



REPUBLIC OF TÜRKİYE

ÇANAKKALE ONSEKİZ MART UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF FOREIGN LANGUAGES EDUCATION

ENGLISH LANGUAGE TEACHING PROGRAM

**AN INVESTIGATION INTO INSTRUCTIONAL METHODS, TECHNIQUES,
AND MATERIALS IN AN EMI CONTEXT IN TURKISH HIGHER
EDUCATION: A CASE STUDY**

MASTER'S THESIS

SİBEL CAN ACAR

**Supervisor
PROF. DR. ECE ZEHİR TOPKAYA**

ÇANAKKALE, 2022



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This study is supported by Scientific Research Projects Commission
Project No: SYL-2021-3689

ÇANAKKALE, 2022

DECLARATION OF ETHICS

I hereby declare that in this thesis study, which I prepared in accordance with the Writing Rules of the School of Graduate Studies of Çanakkale Onsekiz Mart University; I have obtained the data, information and documents I have presented in the thesis within the framework of academic and ethical rules, that I have presented all information, documents, evaluations and results in accordance with scientific ethics and morals, that I have cited all the works I have used in the thesis by making appropriate references, that I have not made any changes in the data used, that I have presented in this thesis is original. Otherwise, I undertake and declare that I accept all the loss of rights that may arise against me.

ETİK BEYANI

Çanakkale Onsekiz Mart Üniversitesi Lisansüstü Eğitim Enstitüsü Tez Yazım Kuralları'na uygun olarak hazırladığım bu tez çalışmasında; tez içinde sunduğum verileri, bilgileri ve dokümanları akademik ve etik kurallar çerçevesinde elde ettiğimi, tüm bilgi, belge, değerlendirme ve sonuçları bilimsel etik ve ahlak kurallarına uygun olarak sunduğumu, tez çalışmasında yararlandığım eserlerin tümüne uygun atıfta bulunarak kaynak gösterdiğimi, kullanılan verilerde herhangi bir değişiklik yapmadığımı, bu tezde sunduğum çalışmanın özgün olduğunu, bildirir, aksi bir durumda aleyhime doğabilecek tüm hak kayıplarını kabullendiğimi taahhüt ve beyan ederim.

Sibel Can ACAR

26/08/2022

ACKNOWLEDGEMENTS

I would like to thank many people who have supported me along this long journey. I am very grateful for their contributions and suggestions.

First of all, I would like to thank my dear supervisor, Prof. Dr. Ece ZEHİR TOPKAYA, for always being beside me. Whenever I lost my way and felt depressed and uneasy about doing something, she gave me the best guidance, advice, and support. She had helped me to learn from my mistakes. Thank you for everything you did for me.

Besides, I would like to thank the members of my thesis committee, Prof. Dr. Muhlise COŞGUN ÖGEYİK, Asst. Prof. Dr. Kürşat CESUR, Asst. Prof. Dr. Suzan KAVANOZ, and Dr. Mustafa TEKİN, for their help and feedback.

Also, I want to thank Research Assistant Veysel Emir EKE and Research Assistant Orçin KARADAĞ for their support and feedback.

In addition, I owe thanks to all the lecturers and students from the Faculty of Science and Arts at Çanakkale Onsekiz Mart University who have participated voluntarily in my study to support academic studies. Their comments meant a lot to me during the process.

Also, I want to thank my dear friend, Dila BOZKURT, for making me feel comfortable, listening to all my worries, and helping me to overcome them during these three years. Whenever I asked her advice, she always gave me her invaluable feedback. Whenever I lost my faith in myself, she said that she believed in me and we would get through this together. In the end, we are here. Thank you for everything you have done for me.

I want to thank my dear friends, Mehmet EZER, Aslı ÖZDİL, and SİSFEBB- they will know themselves- for their patience and psychological support that they gave to me.

Son olarak, ne zaman hayallerimin peşinden koşacağım desem, kaygılarını bir yana bırakıp beni destekleyen, benim yapabileceğime olan inançlarını bir an olsun kaybetmeyen

canım anneme, babama ve ablama, bütün bu yolculuk boyunca bana gösterdiği sabır ve destek için teşekkür ederim.

Sibel Can ACAR
Çanakkale, August 2022

To my beloved mom, dad, and sister...

ABSTRACT

AN INVESTIGATION INTO INSTRUCTIONAL METHODS, TECHNIQUES, AND MATERIALS IN AN EMI CONTEXT IN TURKISH HIGHER EDUCATION: A CASE STUDY

Sibel Can ACAR

Çanakkale Onsekiz Mart University

School of Graduate Studies Department of Foreign Languages Education

(Master's Thesis in English Language Teaching Programme)

Supervisor: Prof. Dr. Ece ZEHİR TOPKAYA

13/08/2022, 181

The present study aims to examine a) instructional methods, techniques and instructional materials used by EMI lecturers in the departments which follow two different EMI regimes, i.e. 100% English (Molecular Biology and Genetics) and 30% English (Biology), b) factors affecting these choices c) how they review and revise them d) the criteria considered by EMI lecturers while designing, selecting and using instructional materials e) how the choices of these methods and techniques and the choice of instructional materials interact with one another, f) students' opinions in relation to EMI lecturers' choices g) whether EMI lecturers' choices and students' opinions differ depending on programs run fully in English (100% English) and partially in English (30% English).

In the case study approach, an explanatory sequential mixed method design was utilized in this study. The data was gathered from both six EMI lecturers teaching and 81 EMI students studying at a state university through questionnaires. Then, semi-structured interviews were conducted with six EMI lecturers. The findings show that EMI lecturers do not have a clear understanding of the terms methods, techniques, and materials. The questionnaire results show that EMI lecturers frequently choose to implement individual and interaction-centered methods and techniques. In the semi-structured interviews, the majority of them, however, mentioned teacher-centered methods and techniques although these methods and techniques' frequency level of use is low in the questionnaire. The analysis of both questionnaire and interview data shows that these choices are affected by several

factors, EMI as being one of them. EMI lecturers reported that they generally do not exchange their ideas with their colleagues and students in a systematic way to review and revise their methods and techniques. As for instructional materials, they prefer to use visual and audio-visual materials in the EMI classroom. There are several factors affecting their choices and EMI appeared as one of them. EMI lecturers do not consult their colleagues and students systematically and they focus on the outcomes of the instructional materials. There are several criteria that they consider when they design, select, and use materials in the classroom, EMI was found to be a major factor.

As for the findings from the students' questionnaire, the majority of students reported that EMI lecturers use teacher-centered methods together with either individual-centered or interaction-centered methods and techniques. EMI lecturers mostly use visual materials and videos, as audio-visual materials.

In terms of instructional methods, techniques and materials, the lecturers' choices are nearly the same even if their departments are different. Similarly, students' opinions show that the choices of methods, techniques, and materials are roughly the same in both departments.

The overall findings show that there is a two-way interaction between instructional methods, techniques and instructional materials. For example, the cost of materials might limit the choices of methods and techniques. Similarly, methods and techniques might lead lecturers to use specific materials that require one-way or two-way interaction between students and lecturers. Finally, the results of this study have a number of implications for the use of instructional methods, techniques and materials in the EMI context.

Keywords: Medium of Instruction, English Medium of Instruction, EMI, Instructional Methods and Techniques, Instructional Materials, Higher Education.

ÖZET

TÜRK YÜKSEKÖĞRETİMİNDE EĞİTİM DİLİ İNGİLİZCE BAĞLAMINDA ÖĞRETİM YÖNTEMLERİ, TEKNİKLERİ VE MATERYALLERİNİN İNCELENMESİ: BİR VAKA ÇALIŞMASI

Sibel Can ACAR

Çanakkale Onsekiz Mart Üniversitesi

Lisansüstü Eğitim Enstitüsü

Yabancı Diller Eğitimi Anabilim Dalı Yüksek Lisans Tezi

(İngiliz Dili Eğitimi Programı Yüksek Lisans Tezi)

Danışman: Prof. Dr. Ece ZEHİR TOPKAYA

13/08/2022, 181

Bu çalışmanın amacı a) %100 İngilizce (Moleküler Biyoloji ve Genetik) ve %30 İngilizce (Biyoloji) olmak üzere iki farklı EDİ politikasını takip eden bölümlerde EDİ öğretim üyeleri tarafından kullanılan öğretim yöntem ve teknikleri ile öğretim materyallerini b) bu seçimleri etkileyen faktörlerini c) bunları nasıl gözden geçirip revize ettiklerini d) EDİ öğretim elemanlarının öğretim materyallerini tasarlarken, seçerken ve kullanırken dikkate aldıkları kriterleri e) bu yöntem ve tekniklerin seçimleri ile öğretim materyallerinin seçiminin birbirleriyle nasıl etkileşime girdiğini, f) EDİ okutmanlarının tercihlerine ilişkin öğrenci görüşlerini g) EDİ okutmanlarının tercihleri ile öğrenenlerin görüşlerinin tamamen İngilizce (%100 İngilizce) ve kısmen İngilizce (%30 İngilizce) olarak yürütülen programlara göre farklılık gösterip göstermediğini incelemektir.

Bu çalışmada, vaka çalışması yaklaşımında, açıklayıcı ardışık karma yöntem deseni kullanılmaktadır. Veriler, bu bölümlerde eğitim veren altı öğretim üyesi ve yine bu bölümlerde okuyan 81 öğrenciden anketler yardımı ile toplanmıştır. Bu süreci takiben, altı öğretim üyesiyle yarı-yapılandırılmış görüşmeler yapılmıştır. Bulgular, EDİ öğretim elemanlarının yöntem, teknik ve materyal terimleri hakkında net bir anlayışa sahip olmadıklarını göstermektedir. Anket sonuçları, EDİ öğretim üyelerinin, sıklıkla bireysel ve etkileşim merkezli yöntem ve teknikleri tercih ettiğini göstermektedir. Ankette öğretmen merkezli yöntem ve tekniklerin kullanım sıklığı düşük olmasına rağmen, yarı yapılandırılmış

görüşmelerde, katılımcıların çoğunluğu bu yöntem ve tekniklerden bahsetmektedir. Hem anket hem de görüşme verilerinin analizi, bu seçimlerin EDİ'nin de dahil olduğu çeşitli faktörlerden etkilendiğini göstermektedir. Öğretim üyeleri, yöntem ve tekniklerini gözden geçirmek ve revize etmek için öğrencileri ve meslektaşları ile sistematik bir şekilde fikir alışverişinde bulunmadıklarını bildirmişlerdir. Öğretim materyallerine gelince öğretim üyeleri, EDİ bağlamında görsel ve görsel-işitsel materyaller kullanmayı tercih etmektedirler. Seçimlerini etkileyen EDİ'nin de içinde olduğu çeşitli faktörler vardır. EDİ öğretim üyeleri, sistematik bir şekilde öğrencilerle ve meslektaşları ile fikir alışverişinde bulunmamaktadır ve öğretim materyallerinin çıktılarını odaklanmaktadır. Öğretim yöntemlerini tasarlarken, seçerken ve kullanırken göz önünde bulundurdıkları birkaç kriter vardır ve EDİ, bu kriterlerden biri olarak bulunmuştur.

Öğrencilerden elde edilen bulgulara gelince, öğrencilerin çoğu, EDİ öğretim üyelerinin bireysel merkezli ya da etkileşim merkezli yöntem ve teknikler ile birlikte öğretmen merkezli yöntem ve teknikleri de uyguladıklarını bildirmiştir. EDİ öğretim üyeleri daha çok görsel materyalleri ve görsel-işitsel materyal olarak videoları kullanmaktadır.

Bölümleri farklı olsa da öğretim yöntem, teknik ve materyalleri açısından öğretim elemanlarının tercihleri hemen hemen aynıdır. Benzer şekilde öğrenci görüşleri, her iki bölümde de yöntem, teknik ve materyal seçimlerinin aşağı yukarı aynı olduğunu göstermektedir.

Genel bulgular, öğretim yöntem ve teknikleri ile öğretim materyalleri arasında iki yönlü bir etkileşim olduğunu göstermektedir. Örneğin, materyalin maliyeti, yöntem ve tekniklerin seçimini sınırlandırabilir. Benzer şekilde, yöntem ve teknikler, öğretim üyelerini, öğrenciler ve öğretim üyeleri arasında tek yönlü veya iki yönlü etkileşim gerektiren belirli materyalleri kullanmaya yönlendirebilir. Son olarak, bu çalışmanın sonuçlarının EDİ bağlamında öğretim yöntem, teknik ve materyallerinin kullanımına yönelik bir takım çıkarımları vardır.

Anahtar Kelimeler: Eğitim Dili, Eğitim Dili İngilizce, EDİ, Öğretim Yöntem ve Teknikleri, Öğretim Materyalleri, Yükseköğretim.

TABLE OF CONTENTS

	Page No
APPROVAL.....	i
ETHICAL DECLARATION.....	ii
ACKNOWLEDGEMENTS.....	iii
DEDICATION.....	v
ABSTRACT.....	vi
ÖZET.....	viii
TABLE OF CONTENTS.....	xi
LIST OF TABLES.....	xviii
LIST OF FIGURES.....	xvix
LIST OF ABBREVIATIONS.....	xxi

CHAPTER I

INTRODUCTION

Introduction.....	1
1.1. Problem Statement.....	1
1.2. Purpose of the Study.....	3
1.3. Research Questions.....	4
1.4. Significance of the Study.....	5
1.5. Limitations.....	5
1.6. Definition of Key Terms.....	6

1.7. Chapter Summary.....	7
---------------------------	---

CHAPTER II
LITERATURE REVIEW

Introduction.....	8
2.1. Internationalization of English.....	8
2.2. Emergence of EMI.....	11
2.2.1 What is EMI?.....	14
2.3. Driving Forces behind EMI policies.....	16
2.4. The Impact of EMI.....	18
2.4.1. Benefits.....	19
2.4.2. Challenges.....	20
2.5. EMI policies in European, Asian, and Middle Eastern Countries.....	22
2.6. EMI policy in Turkey.....	25
2.7. Teaching Competencies of EMI Lecturers.....	27
2.7.1. Certification of English Medium Instruction Competencies.....	28
2. 8. Learning Theories.....	29
2.9. Instructional Process.....	32
2.9.1. Instructional Models.....	34
2.9.2. Instructional Strategies.....	39
2.9.3. Instructional Methods and Techniques.....	41
2.10. Instructional Materials.....	49

2.11. Previous Studies on EMI in Tertiary Education.....	51
2.12. Previous Studies on EMI in Turkish Tertiary Education.....	57
2.13. Chapter Summary.....	59

CHAPTER III
METHODOLOGY

Introduction.....	61
3.1. Research Design.....	61
3.2. Purpose Statement and Research Questions.....	62
3.3. Research Setting.....	65
3.4. Participants.....	67
3.4.1. EMI Lecturers.....	67
3.4.2. EMI Learners.....	70
3.5. Data Collection Instruments.....	72
3.5.1. Questionnaires.....	72
Development of the questionnaire items.....	74
Piloting the questionnaires.....	75
3.5.2. Semi-Structured Interviews.....	75
Development of the interview questions for the semi-structured interview protocol.....	76
Piloting the semi-structured interview protocol.....	77
3.6. Researcher's Role.....	77
3.7. Data Collection Procedure.....	78

3.9. Data Analysis Procedure.....	79
3.10. Chapter Summary.....	83

CHAPTER IV
FINDINGS

Introduction.....	84
4.1. Findings of R.Q.1. What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?.....	84
4.1.1. Findings of R.Q.1.1. What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?.....	95
4.1.2. Findings of R.Q.1.2. How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?.....	102
4.2. Findings of R.Q.2. What are the instructional materials used by MBG and Biology EMI lecturers?.....	104
4.2.1. Findings of R.Q.2.1. What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using teaching materials?.....	106
4.2.2. Findings of R.Q.2.2. How do MBG and Biology EMI lecturers review and revise teaching materials?.....	111
4.2.3. Findings of R.Q.2.3. What are the criteria considered by MBG and Biology EMI lecturers while designing or selecting teaching materials?.....	112
4.3. Findings of R.Q.3. How do instructional methods, techniques, and teaching materials interact with one another?.....	114

4.4. Findings of R.Q.4. What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods, techniques, and materials?.....	116
4.5. Findings of R.Q.5. Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?.....	123
4.6. Chapter Summary.....	140

CHAPTER V

DISCUSSION, CONCLUSION AND IMPLICATIONS

Introduction.....	141
5.1. Discussion of R.Q.1. What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?.....	141
5.1.1. Discussion of R.Q.1.1. What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?.....	143
5.1.2. Discussion of R.Q.1.2. How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?.....	148
5.2. Discussion of R.Q.2. What are the instructional materials used by MBG and Biology EMI lecturers?.....	149
5.2.1. Discussion of R.Q.2.1. What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using instructional materials?.....	150
5.2.2. Discussion of RQ2.2. How do MBG and Biology EMI lecturers review and revise instructional materials?.....	153

