as if they are already familiar with specialist terminologies in English. In addition, in order to assist engineering students to concentrate and understand more during lectures, some methods lecturers can follow include: pausing more during lectures to permit time for their learners to catch up with their understanding, employing peer and group work discussion to allow students to understand a topic and learn from each other in English.

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