5.2.3. Discussion of RQ2.3. What are the criteria considered by MBG and Biology EMI lecturers while designing or selecting instructional materials?.....	155
5.3. Discussion of RQ3. How do instructional methods, techniques, and materials interact with one another?.....	156
5.4. Discussion of RQ4. What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods, techniques, and materials?.....	157
5.5. Discussion of R.Q.5. Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?.....	161
5.6. Conclusion.....	164
5.7. Implications.....	166
5.7.1. Implications for the Implementation of Instructional Methods and Techniques in the EMI programs.....	166
5.7.2. Implications for the Design, Selection and Use of Instructional Materials in the EMI programs.....	168
5.8. Suggestions for Further Research.....	169
5.9. Chapter Summary.....	170
REFERENCES.....	171
APPENDICES.....	I
APPENDIX 1. The Questionnaire on the Use of Instructional Methods and Techniques and Instructional Materials in The Emi Context.....	I

APPENDIX 2. The Questionnaire on Learners’ Opinions Regarding The Use of Instructional Methods and Techniques and Instructional Materials in The Emi Context.....	XI
APPENDIX 3. A Case Study On Instructional Methods, Techniques and Instructional Materials Used in The English Medium Instruction (EMI) Context: Interview Protocol.....	XIX
APPENDIX 4. Interview Protocol Matrix.....	XXIV
APPENDIX 5. Ethics Committee Approval.....	XXVIII
RESUME.....	XXIX

LIST OF ABBREVIATIONS

ALM	Audio-lingual Method
CALL	Computer-assisted Language Learning
CBI	Content-Based Instruction
CLIL	Content and Language Integrated Learning
CLT	Communicative Language Teaching
EAP	English for Academic Purposes
ECTS	European Credit Transfer and Accumulation System
EFL	English as a Foreign Language
EHEA	European Higher Education Area
EMI	English Medium of Instruction
ELT	English Language Teaching
ESP	English for Specific Purposes
LAD	Language Acquisition Device
MBG	Molecular Biology and Genetics
MoNE	The Turkish Ministry of Education
PYP	Preparatory Year Program
TUBİTAK	Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (The Scientific and Technological Research Council of Türkiye)
UAE	The United Arab Emirates

LIST OF TABLES

Table Number	Table	Page Number
Table 1	Demographic information about EMI Lecturers	68
Table 2	Demographic information about EMI students	70
Table 3	Data collection tools	81
Table 4	Classifications of instructional methods and techniques used by the EMI lecturers	90
Table 5	Positive factors affecting the EMI lecturers' choices of instructional methods and techniques	96
Table 6	Negative factors affecting the EMI lecturers' choices of instructional methods and techniques	99
Table 7	Review and revision of instructional methods and techniques	103
Table 8	Positive factors affecting the EMI lecturers' selection, design and use of instructional materials	108
Table 9	Negative factors affecting the EMI lecturers' selection, design and use of instructional materials	110
Table 10	Review and revision of instructional materials	112
Table 11	EMI lecturers' criteria affecting the choices of instructional materials	114

LIST OF FIGURES

Figure Number	Figure	Page Number
Figure 1	The three concentric circles of English	9
Figure 2	English L2 classrooms around the world: a continuum?	14
Figure 3	Instructional framework	34
Figure 4	Explanatory sequential mixed methods	64
Figure 5.	Data collection tools employed in the study	72
Figure 6	Questionnaire development process	74
Figure 7	Interview protocol development phases	76
Figure 8	Data collection and analysis procedure	79
Figure 9	Frequency chart of EMI lecturers' use of instructional methods and techniques	87
Figure 10	EMI lecturers' choices of instructional methods and techniques	91
Figure 11	Frequency of factors affecting the choices of instructional methods and techniques	95
Figure 12	Frequency of EMI lecturers' use of instructional materials	105
Figure 13	Frequency of factors affecting the choices of instructional materials	107
Figure 14	Students' opinions regarding the instructional methods and techniques used by the EMI lecturers	116
Figure 15	Students' opinions regarding the instructional materials used by the EMI lecturers	121
Figure 16	EMI MBG lecturers' choices of instructional methods and techniques	124
Figure 17	EMI Biology lecturers' choices of instructional methods and techniques	125
Figure 18	Comparison of the instructional methods and techniques used by both departments	127
Figure 19	MBG lecturers' choices of instructional materials	127
Figure 20	Biology lecturers' choices of instructional materials	128
Figure 21	Comparison of the instructional materials used by EMI lecturers in both departments	129
Figure 22	MBG students' opinions on the instructional methods and techniques used by EMI lecturers	130
Figure 23	Biology students' opinions on the instructional methods and techniques used by the EMI lecturers	133

Figure 24	Comparison of MBG and Biology students' opinions on instructional methods	135
Figure 25	MBG students' opinions on the instructional materials used by the EMI lecturers	136
Figure 26	Biology students' opinions on the instructional materials used by the EMI lecturers	138
Figure 27	Comparison of MBG and Biology students' opinions on the instructional materials	139

CHAPTER I

INTRODUCTION

Introduction

This chapter starts with the problem statement. Following that part, the purposes of the study and research questions related to these purposes, the significance of the study, the limitations and the definitions of the key terms are explained in detail.

1.1. Problem Statement

Today, English is an international language, a lingua franca, a global language and a world language (Caine, 2008). Several scholars explain the reasons for this status of English by making classifications either from a political standpoint which refers to the spread of English through colonial expansion, the economic and military power of Britain and America (Kachru, 1990; Quirk, 1988; Widdowson, 1997) or from a linguistic perspective which implies the growth of English speakers with speaker immigration and macro acquisition (Brutt-Griffler, 2002). Those reasons have made English a widely recognized international language in the global arena, especially in business, science, politics, and academia (Arkin, 2013). In response to that, higher education institutions have become the focus of attention and fundamental institutions in promoting countries' international competitiveness and economy by offering courses taught in English so that students can have the necessary knowledge for an international career in the global market (Cosgun & Hasırcı, 2017; Başıbek, Dolmacı, Cengiz, Bür, Dilek, & Kara, 2014).

Similar to other countries such as China, Spain, Taiwan etc., Türkiye has introduced English as a Medium Instruction (EMI) at universities to be able to respond to the internationalization of English (Kırkgöz, 2009b). The main goal of these universities is to become global universities where academic papers are published in English-speaking journals, domestic students are prepared for the international economy and students from different countries are instructed (Macaro, Dearden, & Akincioglu, 2016). For this purpose, many state and private universities have adopted EMI in order to increase their international prestige and provide job opportunities for their graduates (Cosgun & Hasırcı, 2017).

To be able to prepare students for EMI courses that are the subject-specific courses taught through English at their respective faculties, the universities offer their students with low English proficiency Preparatory Year Programs (PYP) before taking EMI courses at their faculties. Yet, the courses in these programs are not mainly based on subject-specific terminology or on teaching academic studies but on developing language skills (Macaro et al., 2016). As for EMI faculty, although lecturers are experts on their content, they are not language instructors and are not expected to take courses related to how to convey the content through EMI. However, as Macaro et al. (2016) report, EMI lecturers' ability to convey and present information at a comprehensible level in English is significant for students to understand the input. Therefore, it can be said that EMI programs require pedagogical and methodological knowledge to support students' understanding and remembering.

As the history of the methods in English Language Teaching (ELT) shows, there is a close link between instructional strategies, methods, techniques and materials. Some methods necessitate specific instructional use of existing materials and realia. For instance, the Audiolingual Method (ALM) is characterized by dialogues, drills and practice activities, which mandate the use of worksheets, dialogues and textbooks. The main role of these materials is to develop students' mastery of the language. As for the Communicative Language Teaching (CLT) approach, the role of teaching materials is to increase classroom interaction and language use, thereby the materials are text-based (textbooks supporting CLT), task-based and realia (Richards & Rodgers, 1986). A wider strategy Computer-assisted Language Learning (CALL) has its own materials such as websites, visual materials, etc. In short, materials in accordance with the instructional strategies are designed to realize specific goals of educational approaches, which stem from the curriculum and the principles of gradation educational approaches adopt (Richards & Rodgers, 1986). However, although the choice of instructional strategies, methods and techniques and instructional materials, which are important to communicate the content to students, are the components of curriculum, they receive the least attention in the process of instructional planning at universities (Weston & Cranton, 1986). Consequently, in EMI contexts, it is not known if materials and instructional methods and techniques are given attention. Therefore, there is a need for investigating these concepts in EMI contexts.

As a result of growing interest in EMI education and increase in the number of EMI faculties in Türkiye, several studies have been published on EMI students and EMI

lecturers' views and perceptions of EMI education and its effectiveness (e.g. Başıbek et al., 2014; Kılıçkaya, 2006; Kırkgöz, 2009b; 2014); the effect of proficiency levels on the effectiveness of EMI (e.g. Collins, 2010; Ekoç, 2020); the effect of EMI on students' language abilities (e.g. Cosgun & Hasırcı, 2017); the challenges faced during the implementation process of EMI (Gökmenoğlu & GelmezBurakgazi, 2013; Sert, 2008); students' motivation and perception of studying in an EMI university (e.g. Kırkgöz, 2005); listening comprehension strategies and language learning strategies used by EMI students (e.g. Özkara, 2019; Soruç, Dinler, & Griffiths, 2018); the intervention of EMI lecturers and PYP lecturers' collaborative lesson planning (e.g. Macaro et al., 2016). However, since there are no studies conducted to explore the EMI lecturers' choice of instructional methods, techniques and instructional materials, the present study is designed to address this gap by exploring volunteer EMI lecturers' choices of them in two departments at the Faculty of Sciences in a state university where partial and full EMI programs are adopted. Also, it looks into how these choices interact with one another; students' opinions with regard to the EMI lecturers' choices of instructional methods, techniques, and materials. Lastly, this study investigates whether EMI lecturers' choices and students' opinions differ depending on the programs run fully in English (100% English) and partially in English (30% English).

1.2. Purpose of the Study

Teaching is beyond presenting content; it is a communication process, the aim of which is to convey meaning and help students construct knowledge about the content (EMI Handbook, 2017). Considering the complexity of classroom systems, many factors such as lecturers, peers and other resources influence students' learning (Lampert, 2002). Lecturers in this complex system have an essential role in guiding students and structuring students' understanding of the content. In the EMI context, to be able to support students' understanding of the input, lecturers' use of instructional methods, techniques, and instructional materials, and their making informed decisions about their preferences gain importance. Therefore, within the scope of the present study, their preferences regarding instructional methods, techniques, and instructional materials, how their choices interact with one another, students' opinions in relation to EMI lecturers' choices, and whether

EMI lecturers' choices and students' opinions differ depending on the programs run fully in English (100% English) and partially in English (30% English) are investigated. To this aim, two departments in the faculty of Art and Sciences, respectively Molecular Biology and Genetics (MBG) where the full EMI program is adopted and Biology where the partial EMI program is adopted, are included in the present study.

1.3. Research Questions

The following research questions are addressed in this study:

R.Q.1. What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?

R.Q.1.1. What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?

R.Q.1.2. How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?

R.Q.2. What are the instructional materials used by MBG and Biology EMI lecturers?

R.Q.2.1. What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using instructional materials?

R.Q.2.2. How do MBG and Biology EMI lecturers review and revise instructional materials?

R.Q.2.3. What are the criteria considered by MBG and Biology EMI lecturers while designing or selecting instructional materials?

R.Q.3. How do instructional methods, techniques, and instructional materials interact with one another?

R.Q.4. What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods and techniques and instructional materials?

R.Q.5. Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?

1.4. Significance of the Study

The present study has significant contributions to the research in this field for several reasons. In the literature, there is not any research found on the EMI lecturers' choices of instructional methods, techniques, and materials. As pointed out earlier, the research studies on EMI are mostly on the perspectives of the use and effectiveness of EMI, and the effect of EMI on students' language abilities and language strategy use. Thus, the current study, by exploring EMI lecturers' choices of instructional methods, techniques and instructional materials has the intention to fill this gap in the field.

This research might also provide material designers and lecturers with practical information regarding instructional methods, techniques and materials in the EMI context. In addition, it might lead lecturers to reflect on and justify their own preferences and raise their awareness of how their preferences can impact the teaching process.

The study is also expected to provide EMI lecturers with a deeper understanding of language issues in the EMI context. Several studies have shown that EMI lecturers do not essentially assume the responsibility for handling language education along with content education. However, they need to play a dual role of being a language educator and a content lecturer. Being an EMI lecturer brings the responsibility to help the students with the issues related to content-specific language use. Therefore, this study may help EMI lecturers to understand their dual roles that they need to play in the EMI context clearly.

Finally, this study may contribute to potential in-service teacher-training programs in tertiary EMI contexts. In that, the results of this study are expected to shed light on the current practices of EMI lecturers' use of instructional methods, techniques, and materials and the potential strengths and weaknesses of these practices. Thus, the findings of this study may indicate how EMI lecturers' use and choice of instructional methods, techniques and materials can be developed.

1.5. Limitations

The current study was conducted with a limited number of volunteering EMI lecturers and students only in one of the faculties at a state university. The results might

differ depending on universities' geographical areas, university rankings, undergraduate student population size, financial conditions and the qualifications of faculty members and students.

It took roughly one year to collect the data from the participants since the data collection process was carried out both online tools (i.e. Google Forms and Zoom) and limited face-to-face because of Covid 19.

The responses obtained from the lecturers and students might change at any given time since their behavior and thought are not stable and they are changing consistently (Karataş, 2017). Therefore, this study is limited to the specific time of data collection.

Besides, the other limitation is the data collection tools. At beginning of the study, Planning Material and Artifact Protocol developed by Tamim and Grant (2016) was planned to be used during the data collection process in order for the researcher to identify how instructional methods, techniques, and instructional materials interact with one another. Yet, during the process, the researcher realized that EMI lecturers use mostly PowerPoints rather than other visual, audio-visual, audial materials and authentic materials. The semi-structured interviews show that these PowerPoints include only the textual content itself. Therefore, this section of the study is omitted from the study.

Lastly, this study did not include classroom observations as the data collection tool. To be able to see the exact implementation of the EMI lecturers' instructional methods, techniques and materials, classroom observations should be conducted.

1.6. Definition of Key Terms

English Medium Instruction (EMI): “The English language to teach academic subjects in countries or jurisdictions where the first language of the majority of the population is not English” (Dearden, 2014, p. 4).

Learning Theories: They explain how to “achieve some kind of understanding about how learners learn knowledge, understanding and skills, how educational structures and practices evolve or develop particular perceptions, visions, or strategies for the transfer or communication of knowledge” (O’Neill & Senyshyn, 2011, p. 5).

Instructional Models: They are procedures and steps that are followed by lecturers so that the instructional activities employed in the classroom become more efficient and productive (M.A., Ocak, 2015). For example, there are three instructional models, namely Behaviorist Models, Cognitivist Models and Constructivist Models. They help lecturers to identify which instructional strategies, methods and techniques are going to be used in the classroom.

Instructional Strategies: To be able to achieve the main aims of instruction, instructional strategies remark the ways and approaches followed by lecturers (Akdeniz, 2016). Instructional strategies are classified into four main groups. These are presentation, discovery, inquiry and cooperative/collaborative strategies.

Instructional Methods: “A way consciously employed in order to realize identified instructional and educational goals” (Öncül, 2000 as cited in Vural, 2016, p. 108). There are varieties of instructional methods. Some of these methods are lecture, question and answer, demonstration and practice, etc. These methods can be classified into three categories: teacher-centered, individual-centered and interaction-centered methods.

Instructional Techniques: “The teaching technique is generally defined as an application form of an instructional method” (Alkan, 1979). While instructional methods are the ways of attaining an objective, techniques are types applied in the classroom. For example, a lecturer might employ lecture as an instructional method and conference, seminar, forum etc. are the instructional techniques of the lecture method.

Instructional Materials: They are resources that convey and communicate information (Weston & Cranton, 1986). There are three types of instructional materials: visual, audio-visual and audial materials. Visual materials are pictures, articles, boards, etc. Audio-visual materials are videos, computers, etc. Lastly, audial materials are audio-recording, radio, etc.

1.7. Chapter Summary

This chapter presents the problem statement, purpose, research questions, significance, and limitations of the study. Besides, it also includes the definitions of the key terms used in the present study.

CHAPTER II

LITERATURE REVIEW

Introduction

The literature review part of the study begins with the internationalization of English. Next, the researcher explains the emergence of EMI, what it means, the driving forces behind EMI policies, the benefits and challenges of it, and EMI policies around the world and in Türkiye. Then, the researcher explains the instructional process of teaching and in general and its importance in the EMI context. Finally, studies around the world and in Türkiye are involved in the study.

2.1. Internationalization of English

By the end of the 20th century, English was already on its way to become the *sine qua non* for people all around the world as a result of the economic, technological, and political power that its speakers hold on the international stage (Crystal, 2003; Graddol, 1997; Harmer, 2007). How English has gained this position is a long process that is explained by scholars from different perspectives. Kachru (1990) and Widdowson (1997) explained it from a political perspective while Brutt-Griffler (2002) claimed that the political perspective is not sufficient for the explanation of the development of English as an international language by arguing that the language is not imposed by a set of laws or military rules. Therefore, she maintained that from a linguistic perspective, the term ‘language spread’ has remained uninvestigated (Brutt-Griffler, 2002). To be able to understand the reasons for the spread of English, its global status, and its effect on educational policies, these three explanations are presented here.

To start with a well-known model, Kachru (1990) described the spread of English in terms of three circles: Inner Circle (native speakers of English), Outer Circle (English as a second language) and Expanding Circle (English as a foreign language) (Figure 1). This model formed the basis of more developed models which aim to explain the spread of English. Kachru’s interest with this model was to describe the language spread in its various forms and to raise awareness of the varieties of Outer Circle Englishes. However, it

has been criticized because it is nation-based and does not show sociolinguistic and policy-driven realities within and among the circles (Macaro, 2018).

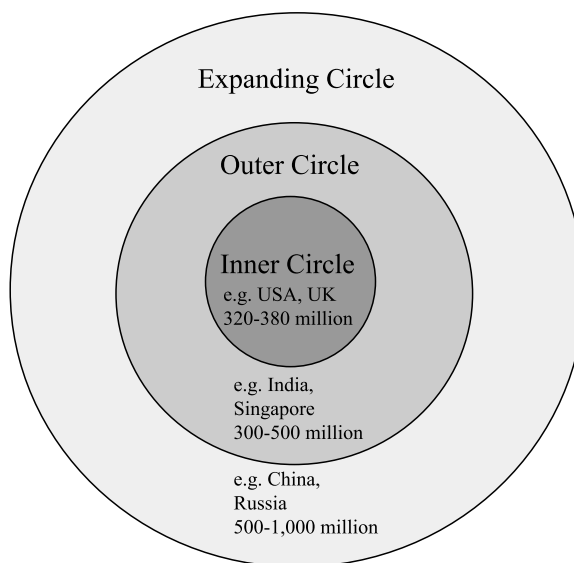


Figure 1. The three concentric circles of English

The Inner Circle implies the countries where English is the first language. This circle includes the USA, Britain, Ireland, Canada, Australia, and New Zealand. The Outer Circle refers to the countries where English is widely used as a second language or an official language. These countries have been colonized by the members of the inner circle. Therefore, English has a special administrative status in these countries. Examples of the countries are India, Nigeria, Singapore and over fifty other territories. Finally, the Expanding Circle involves the countries where the importance of English on the international stage is recognized and taught as a foreign language. They do not have a history of colonization by the members of the inner circle. These countries are China, Greece, Türkiye, etc. In these countries, English does not have a functional use outside the class. However, to be able to exchange and access knowledge, to compete on the international stage, to increase the employability of the graduates by providing them with the necessary skills such as language skills, intercultural competence skills, and subject-specific skills, the growing number of higher educational institutions in these countries have adopted English Medium of Instruction (EMI).

Another explanation was offered by Widdowson (1997). He (1997) claims that the predominance of English can be attributed to the world domination of English-speaking nations in two eras: the British imperialism and the economic power of the United States. To begin with British imperialism, in the 16th century, the spread of English initially started with the settlements established on the east coast of America in what we now know as Virginia. The large number of immigrants immigrated to these settlements from Ireland, Germany, and other parts of Europe in the period between the 17th and the 20th century. In the 18th century, Britain established a penal colony in Australia whose inhabitants were prisoners from Ireland and London. A half-century later, the number of immigrants increased rapidly, and the British began to immigrate to New Zealand. So as a result, this colonial expansion of Britain established the pre-conditions for the widespread use of English by taking it from its birthplace to settlements (Graddol, 1997). On the other hand, technological and scientific developments in Britain in between the 18th and the 19th century led to the Industrial Revolution that helped Britain to control demand, supply, and transportation and to become a leading country in industry (Crystal, 2003; Widdowson, 1997). This economic power of England has ensured English's growth and survival by making it a mediating language of international business (Crystal, 2003; Harmer, 2007; Graddol, 1997). In addition to these developments in Britain, since the 20th century, the USA has been the world superpower in terms of the economy along with military, politics, science, and technology. This economic supremacy replaced politics as the main driving force and positioned English as the language behind the US dollar (Crystal, 2003). Consequently, all these international activities have ensured English's global status.

As for the linguistic perspective, Brutt-Griffler (2002) offers two forms of language spread: speaker immigration and macro acquisition. In the literature, the territorial movement of English speakers from England to Australia has been classified under the title of language spread. However, since language is a social phenomenon, the speech community is the locus of language spread rather than geographical territory. Therefore, Brutt-Griffler (2002) calls this form of language spread as 'speaker immigration'. The second form of language spread refers to 'the spread of a language to other speech communities', which is called 'macro-acquisition'. This form specifically refers to the linguistic process of language spread. The migration of English speakers to other continents (e.g., American continents) is not related to the language spread in this sense.

The language acquisition of the inhabitants in these continents (e.g., Native Americans, Africans, and European settlers) was the case of language spread.

Either from the political perspective of Kachru (1990) and Widdowson (1997) or the linguistic perspective of Brutt-Griffler (2002), all these categorizations conceptualize how English has ensured its global status in both international and intranational communication. Crystal (2003) reports that English is used as a working language in 85% of international organizations. Digital 2021: Global Overview Report shows that 60.4% of international websites use English, which makes it the most commonly used language on the Internet (Kemp, 2021). This international use of English has impacted the multidimensional aspects of societies in various fields, including business, diplomacy, and academia (Byun, Chu, Kim, Park, Kim, & Jung, 2011; Tsui & Tollefson, 2007, as cited in Kırkgöz, 2009a). As a result, English language education and education through English have become the focus of attention in promoting countries' international competitiveness and economy. As a response, EMI has become an important strategy to increase the employability of graduates by developing their awareness, knowledge, and skills to communicate across the cultures, to increase the global attractiveness and the international reputation of higher education institutions (Dearden, 2014; Galloway, Kriukow, & Numajiri, 2017; Marlina, 2013; Wächter & Maiworm, 2014). For these reasons, universities have decided to launch EMI programs to internationalize their programs, be prestigious, to attract more international students, and to equip their graduates with the necessary knowledge for an international career in the global market (Başıbek et al, 2014; Byun et al., 2011; Coleman, 2006; Cosgun & Hasırcı, 2017; Galloway et al., 2017). Consequently, it can be said that the global status of English has become a motive for the adoption of EMI in higher education institutions all around the world (Coleman, 2006).

2.2. Emergence of EMI

The wide adoption of English as the medium of instruction took place as a result of a number of international developments. One of the developments is Bologna Declaration which aims to make reforms at higher education institutions by building European Higher Education Area (EHEA) to enable student and academic staff mobility and employability, to increase competitiveness among higher education institutions in Europe, and to make these institutions more attractive and inclusive. Forty-nine countries are members of the

EHEA. All these countries agree to conduct reforms on tertiary education such as implementing transparency tools and quality assurance systems.

The Bologna Declaration was an agreement which was signed by 29 countries in 1999. The purpose of this declaration is to establish a common framework for higher education institutions in order to remove student and academic staff mobility barriers. It also aims to build trust for mutual recognition of qualifications and learning periods and academic cooperation between international higher education institutions. However, the official implementation of the Bologna Declaration began with the Sorbonne Declaration in 1998. Four countries, namely France, Germany, the UK and Italy, signed it in Paris. With this declaration, these countries commit themselves to harmonize educational and cultural systems in Europe so that they can facilitate student mobility, along with employability, and improve external recognition of higher education institution qualifications in the academic field. Today, 49 countries including Türkiye signed the Bologna Declaration (EHEA, 2022). It has become a significant driver for internationalization of higher education institutions (EHEA, 2022; Macaro, 2018). On the other hand, since the internationalization of higher education institutions enhances countries' competitiveness, their institutions' global attractiveness and reputation, countries make attempts to fulfill the requirements of the Bologna Declaration such as the adoption of a system based on three cycles: bachelor's, master's and doctoral studies. As one of the attempts, universities have adopted English-taught programs, especially in some fields such as economics, business, and engineering where publications and related conferences are conveyed through English medium. This growing interest in EMI programs in non-English-speaking countries and even in English-speaking countries has become a growing phenomenon and has needed to be explored (Costa, 2015).

As for the emergence of EMI in Türkiye, in the 1950s, the increasing contact with the United States and the desire to be a westernized and modern country have impacted Türkiye's foreign language policy (Başibek et al., 2014; Demircan, 1988; Kırkgöz, 2009a). Besides, being located at the intersection of Europe and Asia, the strategic and geopolitical status of Türkiye increased the need to communicate with the rest of the world and to open up to the Western world for technological developments (Başibek et al., 2014; Kırkgöz, 2009a). This need provided impetus for Türkiye to adopt a policy of English as a second language to replace French that was usually accepted as L2 at the time.

This change of foreign language policy in the 1950s led to an increase in the number of private and state schools where English was taught as the second language. Firstly, Maarif Schools were established in 1955 and EMI was implemented at these schools. These schools accepted students from the age of 11 to 12 into a seven-year program. The first year of that program was a preparatory year to reach the required level of English. After the prep-year, all subjects such as Biology, Maths, Physics and Chemistry were taught through English medium. In 1974, the Ministry of Education accepted them as high schools and changed their name to Anatolian High Schools in 1975. The success of these schools led private schools to follow the footsteps of state schools. In 1983, Foreign Language Teaching and Learning Act was introduced to lay the foundations of regulations related to foreign language teaching in Turkish secondary and high schools. According to this act, the language of instruction in these schools is Turkish and the Turkish Ministry of Education (MoNE) has the responsibility of implementing the English language curriculum. As a result of this act, the MoNE established Super English Language High Schools where four-year education including one-year language education was offered. Until 2002, all the subjects were taught through English. After 2002, the MoNE decided to change the language of instruction to Turkish because of the difficulty of finding qualified teachers with high-level English proficiency and the failure of students in the centralized university entrance exams. In 2005, a one-year intensive language education program in Anatolian High Schools and Super English Language High Schools was abolished to achieve standardization in ELT. In addition, the duration of education increased from 3 years to 4 years. After this abolishment, the number of English language courses increased. Yet, they were not enough for students to develop language skills. In 2014, some schools among Anatolian Schools, Super English High Schools, Sciences High School, and Social High Schools were chosen to be project schools where a five-year education program including one-year language education was implemented.

As for tertiary education, in 1956, Middle East Technical University which was the first university providing EMI was established in Ankara. Later, this EMI trend was pursued by Boğaziçi University in 1976 (Macaro, 2018). In 1984, The Higher Education Act was announced. It is the beginning of language teaching policy regulations in higher education institutions. After the announcement of the act, the number of foreign language courses increased. In 2002, Türkiye signed the Bologna Declaration. Following that, to be able to fulfill the requirements of the Bologna Declaration, Turkish universities have

introduced a three-cycle higher education system and have ensured mutual recognition by using the European Credit Transfer and Accumulation System (ECTS) as a tool. The main goal of using ECTS is to make courses internationally comparable. In addition, since 2005, universities in Türkiye have given their graduates a diploma supplement that is recognized by higher education institutions worldwide. The reasons for these efforts to implement EMI in Turkish universities are to increase compatibility and the international reputation, to equip graduates with the necessary skills for the global market, to attract international students, and to respond to economic globalization.

2.2.1 What is EMI?

In the EMI literature, there are various definitions proposed by different scholars. Dearden (2014) proposes that EMI is “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 ” (p.3). Similarly, Macaro (2018) defines EMI as the use of English as a medium to teach academic courses in countries where English is not the first language. Moreover, Hellekjaer (2010) states that EMI is the teaching of non-language courses through using English to the students who do not speak English as their first language. Apart from the definitions of Dearden (2014) and Macaro (2018), Hellekjaer (2010) also adds to his definition that these courses are taught by lecturers whose first language is not English as well. However, in EMI policies, there is not any limitation on the lecturers’ native language as long as they have enough proficiency level to teach academic subjects. Therefore, we can conclude that EMI is the use of English as a medium of instruction in non-English-speaking countries to convey academic subjects by lecturers whose native language is either English or a different language.

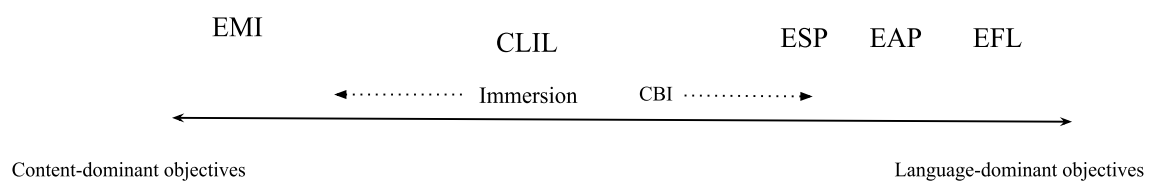


Figure 2. English L2 classrooms around the world: a continuum? (Macaro, 2018, p. 29)

However, EMI is associated and confused with other terms such as Content and Language Integrated Learning (CLIL), Content-Based Instruction (CBI), English as a Foreign Language (EFL), English for Academic Purposes (EAP), and English for Specific Purposes (ESP) which do not coincide with EMI. As it is seen in Figure 2, some of these terms such as EMI have content-dominant objectives whereas some such as CBI, EAP, ESP, and EFL have language-dominant objectives. To begin with CLIL, it is the most commonly associated term with EMI. However, in the EMI context, the medium of education is English whereas CLIL does not mention any language to study academic subjects. Additionally, CLIL's objective is to teach content and language simultaneously whereas EMI's main purpose is to teach academic studies through English but not language skills (Dearden, 2014). In the CBI context, content is a means for language learning which is the goal of CBI. Yet, in the EMI context, language learning is not planned or assessed, and objectives are directly related to academic subjects (Brown & Bradford, 2017). As for comparing EMI and EFL, EFL focuses especially on vocabulary and grammar in relation to the four language skills but not on academic content that is just a means to increase students' proficiency levels. On the contrary to EMI, the purpose of EFL is to help students to acquire the ability to use the English language in many different communicative environments (Macaro, 2018). EAP is also another term which is wrongly used interchangeably with EMI. EAP is a supporting program for EMI where English is taught to students to acquire the necessary skills to study an academic subject (other than English) in tertiary education. The content of EAP is related to the English language itself and how it is used in academic settings (Macaro, 2018). Finally, since English is a lingua franca, students, who have future occupational intentions to learn academic subjects such as Media, Economics, and Law Enforcement, attend ESP programs. ESP deals with genres of English and terminologies that are needed for that specific discipline (Macaro, 2018). Unlike EMI, ESP lecturers do not assess content knowledge and understanding. As a result, we can say that EMI is different from all these educational approaches because it has an explicit aim to teach academic subjects through English without focusing on teaching language skills so that students can operate successfully in international contexts (Brown & Bradford, 2017).

2.3. Driving Forces behind EMI policies

The important questions about the establishment of EMI are: why would a country change the language of education from the native language to the second language in order to teach academic subjects through that language? Why would a country take the risk knowing that adopting EMI might make students not only struggle to understand what is taught, but also might result in less student engagement in the learning process? (Macaro, 2018). According to Galloway et al. (2017), the answers to these questions are closely related to the driving forces behind the establishment of EMI programs. These driving forces are:

gaining access to cutting-edge knowledge and increasing global competitiveness to raise the international profile, increasing income (and compensating for shortages at the domestic level), enhancing student and lecturer mobility, enhancing the employability of graduates/ international competencies, improving English proficiency, reflecting developments in English language teaching (ELT), using English as a neutral language, offering EMI for altruistic motives. (Galloway et al., 2017, p. 4)

The first driving force propelling the EMI programs forward is to “gain access to cutting-edge knowledge and increase global competitiveness to raise the international profile, increasing income (and compensating for shortages at the domestic level)” (Galloway et al., 2017, p. 4; Macaro, 2018). Adopting EMI is seen as a means to access innovative knowledge since English is used as an international language in the academy and the global market. Accordingly, it attracts not only domestic but also international students and faculty, thereby raising the international profile of the educational institution (Galloway et. al., 2017; Macaro, 2018). Raising the international profile of a university leads to increasing domestic and international rankings, which aids to enhance graduates’ employability in the global market. (Dearden & Macaro, 2016; Galloway et. al., 2017; Macaro, 2018). In line with the increase in graduates’ employability, universities’ visibility rises, which helps to maintain their survival and increase financial security (de Prat, 2020). In addition, by removing the language barriers, using internationalized curricula, fostering international exchange programs and degree programs, bringing prestige to the students of EMI programs in the global market and attracting international academic staff and

students, EMI programs have become the most preferred programs by many students and faculty. On the account of such benefits, higher educational institutions charge international students and even domestic students with higher fees to attend EMI programs in countries where tertiary education is not free or private universities are predominant. Therefore, these programs are considered as a useful way of increasing income for institutions (Coleman, 2006; Galloway et.al., 2017; Macaro, 2018).

Second, as mentioned before, the aim of the Bologna Process is to remove all the barriers such as language barriers, and barriers related to curricula by establishing a standardized framework (Macaro, 2018). This standardized framework called the European Credit Transfer System (ECTS) has enhanced student and lecturer mobility and the application of European projects. Mobility and European projects promote quality in teaching and research (Carrió- Pastor, 2020). Accordingly, they can attract qualified students that may want to become researchers or faculty in their universities. In other words, according to Galloway et al. (2017), standardizing degree structures contributes to ‘brain gain’ and raises the research profile of higher education institutions.

Today, 90% of occupations offered in Europe require today’s professionals to have particular competencies of their specific field of knowledge (Galloway et al. 2017; Nocito & Obernyer, 2020). EMI, which fosters intercultural competence, has been adopted by higher education institutions to raise opportunities of their graduates’ employability in both domestic and global markets (Galloway et al. 2017). According to Deardorff (2006), intercultural competence involves three constituent elements: knowledge, skills, and attitudes. In terms of knowledge, graduates should be aware of cultural self, have culture-specific knowledge and grasp of global issues. As for skills, graduates should have a higher level of listening skills, observe and evaluate the events by viewing the world from different perspectives. Finally, attitude refers to valuing the cultures of other people, viewing difference as a learning opportunity and having tolerance for ambiguity but not making judgements (Deardorff, 2006). Such competencies are seen as more attractive for the internationalized labor market since the field knowledge and good command of English are considered as insufficient by many governments (Galloway et al. 2017).

As for the fourth driving force, with the internationalization of English considered as a language of prestige, developing citizens’ English proficiency has become the primary goal of governments since it is seen as a necessary competency and a genuine way to modernisation and global competitiveness (Galloway et al. 2017). Since one of the

principles of English language learning is that the more students are exposed to language, the better language learning occurs, EMI where the exposure to L2 through content teaching is much greater than limited hours teaching of L2 as the object of study has been adopted by governments.

The next driving factor is “developments in ELT” (Galloway et al., 2017, p. 4). The recent developments in ELT promote more student-centered and more communicative models of language teaching, which have been influential in the emergence of EMI. Especially Communicative Language Teaching (CLT), which focuses on authentic uses of English and exposing students to English as much as possible, has contributed to the implementation of content-based approaches around the globe. EMI is seen as being a significant way to provide students with authentic target language input (Galloway et al., 2017).

English can be used as a neutral language in multilingual environments. East and Southern Africa or India use English as a common language because the arouse of one of the Indigenous languages might lead to ethnic problems (Baugh & Cable, 2002). Therefore, these countries adopt EMI in higher education institutions in order to promote uniformity.

The final driving force of adopting EMI is related to altruistic motives, which is contributing to the world to develop by promoting students with high-level education. In this sense, EMI is used as a developmental aid to provide students from the Third World with high-level education (Wächter & Maiworm, 2014). However, today, altruistic motives are not the main reason to adopt EMI. The financial motive such as attracting students who pay fees becomes one of the significant motives for higher educational institutions.

In conclusion, the increase in EMI programs can be attributed to these driving forces. Countries, which are willing to exchange information, compete on the international stage, attract students and academic staff, provide graduates with English language proficiency, content knowledge and intercultural competence, and to form a unity, have adopted EMI as a strategy to achieve them. Therefore, EMI has become a global phenomenon recently.

2.4. The Impact of EMI

There are different perspectives on the adoption of EMI in tertiary education. It is criticized by some for leading to social inequalities and influencing national languages in a

negative way whereas there are some scholars, students and faculty that support it for the benefits it can provide.

2.4.1. Benefits

The benefits that are generally mentioned in the literature include English proficiency as well as content knowledge, intercultural understanding and global citizenship and awareness, enhancing career opportunities and the employment of the staff (Galloway et al., 2017; Macaro, 2018). To start with English proficiency along with content knowledge, for many, EMI is considered as killing two birds with one stone (Galloway et al., 2017; Macaro, 2018). According to Chomsky's (1959) *universal grammar hypothesis*, every individual has a mechanism, called Language Acquisition Device (LAD), that allows him or her to naturally produce the language regardless of whether they are reinforced for correct output or are given negative feedback for output when he or she is exposed to that language. There is no effect of teaching on the learning process of individuals. However, years later, Krashen (1985) put forward the *input hypothesis* that is in line with Chomsky's universal grammar hypothesis but prioritizes the importance of input and reinforcement. According to this hypothesis, individuals acquire language when they are exposed to input -written or spoken language- that is comprehensible and meaningful to them. In the classroom context, the teacher should create opportunities for students to be exposed to comprehensible input in a meaningful way. This hypothesis provides an explanation for the improvement of students' language skills due to the exposure to English in the EMI context. Even if the aim of EMI is not to improve students' language proficiency level or language skills, meaningful exposure to the language can lead to a positive change in the language abilities of the students (Cosgun & Hasırcı, 2017; Turhan & Kırkgöz, 2018). EMI also provides a natural environment where language learning can take place peripherally and without deliberate effort (Kir & Akyüz, 2020).

With the help of EMI, higher education institutions become more intercultural and open. EMI provides students with intercultural understanding and global citizenship and awareness (Galloway et al., 2017). They experience "ways of thinking and living within multiple cross-cutting communities— cities, regions, states, nations, and international collectives..." (Schattle, 2007, p. 9). By adopting EMI and taking a major step to start

partnerships with international/overseas institutions, higher education institutions attract international students, which gives national students an opportunity to experience internationalization and global citizenship at their own university. In doing so, universities stimulate students' international exposure (Nocito & Obernyer, 2020).

English has instrumental functions for people, which are enrolling in better education, a more prestigious job, getting well-paid jobs and gaining access to Master's programs abroad (Ekoç, 2020; Kırkgöz, 2009a). In relation to these functions, EMI also has instrumental benefits for students and faculty. According to Galloway et. al. (2017), these are enhancing career opportunities and the employment of the staff. EMI helps students and academic staff to create professional networks, which promotes employability and raises graduates' chances to join the global market (Nocito & Obernyer, 2020). All these benefits lead both universities to adopt EMI and students to enroll in EMI programs.

2.4.2. Challenges/ Limitations

As much as the benefits of EMI, there are challenges and limitations of it. Galloway et al. (2017) summarize these challenges and limitations as follows:

- Issues related to language (English language proficiency and the impact on national languages)
- Issues related to culture (Westernization)
- Social issues such as inequalities
- Issues related to management, resources, and administration.

Issues related to language can be divided into two: English proficiency of staff and students and impact on national languages (Galloway et al., 2017). One of the significant benefits of EMI is to improve students' English proficiency, especially receptive skills such as listening and reading (Ekoç, 2020; Galloway et al., 2017; Macaro, 2018). However, simply exposing students to the language and expecting them to submit their assignments and all stuff related to the courses in English will not automatically result in improved English language proficiency. The important aspect that should be kept in mind is that English is neither students' nor lecturers' first language (Pérez-Guillot, 2020). Most of the EMI programs do have enrollment requirements regarding English language proficiency, which are necessary for students to handle the academic content. A lack of language proficiency has been found to influence the academic performance of the students

(Cankaya, 2017; Galloway et al., 2017; Kılıçkaya, 2006; Macaro, 2018; Yeh, 2014). The impact of a lack of English language proficiency can be summarized as students' reduced ability to understand the concepts, lessons and lectures, consuming longer time to complete the course, chance of withdrawing, problems related to expressing disciplinary content, less amount of participation in courses such as asking and answering fewer questions, code-switching and resistance to EMI (Başıbek et al., 2014; Cankaya, 2017; Ekoç, 2020; Galloway et al., 2017; Kılıçkaya, 2006).

The quality of instruction due to English language proficiency has been also discussed in the literature. According to Dearden (2014) and Galloway et al. (2017), even though English proficiency has been stated to influence lecturers' performance, and the quality of teaching and learning process in a number of ways, in many countries, there are not any stated expectations of English language proficiency for lecturers. Therefore, there is a lack of linguistically qualified lecturers, which has resulted in less flexibility in conveying the contents of the course, long monologues without including rapport with students and a lack of humor and interaction (Başıbek et al., 2014). In addition, Galloway et al. (2017) have stated that for lecturers, more time is needed for the preparation of the instruction. Even though the lecturers simplify the academic content, they have difficulties explaining it, which leads to increased pressure and avoiding asking and answering questions.

The second challenge or limitation of EMI is related to cultural issues and the impact of EMI on national language(s). Galloway et al. (2017) stated that with the internationalization of higher education, universities have started to adopt curricula from native English-speaking contexts, which has increased international exchanges and the number of publishing articles and books in English in the West. This has been criticized due to creating a dominant culture and strengthening the US-dominated hegemony. Phillipson (2008) has also been critical of EMI because he has seen it as a form of linguistic imperialism that benefits some of the cultures, but not all cultures involved. In Türkiye, Attila İlhan and Oktay Sinanoğlu strongly objected to EMI by arguing that EMI can be adopted only in colonised countries because it is a form of 'cultural genocide'. Aslan (2017) also opposed EMI by saying that EMI restricts the use of the Turkish language to less prestigious contexts. As a result, these discussions have resulted in raising some questions about the norms of EMI and reconceptualizing 'E' in EMI.

As for social inequalities, many children are forced to learn English at early age instead of mastering their native language although they do not use it outside of school. As a result, in many contexts, an elite English-speaking class has emerged, and EMI has become a major criterion in getting prestigious and well-paid jobs. That has created social inequalities between those who attend Turkish Medium Instruction and those who enroll in EMI (Galloway et al., 2017)

The final challenge is related to management, administration, and resources. As mentioned before, the lack of qualified lecturers is an issue in the EMI context (Dearden, 2014). Higher education institutions, which adopt EMI curricula, just choose their faculty members simply due to their English proficiency levels, their experience abroad and being an expert on the related academic content (Galloway et al., 2017). Although EMI requires more than translating and conveying content knowledge, there is little or no EMI training in lecturer preparation programs and in-service courses (Dearden, 2014; Galloway et al., 2017). A lack of training might lead to some problems such as the lack of methodological/ pedagogical knowledge which has an impact on the support that lecturers provide for students who might have low-proficiency levels, keeping students' attention and helping students' cognitive processing (Beaumont, 2020; Galloway et al. 2017). As for management, EMI programs are generally introduced top-down by policymakers and education managers without any consultation with stakeholders. Such an adoption process of EMI has led to problematic systems where faculty members are not aware of the consequences or outcomes of EMI (Dearden, 2014).

2.5. EMI policies in European, Asian and Middle Eastern Countries

Today, it can be reported that EMI is a flourishing global phenomenon in all educational settings in order to prepare students for business and academic careers and provide them with internationally-oriented skills (Byun et al., 2011; Dearden, 2014). Therefore, internationally more and more higher education institutions are caught in a hurry to offer both undergraduate and postgraduate programs taught through EMI (Macaro, Pun, An, & Dearden, 2018). The main purpose of these educational institutions is to internationalize the institution in order to become more prestigious for graduates and to attract students from other countries (Macaro et al., 2018). According to the report of the British Council (Dearden, 2014), different countries in various geographical areas have

adopted EMI. In that part of the study, EMI policies in European, Asian and Middle Eastern countries are going to be reviewed.

One of the most important and widely shared objectives of tertiary education policy in Europe in the past two or three decades has been to enhance international student mobility. When the Erasmus Program started in 1987, not only temporary (credit) mobility but also degree mobility in another country increased. However, the language difference among educational institutions is one of the barriers that prevents students from becoming internationally mobile since domestic language was used as a medium of instruction until the end of the last century. The obvious strategy to overcome this linguistic barrier is to adopt a common language in academia. That is why in the policy discourse, EMI and international mobility are positively associated with a wide range of benefits. Wächter and Maiworm (2014) stated these benefits as follows:

increasing international understanding (or, in Europe, the building of a European identity), educating future ‘ambassadors’ for the host country and the country of origin, learning ‘from contrast’, enhancing education opportunities for students from low and middle income countries (including ‘developing’ countries), securing a steady inflow of talented students who would later become young researchers in the host countries and thus strengthen the higher education and research system, increasing labour market opportunities ‘abroad’ by providing graduates with an international experience, and internationally valued competences (‘employability’ at home and abroad), and generating income by means of tuition fees in those countries where the latter can be charged (p.25).

Similar to European countries, EMI has also emerged in Asian countries as a result of similar benefits of EMI. Especially those South-Asian countries, which were colonized before by English-speaking countries, such as Hong Kong, Singapore, India, and Malaysia, have widely adopted EMI. In addition, the other countries which do not have any colonial history, such as China, Japan, and Korea have adopted EMI since EMI has gained prestigious and popularity in order to internationalize the education institutions. In Korea, the first policy related to EMI surfaced in the early 2000s (Byun et al., 2011). With this policy, each department had to set up at least one EMI class and students also had to take at least one EMI class. In the second semester of 2009, two policies were introduced to support EMI. Professors and instructors who are hired on or after 2003 at universities have

to teach all of the classes through using English as a medium of instruction. Students who enrolled in the institution in 2004 have to take a minimum of five EMI courses. The number of classes that they have to attend changes depending on in which department they are studying (e.g. students from the School of Business have to take at least ten EMI classes.) (Byun et al., 2011).

Compared to South Korea and European countries, EMI is the current phenomenon in China (Macaro, 2018). In 2001, The Chinese Ministry of Education acknowledged EMI as one of 12 key policy objectives for increasing the quality of undergraduate programs in China (Hu, Li, & Lei, 2014). EMI has been set as a criterion by The Ministry of education for evaluating educational institutions for higher learning. EMI particularly has been adopted by science and engineering programs. In addition, many universities try to encourage their faculties to teach through EMI. That is why institutional and national policies have resulted in the rapid growth of EMI in Chinese tertiary education (Hu et al., 2014).

As for Japan, similar to China, it is a newcomer to EMI in higher education (Macaro, 2018). In 2006, EMI programs were being offered by 227 of the 778 state and private higher education institutions. Before 2009, there had not been any direct EMI policy intervention. This emerged when The Japanese Ministry of Education introduced the ‘Global 30 Project’. These 30 universities have become the pioneers of internationalization in higher education institutions. That policy was adopted to attract 300,000 students from different countries to Japanese higher education institutions. However, unlike other countries, Japanese universities do not promote Western educational approaches and try to create a larger space for the English language, which means that the courses taught in EMI are designed for ‘international students’ but not for domestic students. These courses are about promoting Japan to international communities but not becoming a part of it (Macaro, 2018).

Similar to European and Asian countries, in the Middle East, the use of EMI has been on a sharp rise, especially in the Kingdom of Saudi Arabia (KSA) (Macaro, 2018). In that country, there are currently 25 state universities and 27 private universities and colleges. Even though English is not recognized as an official language of the country, it is seen as the main tool for the development of the country and promoting science and technology on the international stage. In response to that desire, The Ministry of Education in the KSA determined English language proficiency as one of the key 11 goals (Macaro et

al., 2017) decreed to make English as the medium of instruction in all universities. This policy has led to the increase in intensive Preparatory Year Programs and the use of EMI in undergraduate programs such as nursing education programs because the official communication- both written and oral- among staff is obliged to be in English (Suliman & Tadros, 2011, as cited in Macaro et al., 2017).

The United Arab Emirates (UAE) has a long history of adopting EMI in federally-funded higher education institutions. Policy documents put forward by the Ministry of Higher Education and Scientific Research date back to the 1970s. In these documents, it is stated that the medium of instruction would be mostly in English (Macaro et al., 2018). That statement has led to an increase in programs taught through EMI. The use of EMI has been also seen as a strategy for shifting from an oil-based to a knowledge-based economy (Macaro et al., 2018). However, the debate over choosing either the instrumental value of EMI or the cultural and religious value of Arabic has led to another discussion that is a violation of the country's constitution (Macaro, 2018). That is why there is no consensus on adopting EMI in the UAE. Similar to the UAE, Qatar has also gone through the same debate. Since adopting EMI might be a threat to the Arabic language and the religion of Islam, Qatar University would rechange to Arabic (Macaro et al., 2018).

2.6. EMI policy in Türkiye

The Higher Education Council in Türkiye permits universities and their faculties to choose between EMI and Turkish as the medium of instruction (Kırkgöz, 2009a). However, if a university or a faculty desire to adopt EMI, they should meet a list of criteria issued in 1996 by the Higher Education Council. The first criterion stated that the department should involve an adequate number of content lecturers with sufficient language proficiency of English to deliver the course. Thus, the universities sent their academic staff abroad and employed many native-speaking lecturers to teach in the EMI faculty. For example, Istanbul Technical University has sent EMI lecturers abroad for 10 months for language education before giving lectures in English (Kerestecioğlu & Bayyurt, 2018). As for the second criterion, universities should have a foreign language center which offers English-medium courses to the students with low-English proficiency such as English for Academic Purposes or PYP. Since the proficiency level influences the

academic success of the students, each university has to establish a language center. The final criterion is related to the resources. The departments should have enough written or online materials in English on that discipline. Thus, the university libraries in Türkiye have increased their access to their written and online English publications (Kırkgöz, 2009a). Eke (2021) reported that there are 203 universities in Türkiye. 129 of them are state universities whereas 74 of them are private universities. Currently, there are 49 state universities that adopt 420 EMI programs in order to respond to the needs of citizens and to become international universities appealing to international students and preparing their students for the global market (Macaro et al., 2016; Eke, 2021).

In 2016, the Higher Education Council announced new standards for EMI lecturers in the Official Gazette. The article seven in this regulation is related to the linguistic requirements of EMI lecturers.

(7) It is provided that the courses that are taught through the foreign language in higher education institutions are given by lecturers who have a good command of English. In these programs, only the lecturers who have the one of the conditions mentioned below can teach through a foreign language:

- a) The language of instruction other than Turkish is the native language of the lecturer.
- b) Lecturers should complete the bachelor's or doctorate degree fully in a country where the language of instruction is spoken by the people in the country as a native language.
- c) Lecturers should work at least for one year (two semesters) in one of the higher education institutions in a country that is recognized by the Higher Education Council and whose language of instruction is the native language of the country. They should also work as a lecturer and teach courses. In addition, it should be documented officially by the respective higher education institution, and maximum two years can pass after leaving from the higher education institution.
- d) Lecturers should be successful with a point of 80 out of 100 in the centralized foreign language exams and the international foreign language exams that are equivalent to national exams (Higher Education Council, 2016; Official Gazette, 2016: 29662 Number).

In relation to these criteria, EMI lecturers are chosen because they are experts in their own academic field, and they have been abroad or speak English fluently. Yet, according to Dearden and Macaro (2016), along with proficiency and being an expert in the academic field, EMI education necessitates to develop lecturers' pedagogical skills such as what to teach, how to plan the lecture, how to present information through English and the language of science such as mathematics so that information they present in EMI context is suitable for students' language skills and ability to understand information. Therefore, instructional methods, techniques, and materials that are preferred to be used by EMI lecturers become significant for the presentation of knowledge at a comprehensible level through the medium of English. However, according to the studies of Dearden and Macaro (2016) and Macaro et al., (2016), similar to many countries such as European, Asian, Middle Eastern countries, in Türkiye, there is neither any standard language proficiency level for EMI lecturers nor any standard way of deciding which lecturers are competent to teach through EMI. EMI lecturers' lack of knowledge on pedagogy might negatively influence the quality of EMI education. Thus, this fact even suggests to research EMI lecturers' pedagogical choices regarding instructional materials and methods and techniques.

2.7. Teaching Competencies of EMI Lecturers

The decision related to the implementation of EMI might directly come from the governmental level or from a university faculty or department. The faculty member's desire to teach through EMI, their methodological and pedagogical knowledge and their language proficiency levels may be taken for granted during the decision-making process (TAEC, 2019). However, EMI goes beyond conveying content through English. It is a complex process which requires pedagogical and methodological knowledge and attention (Beltrán-Palanques, 2021).

At the micro-level, EMI lecturers are one of the key stakeholders because they are the driving factor in implementing EMI (Beltrán-Palanques, 2021). EMI lecturers' high language proficiency does not mean that they are qualified to do effective EMI lecturing. Although students, who enroll in EMI programs with low proficiency level of English, are obliged to attend Preparatory Year Programs (PYP) before taking EMI courses at their faculties, the courses in these programs are not mainly based on subject-specific

terminology or on teaching academic studies but on developing language skills (Dearden, et al., 2016). This suggests that these programs do not adequately prepare students for EMI courses (Kırkgöz, 2009a). Therefore, pedagogical points such as scaffolding and interactive methodology instead of teacher-centered lecturing and teaching skills like keeping students' attention, helping students' cognitive processing, supporting students' understanding with instructional methods, techniques, and materials gain importance in EMI programs since students might have comprehension difficulty. To be able to effectively teach and enable students to achieve academic goals, lecturers should include the teaching of subject-specific language. That teaching should not only facilitate conveying meaning and constructing meaningful communication in L2 but also should include using interactive tasks and using different ways to check meaning (Beaumont, 2020).

Lecturing in programs adopting EMI is not just related to lecturers' and students' language proficiency levels but also involves a shift in terms of teaching pedagogy and methodology (Beltrán-Palanques, 2021). Without taking enough training about how to teach in EMI, some lecturers simply might translate instructional materials and presentation slides from their first language to the target language, which means that they might overlook the integrative relationship between course content and the target language (Yuan, 2019). In addition, EMI lecturers are professionals in their content areas, which leads them to consider EMI as a pragmatic means to achieve a content-related aim. Therefore, they generally do not prefer to take the dual responsibility of teaching language and content. Besides, content lecturers have been reported as insisting that they are not even responsible for adjusting their language to students' English proficiency levels (Airey, 2012).

2.7.1. Certification of English Medium Instruction Competencies

In the light of the related literature, there is a need to determine what kind of competencies an EMI lecturer should be equipped to teach effectively those students with various linguistic levels and students from different cultural backgrounds in an international higher education context (Macaro, Akincioğlu, & Han, 2020). Competencies can be defined as the professional knowledge, understanding and skills required in order to effectively teach an academic subject through using English as a medium of instruction

(Macaro et al., 2018). There are a number of organizations which offer professional development courses or pre-service teacher education for EMI lecturers. One of these organizations is the University of Cambridge which offers a 40-hour online course called the Certificate in EMI Skills. The official website of the organization shows that at the end of the course, the lecturers may “communicate more effectively in English with students and colleagues, use a range of language in different situations, from lectures and tutorials to conferences and online discussions and increase familiarity with a range of skills for delivering instruction in English.” Another institution called the University of Southampton also offers a 16-hour course. The aim of the course is to qualify lecturers with teaching in international contexts by improving their English language skills and intercultural knowledge. Finally, the British Council offers a 35-hour course which aims to help lecturers to “structure and deliver lectures in English effectively and confidently communicate with students whose first language is not English, use the English language in supervision/discussion/small-group contexts.” Apart from the British Council’s course, the aims of these organizations put an emphasis on English language skills in general but not teaching an academic subject through English. This situation proposes that EMI lecturers are not expected to be qualified with pedagogical and methodological knowledge to teach in an EMI context where heterogeneous groups of students with a wide range of proficiency levels study an academic subject in an international context.

2.8. Learning Theories

Starting from ancient Greek philosophers, a large number of scholars have made contributions to the perspectives on learning. However, there is no universally accepted definition of learning by theorists, researchers, and practitioners since they disagree about the nature of learning (Schunk, 2012). This means that there is a variety of views on how learning occurs and how the underlying psychological variables affect it (Driscoll, 2005). Although, in the literature, there are many definitions which employ common elements, mostly used definition of learning is:

“Learning is an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience.”

(Shuell, 1986, as cited in Schunk, 2012, p. 3)

This definition suggests the three criteria of learning. These are “learning involves change, learning endures over time, learning occurs through experience” (Schunk, 2012, p. 4). The first criterion proposes that individuals learn when they can do something in a different way. The second criterion is that learning is not something temporary because the changes of brief duration cannot be classified as learning. Yet, it may not last forever because forgetting occurs. The final criterion suggests that the development of behaviors depends on social interactions with the environment. Learning occurs through practice and observation of others.

Since the theory is an integral part of the study of learning, what is meant by a theory should also be mentioned in this study. A theory is defined as a bridge between research and education that involves a scientifically acceptable set of principles used to explain a phenomenon (Suppes, 1974, as cited in Schunk, 2012). As for learning theories, they aim to explain how to “achieve some kind of understanding about how students learn knowledge, understanding and skills, how educational structures and practices evolve or develop particular perceptions, visions, or strategies for the transfer or communication of knowledge” (O’Neill & Senyshyn, 2011, p. 5). Because of different epistemological perspectives that are also known as theories of knowledge, there are three main learning theories which try to map learning and instruction (Tamim & Grant, 2016). These are behaviorism, cognitivism, and constructivism.

In 1913, John B. Watson, who is one of the first behaviorists, published a kind of manifesto called *Psychology as the Behaviorist Views It*. According to the manifesto, psychology should be redefined as the study of behavior (Skinner, 1974). It should comprise behavior as its subject matter and also rely on experimental observation of that subject matter as its method. That experimental analysis of behavior as a subject matter is based on objectivity, which opposes subjectivity. To ensure objectivity, Watson employed measurement and analytical techniques from animal psychology and reflexology. He applied them to adaptive kinds of behavior. In doing so, he put an emphasis on the overt behavioral aspect of learning by ignoring consciousness, feelings, and states of mind (Skinner, 1974). This emphasis suggests that learning is an observable and behavioral change that occurs as a result of the interplay of stimuli, response and reinforcement. According to Skinner (1953), the stimulus is a function that occurs in the future as a consequence of a prior response that is reinforced. As a result of reinforcement, response is not elicited as in a reflex, which means that response might occur again in the future

(Skinner, 1974). As for the goal of behaviorist instruction, it is to “elicit the desired response from the student who is presented with a target stimulus” (Ertmer & Newby, 1993, p. 54). To be able to execute proper response, the instruction should be designed around the presentation of the stimulus and opportunities for students to practice (Ertmer & Newby, 1993). Therefore, they prescribe the strategies that might strengthen and build stimulus and response associations. Some of these strategies involve “discriminations (recalling facts), generalizations (defining and illustrating concepts), associations (applying explanations), and chaining (automatically performing a specified procedure)” (Ertmer & Newby, 1993, p. 56). As for teachers’ job, they need to determine cues that help to make desired responses, to design practice situations where the establishment of the target stimuli and responses are made, and to organize conditions related to the environment in order to make correct responses and receive correct reinforcement for those responses (Ertmer & Newby, 1993).

In the late 1950s, cognitivism replaced behaviorism, which means that there is a shift from using behavioral models to models from cognitive sciences. Contrary to behaviorism which focuses on observable change of behavior, cognitivism focuses on the role of mental activities in the learning process. The cognitivist educators and psychologists de-emphasize observable behavior, but they stress the importance of more complex cognitive processes. These cognitive processes are thinking, remembering, perceiving, interpreting, reasoning and problem solving (Clark, 2018; Ertmer & Newby, 1993). The cognitivists believe that students have the ability of rational thought and learning by active participation. Therefore, how to conceptualize students’ learning process, and how information is received, organized, stored, and retrieved by mind gain importance (Ertmer & Newby, 1993). Teachers or instructional designers should analyze tasks to determine the most appropriate ones for the students so that they can process the information received effectively and efficiently. Unlike behaviorism, cognitivist models suggest that the students’ characteristics may promote or hinder the cognitive processing of information (McLeod, 2003). According to Jonassen (1991), learning is concerned with what the students know and how they come to acquire it. Therefore, the role of teachers is to help students to organize the information by using techniques such as analogies, organizers, and hierarchical relationships to relate new information to previous knowledge (Ertmer & Newby, 1993).

Constructivism has its roots in the works of Dewey (1929), Bruner (1961), Vygotsky (1962) and Piaget (1980). It is an approach based on the assumption that learning is the consequence of mental construction. This means that students learn by fitting new information together with their previous knowledge (Bada & Olusegun, 2015). Similar to cognitivists, constructivists believe that students' beliefs and attitudes have an impact on the learning process. Yet, cognitivism suggests that the learning environment along with students' perceptions should be considered in the learning process whereas constructivism says that knowledge is something constructed by individuals inside themselves but not something imposed from outside. Unlike behaviorism and cognitivism, in constructivism, learning is not to transmit knowledge to students. Also, the goal of instruction is not to make students know the target facts but make them interpret and elaborate on information. Students are active agents in the process of acquiring knowledge. They construct knowledge and meaning through their experiences and reflecting on these experiences. Therefore, the constructivist point of view proposes different teaching practices, which encourage students to use active techniques such as problem-solving, experiments etc. (Bada & Olusegun, 2015; Ertmer & Newby, 1993). In addition, it is student-centered that leads the students to ask questions and explore the interpretations of meaning. As for the job of instructors, they become facilitators or guides of the learning process (Bada & Olusegun, 2015).

Finally, behaviorism, cognitivism and constructivism try to explain the learning process from different perspectives. Yet, any of these learning theories could not solve all kinds of problems related to learning (Senemoğlu, 2002). They provide information about how learning occurs but not about how to design a curriculum or lesson plans and instructional materials. To be able to design teaching, different models of teaching grounded on these learning theories are used to guide instructors while designing teaching and learning processes (Akdeniz, 2016).

2.9. Instructional Process

Teaching or instruction, which is used interchangeably, is defined by many scholars (e.g. Akdeniz, 2016; Moore, 2007; Reigeluth & Carr-Chellman, 2009; Smith & Ragan, 1999). Akdeniz (2016) defines instruction “as the whole process applied for learning to occur and for the development of the target behavior that students are expected to have.”

(p. 57). According to Moore (2007), instruction is to help students to reach the highest level of development in terms of emotional, physical, social, and cognitive aspects.

As for Reigeluth and Carr-Chellman (2009), they mentioned a distinction between instruction and construction made in the literature. According to that distinction, instruction is something that is done to students, which means that students are passive during the learning process whereas construction refers to something that is done by students which implies that students are active. However, one of the principles of constructivism is that human beings can only learn by constructing their own knowledge, which implies that learning cannot occur passively. Instruction should foster any learning activity which leads to construction. Therefore, they define instruction as “anything that is done purposefully to facilitate learning.” (Reigeluth & Carr-Chellman, 2009, p. 6). Finally, Smith and Ragan (1999) define the instruction as “the development and delivery of information and activities that are created to facilitate the attainment of intended, specific learning goals” (as cited in Akdeniz, 2016, p. 59).

As mentioned before, learning theories are descriptive and they try to describe how learning occurs and what is happening inside the student’s head when learning occurs. They cannot be directly and easily applied to educational problems (Reigeluth, 1999). Therefore, instruction grounded on learning theories, which is not only systematic guidance for learning but also a purposeful organization of experiences to assist students to attain the intended change in their performance, should be designed, implemented, managed and evaluated by the instructors (Şimşek, 2011; Reigeluth, 1983). This implies that instruction consists of five major activities: design, development, implementation, and evaluation. Instructional design is a decision-making process on what instructional methods are the best to achieve desired changes in students’ knowledge and skills for a specific course content. Instructional development is the process of developing new instruction in a given situation by prescribing and using optimal procedures. Instructional implementation is “the process of prescribing and using optimal procedures for adapting a specific instructional program/ or an institution so as to enable optimal outcomes from that program in that institution.” (Reigeluth, 1983, p. 8). The concern of instructional management is “understanding, improving, and applying methods of managing the use of an implemented instructional program.” (Reigeluth, 1983, p. 8). Finally, instructional evaluation is concerned with the methods that assess the effectiveness and efficiency of all these processes.

To be able to design efficiently and effectively instruction, what instructional models, instructional strategies, instructional methods, techniques, and instructional materials will be employed depending on the needs of students and the intended behavior and goal of instruction is a question that should be answered by the instructor. The instructors' informed decisions regarding the choices of models, strategies etc. will affect the quality of teaching and learning. Besides, the instructor should keep in mind that in the instructional process, there is interrelationship among instructional models, strategies, methods and techniques and instructional materials. As it is seen in Figure 3., what instructional model the instructor applies will have an impact on which instructional strategies will be employed. Similarly, which instructional strategies will be employed will have an impact on the choices of instructional methods and techniques (Akdeniz, 2016; University of Saskatchewan, 1991).

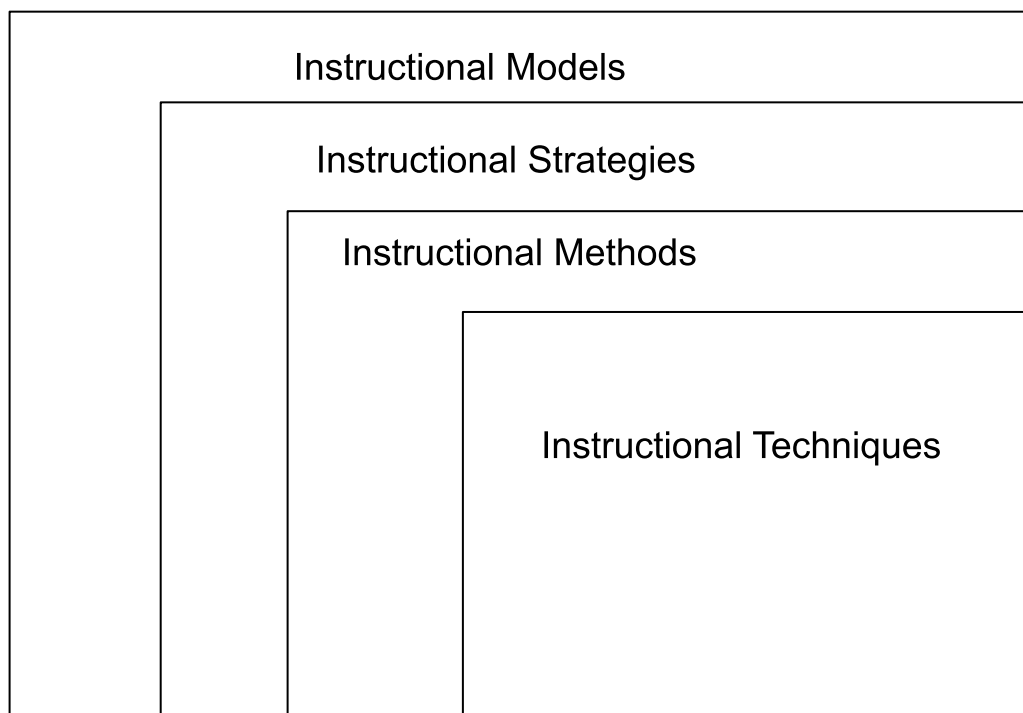


Figure 3. Instructional framework (Akdeniz, 2016; University of Saskatchewan, 1991)

2.9.1. Instructional Models

Instructional models are procedures and steps that are followed by the instructor so that the instructional activities employed in the classroom become more efficient and productive (M. A.,Ocak, 2015). According to the learning theories, learning is a process of

change which reveals itself in motor, cognitive, and psychodynamic behavior as a result of students' experiences (Driscoll & Burner, 2005; Lowyck, 2014). The three main learning theories, which are behaviorism, cognitivism, and constructivism, are based on different epistemological perspectives. This difference in perspectives maps the domain of learning and instruction differently, which leads to different instructional models such as Behaviorist Models, Cognitivist Models and Constructivist Models (Driscoll & Burner, 2005). These models have an impact on identifying which instructional strategies, methods and techniques are going to be used in the classroom. Briefly, instructional models comprise instructional strategies, methods, and techniques (M. A, Ocak, 2015).

Behaviorist models are Programmed Instruction Model (Skinner, 1968), Mastery Learning Model (Bloom, 1980) and Effective Instruction Model (Slavin, 1995). Firstly, the Programmed Instruction Model, which was first put forward by Skinner in 1968, is a kind of learning grounded on the operant conditioning -behaviorist learning theory- to be able to develop instruction. The aim of this model is to enable students to reach the predefined behavioral aims. Students' behaviors are tried to push toward these aims by means of reinforcement or stimulus. The feature of this model is that the content is divided into small instructional parts called 'framework' and each framework consists of questions and sentences. Students read each framework and immediately answer the questions related to the framework. They get feedback about whether the answers are correct or not as soon as possible. Instruction evolves individually and independently, and students take an active role during the process. As for the Mastery Learning model which was developed by Bloom, it is for whole-group teaching or school-based learning. This model is based on the view that all of the students could learn new behavior by means of a planned and sensitive approach (Bloom, 1980). It proposes that until a student reaches a predetermined proficiency level in relation to learning aims, he or she should not proceed to the following learning aim. If necessary time and learning opportunities are provided, nearly all of the students can learn the target behavior regardless of the content (Senemoğlu, 2002). Mastery Learning focuses on organizing learning aims and units by dividing them into small parts and putting them in order and conveying them by employing methods such as group work and individual work in the classroom (G. Ocak, 2015). Besides, it has similar features to the features of behaviorist learning theory related to operant conditioning. Therefore, Mastery Learning suggests that learning occurs with the help of stimulus and response which is given to the stimulus. It focuses on behaviors that can be observed and

measured. Finally, according to the Effective Instruction Model developed by Slavin (1995), there are four main variables of effective teaching: the quality of instruction, appropriate levels of instruction, incentive, and time. The quality of instruction is the outcome of the quality of curriculum and of the course presentation itself. Which information and skills are going to be presented and how students easily learn and associate new information and skills with previously learned ones are the main concerns of this variable. According to the variable ‘appropriate levels of instruction’, instruction should not be too difficult or too easy. In addition, lecturers should ensure that students have the necessary knowledge and skills so that they are ready to learn a new lesson. Incentive is related to the motivation level of students while working on materials presented and instructional tasks. Finally, time is about giving enough time to students in order for them to complete the task and attain learning aims (Slavin, 1995).

In general, the behavioral instructional models put the lecturer in the center of the learning process. The interplay between stimulus and response is strengthened through practice and assessment. The learning process that the students' experience is considered as universal and general according to behavioral instructional models (Tamim & Grant, 2016). These models use principles of behaviorist learning theory such as “gaining students’ attention, reinforcement, providing students corrective feedback, and providing the student an opportunity of practicing correct responses or behaviors” (Burden & Byrd, 2003, as cited in Belikuşaklı-Çardak, 2016, p. 8). Since learning occurs when there is an observable change in behaviors of students, instructional design should be based on a predictable and reliable set of behaviors in order to attain desirable and demonstrable skills (McLeod, 2003). Therefore, in order to avoid unpredictable behaviors and to strengthen the associations between stimulus-response, the lecturers need to prescribe instructional strategies, methods, techniques and materials (Winn, 1990, as cited in Ertmer & Newby, 1993). They are expected to organize the instruction around the presentation of the target stimulus (Ertmer & Newby, 1993).

Gagné’s Nine Events of Instruction based on the Information Processing Model can be categorized under the cognitivist instructional models. However, it also shares similarities with some of behaviorist models and constructivist models (Akdeniz, 2016; Reigeluth & Moore, 1999). Gagné, Wager, Goals, and Keller (2005) states that learning occurs as a consequence of internal learning phases. These internal learning phases like previously learned capabilities are affected by external events such as activities and

materials (Gagné et al., 2005). The interaction between the internal learning phases and external factors results in some kinds of learning outcomes. These learning outcomes can be classified under five major categories: intellectual skills, cognitive strategy, verbal information, motor skills and attitudes as learned capabilities (Gagné et al., 2005). Each of these learning outcomes develops throughout a learning process which is formed of series of phases called as events of learning. These events of learning are attention, selective perception, rehearsal, semantic encoding, retrieval, response organization, feedback, and executive control processes. They are based on information-processing model which proposes that learning starts with stimulation and ends with feedback regarding the student's performance. Following this order of learning phases helps students to activate cognitive strategy which assists them to moderate the learning process. The instruction, which is following this sequence of events of learning, aims to support learning processes. Therefore, instructional events should include the following steps: gaining attention, informing students of the objective, stimulating recall of prerequisite learning, presenting the stimulus material, providing learning guidance, eliciting the performance, providing feedback about performance correctness, assessing the performance, and enhancing retention and transfer (Gagné et al., 1992). Consequently, cognitivist models help students in learning through organizing and sequencing materials and encouraging associations with previously learned material (Reigeluth & Moore, 1999). Lecturers can use analogies, metaphors, mnemonics, and concept mapping to help students make associations between new information and previously learned information (Ertmer & Newby, 1993).

The last category of instructional models is constructivist models. These models are 5E Instructional Model (Bybee, 1993), Anchored Instruction, Reciprocal Teaching (Palincsar, 1986), Situated Learning (Lave & Wenger, 1991). Firstly, the 5E Model carries the characteristics of the constructivist paradigm. The model aims to make students attain the new knowledge by using students' previously learned knowledge and skills. Throughout the learning process, students' previous knowledge, learning environment, characteristics etc. are important. According to constructivist learning theory, effective teaching can be possible by means of getting attention, research and discovery, analysis, sharing and applying what is learned to life. 5E Model puts students at the center of the teaching-learning process. The model consists of five phases: engage, explore, explain, elaborate and evaluate. This model is designed to involve all aspects of inquiry-based learning environments through *engaging* students by motivating about the information they

will learn and activating their previously learned knowledge, allowing them to *explore* the concepts, materials or phenomena that are introduced, discover *explanations* for the concepts that the students are learning, and *elaborate* on what they have learned by employing their knowledge to new situations (Orgill & Thomas, 2007). Similar to the 5E Model, Anchored Instruction also aims to solve a problem or a phenomenon by associating it with real life. The problem can be presented in the form of a story. The story includes problems, and these problems are divided into sub-problems. By analyzing and solving these sub-problems, students are asked to reach a final conclusion. Anchored Instruction involves instructional methods such as problem-based learning and case study. As for Reciprocal Teaching, it is an approach which focuses on reading comprehension. In this model, lecturers and students take turns leading dialogue about specific segments of text through using cognitive and metacognitive strategies. The specific strategies used in this model are summarizing, questioning, clarifying, and predicting (Hartman, 1994; Palincsar & Brown, 1984). Summarizing refers to getting students' attention to the related information and also monitoring the effectiveness. Questioning aims to make students ask questions so that lecturers can understand whether the students comprehend the content. Clarification refers to evaluating information critically and monitoring comprehension. Finally, predicting involves students' prediction about what is going to be the following content with the help of previously shown contents. The main aim is to make students comprehend the information and not forget what they have learned (Hartman, 1994; M. A. Ocak, 2015; Palincsar & Brown, 1984). Finally, Situated Learning, which was put forward by Lave & Wenger (1991), proposes that meaningful learning can only be possible in a context that is socially and physically determined. Within the context in which learning occurs, students become the practitioners instead of the role of observer when the level of learning and experience increases. Situated Learning supports the idea that students learn knowledge the best with the help of authentic and factual situations in the culture within the social environment (M. A. Ocak, 2015).

To sum up, behavioral instructional models put the lecturer in the center of the learning process. The relationship between the stimulus-response gains importance. Cognitivist models focus on how to structure the process of instruction to facilitate the mental processing of the target material. Constructivist models support the cognitive process but primarily focus on collaboration among students to solve authentic and factual problems (Tamim & Grant, 2016). Although all of the models provide different

instructional strategies, methods, techniques and materials based on different learning theories, they may overlap at certain points of the courses due to the nature of learning tasks and the proficiency levels of the students (Ertmer & Newby, 1993). As a result, to be able to achieve the learning outcomes and enhance the students' understanding, EMI lecturers need to focus on these instructional models informed by learning theories while designing and planning instruction (Jonassen, Grabinger & Harris, 1990).

2.9.2. Instructional Strategies

To be able to achieve the main aims of instruction, instructional strategies remark the ways and approaches followed by the lecturers (Akdeniz, 2016). In the literature, instructional strategies are also called “teaching strategies” or “instruction strategies”. In some of the studies, they are even called as “instructional methods” which involve specific instructional phases in concordance with the purposes of the subject and the features of the content area in order for students to attain the intended behavior (Silver et al., 1996, as cited in Akdeniz, 2016). However, in this study, they are called as instructional strategies. Instructional strategies are used both to apply learning theories in a useful way and to obtain the target learning outcomes (Akdeniz, 2016). According to Marzano (2003), the instructional strategies influence students' achievement. Besides, they allow lecturers to varyify the instructional applications. Marzano (2003) also states that the effectiveness of instruction can be increased by making informed decisions that are not mysterious and random. When the related literature is investigated, several headings are created by the researchers to classify instructional strategies. These classifications are done depending on several variables: “who is the focus of instructional activities; what methods and techniques are used in the process; whether the process is followed with an inferential, deductive or inductive understanding; and which constructs are taken into consideration in the preparation, presentation, and restructuring of the information” (Akdeniz, 2016: 63). Besides, in some of the studies, instructional strategies are classified “depending on how information is produced and how this information is acquired by students; and in some other studies, they are classified based on the instructional models that act as a source for strategies” (Akdeniz, 2016, p. 63).

In some research, instructional strategies are classified under four groups since they are connected with instructional models. These four groups are presentation, discovery,

inquiry, and cooperative/collaborative strategies. First of all, the presentation strategy is based on Ausubel's Meaningful learning theory. This strategy is teacher-centered. According to Ausubel, there are three fundamental stages of presentation strategies: first, the presentation of advance organizers that are introduced in advance of learning; second, the presentation of new content and materials; third, strengthening the cognitive organization through comparisons and cross-referencing of new and previously learnt ideas. The instruction is organized from abstract to concrete. The main focus is on deductive reasoning. Furthermore, this type of instruction is informative instruction. The methods and techniques used in this strategy are workshops, question and answer, lecture, case study, discussion, brainstorming, demonstration etc.

Discovery strategies are based on Bruner's theory of development. According to this theory, thinking is the outcome of cognitive development. Students need to construct their own knowledge through discovering instead of being told by the lecturers. Since instruction is based on inductive reasoning, student-centered, and students have an active role in the instructional process, it should not be organized for the students. Students should find out the information they need by themselves. According to Bruner, effective instruction should be personalized, which means that instruction should relate to students' familiarity and increase their interest. Content should be structured in order to make it easy for students to grasp the content. The presentation of material should be sequenced. Finally, reward and punishment should be placed and selected in an appropriate way. The methods and techniques in discovery instructional strategies are brainstorming, role-playing, question and answer, discussion, debate, drama, analogy, case study etc.

As for Inquiry strategies, they are mainly based on Suchman's and Dewey's studies. Throughout the learning and teaching process, the questions, ideas, and observations of students should be placed at the center of the learning experience (Akdeniz, 2016). According to Cambridge Dictionary, inquiry means the act of asking for information. As can be understood, the process of inquiry is mainly about gathering information and data, then applying what is found to senses like seeing, tasting, touching, hearing and smelling. The important factors for inquiry strategies are questioning and finding answers. There are six stages of inquiry strategies: "feel the problem and confront it, describing the problem and making it clear, collecting related data and making hypotheses, finding appropriate methods and collecting substantiating data, testing hypotheses through analyzing data and evidence and reporting results" (Akdeniz, 2016, p. 68). The instruction is student-centered

and experiential. Both deductive and inductive reasoning are employed in the teaching and learning process. The methods and techniques in inquiry instructional strategies are trip, observation, workshop, individual study, experiment, lab, case study, problem-solving etc.

The last category of instructional strategies is cooperative/ collaborative strategies, which are mainly based on Vygotsky's studies. These strategies are student-centered. To be able to solve problems, students work in small groups. By doing so, they may gain the ability to see problems from different points of views. The higher-order thinking and problem-solving skills can be improved through these strategies. According to Slavin (1990), there are three fundamental factors that constitute cooperative strategies: having group goals, making individual responsibility essential, and having equal chances for success. Having group goals should reinforce students to work together and help each other for their success. Making individual responsibility essential proposes that the achievement of the group depends on each member's highest level of learning. Each member has individual responsibility toward the group. Finally, the meaning of having equal chances for success is that it is the contribution to the group's success that students do by improving their previous performances. The methods and techniques that are used in cooperative/ collaborative strategies are Student Teams-Achievement Division (STAD), problem-solving, case study, inquiry, Think-Pair-Share, group investigation, teams-game-tournament, Cooperative Integrated Reading and Composition (CIRC), jigsaw, etc.

2.9.3. Instructional Methods and Techniques

Turkish Language Association (2016) defines methodology as "a systematic path designed to accomplish certain goals". Besides, Öncül (2000) defines it as "a systematic way of studying on phenomena and concepts" (as cited in Vural, 2016, p. 108). As for method, it is defined as "a way consciously employed in order to realize identified instructional and educational goals" (Öncül, 2000, as cited in Vural, 2016, p. 108). Instructional method should be considered along with model, strategy and technique. Therefore, selecting a specific way to attain educational goals can be considered as one of the teaching skills of lecturers (Vural, 2016). There are some factors that affect the lecturers' choices (Küçükahmet, 2000; G. Ocak, 2015). These factors are time, cost, class

size, lecturers' familiarity with the method, instructional goals, and the feature of the content, physical facilities and arrangement.

Time is one of the most important factors that affects the choices of lecturers. When we analyze the methods in terms of the required time to apply them, modern methods require more time than traditional methods. Today, most of the lecturers explain their choice of traditional methods as time-saving (Küçükahmet, 2000). Next, the lecturer's familiarity with specific methods makes lecturers apply these methods more than others since they feel comfortable. However, to be able to enrich the teaching and learning process, lecturers should include as many methods as possible. This understanding has become a universal principle and generalization (Küçükahmet, 2000). As for cost, lecturers may apply different methods for the same target due to cost. For instance, they may go for a lecture instead of an expedition, which costs more than a lecture. Class size also has an impact on the choice of methods. Modern methods such as experiments, and small group discussions are more suitable for classes with fewer students. In addition, instructional goals and the features of the content are significant during the process of determining methods. For instance, the experiment technique can be fruitful for science-related academic subjects and heavy loads of content might be directly taught by lecturers instead of using the discussion method. Finally, physical facilities and arrangements suggest that to be able to apply a group discussion or experiment, the desks in the classroom should be movable. Students can also move from one place to another freely (Küçükahmet, 2000; Vural, 2016). Besides, the materials, tools and equipment influence lecturers' choices of methods and techniques (Vural, 2016).

Depending on these factors, lecturers might choose to implement various instructional methods. The list of instructional methods which are most likely to be used by the EMI lecturers at the department of MBG (100% English) and Biology (%30 English) is given below:

- *Lecture*: It is a traditional method where lecturers convey autocratically the content to the students who sit and listen to the lecturers passively (Küçükahmet, 2000). Since it eases the planning process of teaching and can be adaptable to every content and setting, it is the most applied method by lecturers. It is a teacher-centered method. The main purpose of this method is to convey fundamental knowledge to large groups of the students. This method is related to Ausubel's Meaningful Learning Theory, which suggests that with the help of

deductive reasoning and associating the previous knowledge of the student with the new information, meaningful learning can be assured (Vural, 2016).

- *Question-Answer*: Questions that are formed by lecturers beforehand are asked to students verbally and are expected to be answered by students in the process. Lecturers should know what questions should be asked when. The quality of the questions should be just making students remember something related to the subject but leading them to think analytically. Questions can be applied by means of measuring the learning in levels of knowledge, comprehension, application, analysis, synthesis, and evaluation (Küçükahmet, 2000).
- *Demonstration-Practice*: In this method, the target skills are demonstrated and explained by lecturers. Then, students are asked to do the same procedure as lecturers demonstrate them (Tan, 2011). Students learn through observing a model and practicing what the model does in front of them.
- *Demonstration*: It is a method where lecturers show how to use a tool or explain the related principle of a tool. Kinetic skills are taught through this method. Students learn through observing a model. The demonstration method appeals to more than one sense (Küçükahmet, 2000; Vural, 2016). Other methods such as discussion and drama can also be employed along with this method (Akdeniz, 2016). It is both student and lecturer-centered.
- *Case Study*: This method is the analysis of real or imaginary problems in the classroom. Students should actively participate in the class. Students work on a rapport which tells events or situations or involves the necessary data. They learn the situation, analyze the data, and evaluate the problem. By discussing, they give suggestions regarding the causes of the problem and solutions (Küçükahmet, 2000).
- *Discussion*: The meaning of discussion is to exchange ideas and opinions in a group or individually to be able to reach the intended goals of a lesson (Akdeniz, 2016). It is a student-centered method. Students can participate in the class actively. Students are expected to share their ideas about a topic under the lecturer's supervision. This method assists to improve the critical thinking skills, self-expression, and democratic attitude of the students. Since students have an opportunity to express their ideas and opinions, they can understand, define, and solve problems much better (Küçükahmet, 2000). This method can be effectively

applied when the group size is small. Class size should not be more than 20-25 students (Küçükahmet, 2000).

- *Problem Solving*: This method is based on John Dewey's studies. It has five phases: identifying the problem, formalizing the hypothesis, gathering, organizing, evaluating and explaining the data, reaching results and testing the results. Higher-order thinking skills such as analyzing, generalizing, and synthesizing are used in this method. Students actively participate in the process. They learn how to think independently and take responsibility for what they are doing (Küçükahmet, 2000).
- *Field Trip*: To attain educational goals, students take a trip and observe what they are supposed to learn in the real world instead of in a closed-classroom environment (Küçükahmet, 2000).
- *Project-based learning*: In this method, there are ten stages: identifying objectives, identifying what is going to do or the subject that is going to be addressed, forming the groups, identifying the features of presentation reports and the type of presentation, forming a work schedule, identifying the checkpoints, identifying the evaluation instruments and their level of efficiency, gathering information, reporting the gathered data and the presentation of the project. Students are expected to work in groups where they can apply different practices regarding the subject to be able to come to a conclusion (Küçükahmet, 2000).

In the literature, these instructional methods and techniques are classified in terms of class size, the type of the role of lecturer and students in the classroom, the physical setting, and skills and behaviours to be infused on students. To be able to choose which methods are suitable for a specific classroom, lecturers should know their limitations, features, and contributions of them. Fer (2011) classified instructional methods as teacher-centered, individual-centered, and interaction-centered. She stated that in the categorizations that she did, some of the methods are categorized as techniques and some of the instructional techniques are categorized as methods in the literature because of the closeness of the two terms. Teacher-centered instructional methods are lecture and demonstration. Individual-centered instructional methods are problem-solving, project-based learning, and experiment technique that is put under the title of instructional techniques in the present study. Interaction-centered instructional methods are question and

answer, discussion, role-playing, case study, active learning, brainstorming- which is also put under the title of instructional techniques in the present study-, and learning with games.

As for instructional techniques, they are sub-component of instructional methods. Unlike instructional methods, they can be applied independently. In an instructional method, there are many instructional techniques used by lecturers. For example, a lecturer who will use presentation strategy as an instructional approach can choose lecture as an instructional method and conference, seminar, panel, or forum as instructional techniques. An instructional technique helps instructional methods to attain the goals of method and instruction. An instructional method is a way of attaining an objective whereas an instructional technique is a type applied in doing works and procedures (Gündüz, 2016). Therefore, the instructional technique can be defined as an application form of an instructional method (Alkan, 1979). However, while some scholars and researchers define a concept as an instructional method, the same concept can be defined as an instructional technique by some others since they also have common features. Both have a purpose, principles and rules. They require a certain process to be employed. They both are a way for learning and teaching.

Similar to the instructional methods, there are several factors affecting the choice of instructional techniques (G. Ocak, 2015). These factors are learning objectives, lecturers' capability of using the techniques, students' number and characteristics (e.g. previous knowledge, interest, learning styles, and motivation), teaching and learning context, content, cost and physical facilities and arrangement, time and whether techniques' features are suitable to teach effectively, transfer of learning (e.g. whether the techniques have potential to simulate the context). In this specific study, the following instructional techniques are purposefully selected as a result of the research of the related literature and the research setting.

- *Experiment Technique*: In this technique, lecturers or students try to prove or demonstrate a scientific fact. After the lecturer does an experiment, students must try it and the scientific results should be found through discussion. This process of experiment develops students' analytic thinking skills (Tan, 2011).

- *Observation Technique*: It is a technique that students monitor and examine indications of objects, cases, or facts in a planned manner by means of eyes or visual tools step by step (Binbaşıoğlu 1983 cited in Yıldızlar 2013).
- *Brainstorming Technique*: It is a technique that helps students to generate new ideas or solutions regarding a given problem. Brainstorming includes investigating the causes of an event or a situation (Gündüz, 2016). It increases students' involvement.
- *Concept-Map Technique*: It is a technique where the related concepts in a subject are extracted and the relationship between these concepts is shown in a two-dimensional way. It is based on Ausubel's studies on Meaningful Learning Theory.
- *Fishbone Technique*: Since Dr. Kaoru Ishikawa used this technique first, it is also known as Ishikawa diagrams. It is used to identify the actual causes of a problem. A structure was provided for a group discussion. To be able to use this technique effectively, there are steps to follow (G. Ocak, 2015): writing the problem and thinking it in detail, identifying the factors affecting the problem, brainstorming the causes of the problem, analyzing the diagram, and deciding to take action.
- *Analogy Technique*: It is the process of deciding about the unknown features of the other with reference to the known features of one by comparing two phenomena, events or objects. In the end, the decisions regarding the topic are made.
- *Seminar or Conference Technique*: It is the presentation of a topic in front of audiences by expert speakers (Küçükahmet, 2000).
- *Forum Technique*: A small group of experts informs audiences. At the end of the presentation, the audiences ask questions to the experts. In the forum technique, experts do not discuss the topic with each other and do not ask questions to each other (Gündüz, 2016; Küçükahmet, 2000).
- *Panel Technique*: In this technique, members of a group do research on a specific topic or problem, examine the data that they find and explain their thoughts one by one by benefiting from preliminary preparation. Generally, a lecturer or a peer takes the role of a moderator. Each speaker is given equal time to speak (Küçükahmet, 2000). At the end of the panel, there might be a group discussion regarding the topic.

- *Opposite Panel Discussion*: It is a discussion type of a subject by dividing the class into groups: a question group and an answer group (Tan, 2011). A moderator is chosen. The groups should make preparations beforehand. This technique is used for identifying, reviewing and summarizing the topic that is not understood in the lesson (Tan, 2011).
- *Workshop Technique*: A group of people who have a common interest or problem come together to improve their subject skills by means of research, practice, and discussion. The duration of the workshops is three to ten days. It might even be 40 days long depending on the nature of the task (Gündüz, 2016). Puri (2006) states that there are three stages: presentation of the theme and raising awareness, practicing the approach for its employability and the evaluation of the material and the programme.
- *Buzz Groups Technique*: These groups are formed by dividing large groups into small groups. “Buzz 22, Philips 66” are examples of the types of buzz groups. They take their names from discussing a subject for two or six minutes among a group of two or six students (Doğanay, 2015; Küçükahmet, 2000). The most important point of this technique is that a subject is discussed by students on allocated time (Küçükahmet, 2000).
- *Reciprocal Questioning Technique*: It is the technique where after the lecturer presents a subject, the class is divided into small groups and these groups prepare open-ended questions related to the subject. Each group asks these questions to each other.
- *Interview Technique*: It is meeting with experts on a subject and collecting data.
- *Simulation Technique*: It is a hypothetical and artificial experience where students can engage with an activity that reflects real life.
- *The Six Thinking Hats Technique*: This technique is a method created by Bono (1985). Students’ thoughts and suggestions are formed depending on the colours of the hats (Küçükahmet, 2000). This technique helps students to systematize and put suggestions and thoughts in order (Gündüz, 2016). The white hat refers to being objective. It is a way of asking for facts in an objective manner. The red hat is about how everyone feels about a situation. Emotions, feelings, and intuition are in the domain of the red hat. The black hat involves risks and pessimistic reactions (Küçükahmet, 2000). It is the hat of caution (Gündüz, 2016). The yellow hat is

related to optimistic thoughts, advantages, and benefits (Küçükahmet, 2000). The green hat is the hat of creativity, and new ideas (Gündüz, 2016). The blue hat is about the conclusions and solutions (Küçükahmet, 2000).

- *Station Technique*: In this technique, learning stations where a subject is repeated and discussed by means of different activities are created (Tan, 2011).
- *Team Games Technique*: Depending on students' levels and interests, there are many different types of instructional games. It increases students' motivation and creativity. It helps students to learn how to cooperate and interact with other students (Gündüz, 2016).

These instructional techniques are also classified depending on different criterions such as learning environment, class size, learning skills, and instructional methods. However, in this study, Gündüz's (2016) classification depending on instructional methods is used because they are inclusive and show the relationships between the instructional methods and instructional techniques. According to this classification, techniques are classified under five different categories: techniques used with the lecture method, techniques used with the problem-solving method, techniques used with the demonstration and practice method, techniques used with the discussion method, and techniques used with the dramatization method. Firstly, techniques used with the lecture method are conference/ seminar, forum, concept map, etc. Techniques used with the problem-solving method are brainstorming, analogy, six thinking hats, fishbone diagrams, problem-solving, workshops, station technique, etc. Techniques used with the demonstration and practice are demonstration, experiments, educational team games, projects, observation, and field trips. Techniques used with the discussion method are group discussions, opposite panel discussions, panels, reciprocal questioning technique, buzz groups, class discussions, interviews, etc. Finally, techniques used with the dramatization method are simulations, role play etc.

When it comes to the EMI context, the overall evaluation of the effectiveness of instructional models, strategies, methods, and techniques that are used by lecturers is rarely examined in the field. The instruction is called effective when the outcomes of the learning process bring an effect to the students in understanding the aims of instruction, and the presented concepts. Therefore, it is important for EMI lecturers to collect, analyse and present information about the object of evaluation so that they can develop their teaching

process and make informed decisions for the following choices (Divayana, Sappaile, Pujawan, Artaningsih, Sundayana, & Sugiharni, 2017). This is called formative evaluation. Yet, if the evaluator collects the data in order to decide whether to use or discontinue implementing the methods and techniques in the classroom, it is called summative evaluation (Kandaswamy, 1980). To be able to increase the effectiveness of their teaching process, they need to reflect on it. As a result, in the present study, how the EMI lecturers review and revise the instructional materials is investigated.

Since EMI lecturers do not take any training in the instructional process of EMI and there is not any guideline for them, they rely on their previous experiences as a student and generally choose the most familiar models, strategies, methods and techniques and materials (Weston & Cranton, 1986). However, the students' proficiency levels of English might be an affecting factor in the selection of instructional models, strategies, methods and techniques because English might limit the students' ability to understand concepts related to their academic field, to get low-level knowledge related to the academic subject, to participate and share their thoughts etc (Kerestecioglu & Bayyurt, 2018). Thus, this fact even suggests to research EMI lecturers' pedagogical choices regarding instructional models, strategies, methods and techniques and materials.

2.10. Instructional Materials

Instructional materials are resources that convey and communicate information. Although they are one of the complex components of the curriculum, they receive the least attention in the planning process of instruction. However, there are varieties of instructional materials in the field. They are generally classified under three titles: visual materials, audial materials, and audio-visual materials. Visual materials are realia, printed books and articles, boards, projectors, graphics, photos and etc. Audial materials are audio-recording, radio and discs. Finally, audio-visual instructional materials are videos, computers, etc. Which material is used by lecturers changes depending on the lecturers' informed decisions on the instructional models, strategies, methods, and techniques. For example, when the method of instruction is lecturing, lecturers generally prefer to use handouts, oral presentations etc. As for demonstration, the materials are often real things and models of real objects (Weston & Cranton, 1986).

There are three components of materials: a delivery system, a message, and a condition of abstractedness. The instructional materials present stimuli to the students, which means slides, readings etc. are the delivery system of the instructional materials. For example, a lecture is delivered by a lecturer, which makes the delivery system a person. As for content or message, what is conveyed and communicated with the materials is the message. Finally, the condition of abstractedness refers to the form of the message. It is a continuum from concrete to abstract (Weston & Cranton, 1986).

There are several factors that affect the selection of the instructional materials: group size, pacing and interaction. The materials can be used with the optimal size of the group. Although they are generally flexible, there are some materials that can only be used individually. Next, pacing refers to a specific rate at which information can be presented by the lecturer or the student. Finally, interaction refers to the potential of the instructional material to react and respond variably to students. However, there are other variables that also affect the process of selection. These are physical facilities, the availability of materials (e.g. cost), students' characteristics, and the subject area (Weston & Cranton, 1986). Since the focus of this study is EMI, it might also be one of the factors affecting the decision-making process of lecturers. Even if teaching English is not one of the objectives of EMI, the language proficiency levels of students might impact the chosen materials. Besides, the amount of exposure to the language in a meaningful way through written or spoken material might improve students' proficiency levels (Krashen, 1985). Therefore, in the EMI context, there is a close link between instructional materials and methods in ELT. There are different methods such as Audiolingual Method (ALM) and Communicative Language Teaching (CLT) in ELT. These methods suggest varieties of instructional materials. For example, ALM offers lecturers to use textbooks, drills, worksheets etc. in order to make them have the mastery of the language whereas CLT suggests text-based, task-based and realia to increase interaction in the classroom (Richards & Rodgers, 1986). Even if the main aim is not on language teaching, to convey the message better, and increase students' understanding and participation, these instructional materials might also be helpful for EMI lecturers. Another effect of EMI on the instructional materials is to entail EMI lecturers better access to the materials such as research materials, books, etc (Colomen, 2006). Accordingly, it helps EMI lecturers to bring EMI students closer to the labor market (Nocito & Obermyer, 2020)

As for the evaluation of the instructional materials, there are two forms of evaluation, namely formative evaluation and summative evaluation. Formative evaluation is used to develop materials that are instructional and motivationally stronger whereas summative evaluation is used to see the effectiveness of the materials. In formative evaluation, there are empirical techniques to obtain information to assist the developer of the instructional materials. It provides the developer with a basis for revision so that materials become more motivating and effective. As for the summative evaluation, the purpose is to collect the data for policy decisions regarding the adoption and discontinuation of the use of instructional materials (Kandaswamy, 1980). In the EMI context, to be able to decide whether the instructional materials used in the classroom are effective and fulfil the aims of the instruction and meet the needs of students such as appropriateness of the language to their language proficiency, the review and the revision of the instructional materials become a need for the context. Therefore, in the current study, how the EMI lecturers review and revise the instructional materials is investigated.

2.11. Previous Studies on EMI in Tertiary Education

As a result of the increasing trend of globalization in higher education institutions and the status of English as an academic lingua franca, the growth of EMI programmes has increased by 239% between 2007 and 2014 (Wächter & Maiworm, 2014; Galloway et al., 2017). Macaro (2015) described this growth of EMI programmes as an ‘unstoppable train’ (p. 7). Since international programmes such as EMI add value to institutions so as to appeal to more international students and to progress in world rankings, more and more universities have adopted EMI policy (Galloway et al., 2017). This has led to an increase in research related to EMI practices and policies.

Aguilar (2015) conducted research on engineering lecturers’ views on CLIL and EMI in Spain. Both quantitative and qualitative methods were administered to collect the data. First, a 24-item questionnaire was conducted during an in-service teacher training where lecturers supported adopting EMI and flatly opposed CLIL. Forty-one engineering lecturers out of 62 answered it. Quantitative analysis showed that none of the 41 lecturers was following CLIL. According to qualitative analysis, they did not want to assess and teach English and their reason to support EMI was about an instrumental conception of education but not related to beliefs in creating a multilingual and multicultural Europe. In

addition, they had not reflected on their responsibility in teaching disciplinary literacy. They did not know students' proficiency levels and how these levels affected their performance.

Byun et al. (2011) conducted a study to examine the effectiveness of the EMI policy at Korea University. The data was gathered through student opinion surveys and two focus group interviews which were carried out with both professors and students. In addition, supplementary interviews were conducted. The results of surveys showed that the EMI policy has produced positive outcomes since students' English proficiency has been improved. However, the results also revealed that since EMI was adopted compulsorily without paying attention to students' and lecturers' language proficiency, the need for a support system and the problem to find available instructors to teach EMI classes emerged. Therefore, this study suggested that the proficiency level of English required of both lecturers and students for EMI courses should be stated explicitly. Finally, it was stated that at the university, there was a growing concern about the students' acquisition of subject matter even if EMI might contribute to their language proficiency. This is the consequence of what Wächter and Maiworm (2014) described as a disastrous situation where students do not have the necessary proficiency level to understand, speak and write in English and lecturers, who also lack the ability to express themselves in English and teach in English.

Another study conducted by Balderson (2018) examined the correlation between primary language use, oral English language proficiency and sense of efficacy. The participants of this study were Chinese-speaking lecturers who are using EMI at a Chinese university. Twenty-one lecturers participated by completing an online survey whose main purpose was to find out how the variables are correlated and to identify patterns in the lecturers' perceptions about EMI preparation, student learning and teaching behaviors. Qualitative data was also gathered during the survey. The quantitative data results revealed that there was a positive moderate correlation between a sense of efficacy and oral language proficiency in terms of teaching EMI courses among lecturers. Although the overall mean of lecturers' proficiency was C1, those who had high oral proficiency had a high sense of efficacy whereas those who had more low oral proficiency had a moderate sense of efficacy. Those who had a moderate sense of efficacy reported that they had no training about how to teach an academic subject through the English medium, as opposed to high oral proficiency. The different tasks such as giving lectures, summarizing information etc. became challenges for participants who have different oral language

proficiency and were perceived differently by those participants. Qualitative data showed that EMI lecturers had concerns about the influence of students' proficiency levels in their use of language and their attitudes toward the effectiveness of EMI. As for the correlation between the use of English in EMI courses and sense of efficacy, there is no correlation between the two. Those who use their native language in an EMI context did not report a high sense of efficacy.

Dearden and Macaro (2016) conducted a comparative kind of research on lecturers' attitudes towards EMI in three different countries: Austria, Italy, and Poland. Twenty-five lecturers participated in interviews, which focused on the topics of internationalization of higher education institutions, on policy and resourcing and on levels of proficiency required for effective implementation of EMI programmes. Based on the participants' views, whether there is a difference between these three countries was investigated. The findings showed that lecturers from these three countries had a common belief that EMI at university would improve students' English simply through being exposed to English. Teachers also reported that teaching through EMI was easy for them because English is the lingua franca of their subject matter and textbooks, articles and instructional materials were published in that language. On the other hand, the generation gap between younger lecturers and older lecturers had an impact on the opinions regarding whether to adopt EMI or not. Although there were varieties of opinions, younger lecturers were optimistic and keen on teaching in English whereas older lecturers were keener to protect the native language. As for professional training courses, even if they took part in a short EMI lecturer development course, the universities did not support them in EMI pedagogy. Lecturers reported that they had limited either self-experience or no previous knowledge about the implementation of EMI. Few lecturers stated that simply translating course material and slides from L1 to L2 might not be enough or require an interactive pedagogy to strengthen comprehension. Besides, lecturers also mentioned that they were not aware of language level, test, or qualification for EMI lecturers. However, they commented that teaching through EMI might necessitate both good command of English and pedagogical skills. The content knowledge on its own would not be enough. Yet, many lecturers said that teaching English was not their job. They did not see themselves as language teachers. As a final point, in Austria, lecturers were the EMI drivers while in Italy and Poland, EMI was imposed more from above.

Dearden (2014) conducted research whose aim is to identify the size, shape and future trends of EMI programmes worldwide. Open-ended questionnaires were sent to British Council staff in 60 countries so as to obtain the data. They were asked to share information about the current state of EMI. The data was gathered from 55 out of 60 countries. The findings showed that private higher education institutions offer more programmes taught through EMI than public education. This situation was largely because of EMI providing the institution with prestige, reputation, and an international image. The respondents investigated policies and statements to be able to reach reasons why EMI has been adopted in their country. The results indicated that reasons can be listed as follows: “a desire or intention to develop English language learning skills; improving knowledge of a target culture; opening up possibilities for students to work and study abroad as well as spreading the country’s own culture throughout the world; political reasons of nation-building and aligning a country with English-speaking neighbours.” (p. 12). Contrary to the benefits of adopting EMI programmes, there are concerns reported by respondents. One of the concerns was that EMI might limit the access of students who are from low-socioeconomic groups and might lead them to feel a fear that their native language or national identity will be undermined. On the other hand, in those countries, there is not any stated English proficiency level and a shortage of linguistically qualified lecturers. There exist few organizational or pedagogical guidelines about effective EMI teaching and learning. EMI is generally being introduced top-down by policymakers. There is little or no EMI training program for initial teacher education or professional development courses.

Macaro, JiménezEz-muñoza and Lasagabaster (2019) conducted a study on the competencies EMI lecturers believe they need, and whether the certification of those competencies is possible or desirable. To be able to obtain the data, an online lecturer questionnaire was conducted. It consisted of 25 closed-ended questions and a number of spaces for the participants to elaborate on their answers and make comments. Therefore, the questionnaire provided both qualitative and quantitative data. One hundred fifty-one participants, who were teaching through English medium in a Spanish university, answered the questionnaire. In addition to that questionnaire, another questionnaire was included so as for policymakers and managers to provide insight into the related topic. Nine managers wanted to share their experiences and views. Besides, semi-structured interviews were conducted with the lecturers as a final step of the data collection process. The findings of

the study showed that the institution where fewer than 50% of the participants were working provided an EMI certificate whereas 33.1% of them were not aware of whether the institution did or not. However, some of them reported that they already had participated in a professional development programme. Since accreditation focused on language skills but not on pedagogical and methodological skills, most participants expressed dissatisfaction regarding the accreditation. As for the idea of obtaining certification of their competence, they reached a consensus on the usefulness of a more global and wide-ranging certification system in EMI. Yet, they did not agree on the duration and the ideal scheme of the certification system. Next, when they were asked how to evaluate the qualities of lecturers, the majority of lecturers thought that the pedagogy had to be altered due to teaching through EMI. The aspects which should be covered under such certification were listed as follows: “language level and academic register/complexity, clear pronunciation and intelligibility, command of content-specific materials and vocabulary, oral and written communication skills, scaffolding for effective learning, promoting student interaction and motivation, classroom management tools, methods for materials design and lesson planning, strategies for student feedback, additional skills for non-theoretical sessions, and ICT-enhanced problem-solving.” (p. 111). When it came to which institution will award certificates, there was disagreement on whether a British or American university should do it or a language-certifying institution in full awareness that EMI skills go beyond language should do it. Finally, managers were fully aware of the fact that teaching through EMI was different to teaching through L1. Even if they knew the importance of training, they were not confident about the necessary sources for the training due to budget constraints.

In another study conducted by Galloway, Kriukow and Numajiri (2017), it was aimed to investigate the EMI phenomenon in Japan and China. These countries were chosen because EMI is a growing trend in both of them. In that study, there were three data-collection instruments: questionnaires, interviews and focus groups. Questionnaires were sent to 579 students at 12 higher education institutions in Japan and China and 28 staff members at eight universities in both contexts. The interviews were conducted with 28 members of staff and 18 students from six universities. Four focus groups with students and four focus groups with staff were conducted. The questionnaire results showed that there was a variety of proficiency levels required for enrolling in these institutions. Varied language support such as summer preschool courses and EAP courses was provided for the

students. The students reported that their lecturers delivered the courses in different ways. In Japan, all materials, exams, and instruction were conducted in English whereas there was the less frequent use of language in China. Fourteen of the staff members agreed that the use of English and L1 in their lessons might be helpful for students who had a low-proficiency level. Fourteen of them also reported that content lecturers might help students with English language proficiency. They agreed that they needed to be supported by English language teachers. Similar to the staff members, students agreed on the English-language support classes provided by English language teachers. Nearly all students also reported that lecturers should be experts on content knowledge and should have the ability to give clear explanations. They believed that EMI courses improved more effectively their English language proficiency than content knowledge. Nearly 85% of lecturers reported that there were enough materials to teach their subjects in English. When students were asked the reasons behind their enrollment in EMI programmes, 40% of them cited that improving English language proficiency was the main reason. Therefore, students, especially in Japan, did not see any need to use their native language in the EMI context. As to whether there were enough qualified lecturers or not, the students mentioned their lecturers' English language proficiency, native-like accent and their experience abroad. They agreed on having qualified lecturers. As for the interviews, students cited a number of challenges regarding studying EMI. These challenges can be listed as follows: language-related challenges, institutional/ organizational challenges and nationality/ culture-related challenges and materials-related challenges. Since the current study tries to shed light on the issues related to instructional materials, the views of students on that study were significant. Students mentioned that they were concerned about the language level of instructional materials. Since these materials were not prepared specifically for non-native speakers, they had jargon and a lot of things that made it harder for students to study. The findings of focus group interviews revealed that the driving forces behind why students enroll in EMI programmes were globalization, cutting-edge knowledge, the competitiveness of higher education institutions, English proficiency and the role of English as an international language. Finally, they mentioned that even though they faced problems in understanding content, they preferred lecturers to talk in English, which might improve their proficiency in the long run. In the focus groups with staff, they cited that there was a lack of collaboration between subject and EAP lecturers, which is a critical

issue. In contrast to the students, staff believed that code-switching was a need for them to support students' understanding.

2.12. Previous Studies on EMI in Turkish Tertiary Education

In Türkiye, there have been many research studies on EMI. For example, Kılıçkaya (2006) conducted comparative research on the views of lecturers on EMI to Turkish-medium instruction at eight universities in Türkiye. The quantitative data obtained from the questionnaire indicated that lecturers favoured Turkish instruction rather than English so that students can obtain deeper information and pass the exams in Turkish. In contrast to that study, the results of the study conducted by Başibek et al. (2014) revealed that lecturers favoured EMI so that students can access the resources in English. Yet, they also reported that the language proficiency levels of students were not enough to learn academic subjects in English. Therefore, they said that Turkish might provide students with a deeper understanding of the content of the courses.

By investigating students' motivation and perceptions of studying in a university adopting EMI, Kırkgöz (2005) found that students had a positive assessment of their proficiency levels in terms of receptive skills but not productive skills. Following that research, Kırkgöz (2009b) conducted another study on the students' and lecturers' perceptions of the effectiveness of foreign language instruction in an EMI university. The results revealed that English for Academic Purposes (EAP) courses are based on language skills; therefore, it is inadequate for students who are going to study at an EMI university. Similar to the research of Kırkgöz (2005), the results of Cosgun and Hasırcı's study on the impact of EMI on the language abilities of students (2017) indicated that students' receptive skills improved but the scores of their writing skills did not change significantly.

The study on the perspectives of students on EMI at a technical university conducted by Ekoç (2020) revealed that the participants underlined the importance of EMI lecturers' level of proficiency in the success and effectiveness of EMI courses. The participants favoured EMI since it provides prestige and employability at global and local markets and also the resources in English regarding their field. They emphasized that their low level of language proficiency was one of the challenges that they faced.

Özkara's (2019) research on language learning strategies of EMI students to overcome the language barriers showed that EMI students used metacognitive strategies at

most. Their concerns were related to understanding lessons, exam questions, English that is used by lecturers, and communicating with lecturers. The participants reported that they were using a dictionary, asking questions, taking notes, using Turkish materials, and memorizing vocabulary in order to overcome their concerns. As for listening comprehension strategies used by EMI students (Soruç et al., 2018), the findings indicated that taking notes, focusing on lecturers, and coming to class prepared were the strategies used by the participants.

Collins (2010) investigated the effectiveness of EMI programmes at an EMI university in a non-English speaking country from the perspective of students and lecturers depending on their rate of language proficiency and their attitudes toward EMI. Qualitative and quantitative methods were conducted to collect the data. The findings revealed that students felt disadvantaged because of a self-perceived low proficiency. However, they reported that there were factors that affected them to choose EMI. The most chosen factors were: “have a much better chance of obtaining a good life” and “have a much better chance studying abroad”. Similarly, lecturers favoured EMI because they thought that “English is an international language” and “Turkish is insufficient regarding the new terminology of technology”. When students were asked the most significant problem that they faced, they mentioned that the language level was not enough for them to learn the subject in detail and participate in class discussions. Even if they had PYP courses and English Proficiency Exam before starting studying their academic subject, most of the students had difficulty studying in English since the textbooks used in the courses were not specifically for non-native speakers and the PYP courses that they took were based on general language skills. They described their lessons as being “half Turkish and half English”. Finally, lecturers stated that they were not language lecturers. Therefore, they did not assess students’ grammar and language mistakes. They focused on content knowledge.

Macaro et al. (2016) conducted an intervention which involved a series of collaborative lesson planning sessions involving an EMI lecturer and a PYP lecturer. Four of eleven Turkish universities formed collaborating pairs of PYP and EMI lecturers. Lecturers were teaching first-year EMI students, the majority of whom attended PYP courses. Pairs were asked to record each collaborative planning session. Nine pre-intervention and nine post-intervention interviews were conducted with EMI lecturers. The findings of pre-interviews revealed that lecturers should meet the language requirement to be able to teach at these EMI universities. Some of them took the English

language proficiency tests while some had graduated from full-EMI universities. None of the lecturers took any professional development course related to pedagogy before. Therefore, it is stated that there is a need for training in switching to EMI. They believed that their students' language proficiency levels were not sufficient to start academic studies taught in English even if they completed PYP courses which were a lack of discipline-specific language education. On the other hand, lecturers mentioned that they did not plan and think about the English that they were going to use in the courses so that they could match the language they were using with the students' language level. They did not come together with their colleagues to plan lectures since they were too busy. As for the material preparation, they mostly use materials written in English which were generally for native speakers, thinking that they might bring a "Western approach to science". When students did not understand questions or what they were asked to read, lecturers thought that this problem was related to content but not a language problem. Therefore, they said they provided students with more explanations and examples. The results of post-intervention interviews revealed that EMI lecturers had a better understanding and awareness of language-related problems that students might face during the academic courses. They realized the importance of the language in ensuring content understanding. They wanted to keep working collaboratively even after the intervention.

Consequently, considering the findings of the previous research on English Medium Instruction, EMI students have generally low-level language proficiency and the PYP education that they take before taking academic courses through EMI is not sufficient for them. Therefore, they face many challenges during the education process. Yet, the way EMI lecturers deliver content information in terms of the selection of instructional models, strategies, methods, and techniques, and how they plan lessons and instructional materials might help students to overcome these challenges. That is why this study will be based on these variables since there is not any research on the issue.

2.13. Chapter Summary

In this chapter, the related literature about EMI was reviewed and presented. The emergence, how it is defined, theoretical and conceptual background, and challenges and benefits of EMI were investigated. In relation to EMI, the driving forces behind EMI policies and policies around the world and Türkiye were reviewed. Following that, the

instructional process and the relationship between this process and EMI were also examined. Finally, the previous studies are reviewed by addressing the gap regarding the implementation of instructional methods and techniques in the EMI context.

CHAPTER III

METHODOLOGY

Introduction

In this chapter, the details of the methodology that is employed in the current study are presented. Starting with the overall research design of the study, it reports the purpose of the study and research questions, and the details regarding the research setting and participants, the data collection instruments and the procedures for data collection and data analysis.

3.1. Research Design

In addressing the research questions, a mixed methods case study research was employed in the current study. Case study has been a common approach in different disciplines such as medicine, law, anthropology, political science, psychology and social work. By recognizing the advantages of applying a case study approach for understanding the process of practice in-depth, it has been one of the well-established research approaches (Merriam, 1985).

A look into the literature for definitions of case study reveals that it is mostly expressed in terms of how to use it appropriately and its functions. According to Merriam (1998), “a case study is an intensive, holistic description and analysis of a single instance, phenomenon or social unit” (p. 16). Stake (2005) defines case study as “not a methodological choice but a choice of what is to be studied... By whatever methods we choose to study the case.” (p. 443). This means that case study research provides a methodological framework which allows for performing mixed methods research studies. Yin (2003) calls case study a research strategy that “is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” (p. 13). Since the present study aims to investigate instructional methods, techniques, and instructional materials used in EMI context in depth by asking “how” and “why” questions, case study research was deemed to be the most suitable approach for this study.

Types of case studies have been categorized differently by different scholars (Heigham & Croker, 2009). Stake (1995) categorizes case studies into three broad types: intrinsic, instrumental and collective or multiple case studies. The intrinsic case study explores the case itself to gain a deep understanding. It does not aim to compare the case with similar cases or generalize it but to describe the case. The instrumental case study, as the second type defined by Stake (1995), aims to explore a particular issue, problem or theory by using interpretation and evaluation in addition to the description. The last type, collective or multiple case study focuses on a problem, one issue or theory but more than one case should be studied to be able to understand and theorize a problem, one issue or theory better. According to Yin (1993) who also offers different categorizations of case studies, there are three types based on their purposes: exploratory, descriptive, and explanatory.

An exploratory case study... is aimed at defining the questions and hypotheses of a subsequent (not necessarily case) study... A descriptive case study presents a complete description of a phenomenon within its context. An explanatory case study presents data bearing on cause-effect relationships - explaining which causes produced which effects (Yin, 1993, p. 5)

Descriptive case study enables the researcher to understand complex educational practices in depth by using multiple sources of evidence. These multiple sources of evidence can be gathered by applying quantitative and qualitative research methods so that the researcher can gain a complete understanding of the phenomenon (Merriam, 1985). Therefore, this study is a descriptive case study the aim of which is to examine holistically what instructional methods, techniques, and instructional materials are used by EMI lecturers and how and why they use them. Furthermore, to be able to gain a full picture of the case and raise the validity and reliability of findings, which is called triangulation (Denzin, 1968 as cited in Merriam, 1985), multiple data sources were used. These sources were used with the expectation of complementing each other (Dörnyei, 2007).

Gathering multiple sources of evidence by employing quantitative and qualitative research methods is called mixed methods. Creswell and Plano Clark (2011) define a mixed methods case study as follows:

A mixed-methods case study design is a type of mixed methods study in which the quantitative and qualitative data collection, results, and integration are used to provide in-depth evidence for a case(s) or develop cases for comparative analysis (p. 116).

This study employed mixed methods because according to Creswell and Plano Clark (2011), mixed methods benefit from the strength of both quantitative and qualitative research, which facilitates cross-case analysis. Quantitative methods, which are the most suitable for measuring the pervasiveness of known phenomena, provide patterns of association, and their relationships with each other. Qualitative methods help to identify the previously unknown phenomena, how and why they emerge and their effects (Pasick et. al., 2009 as cited in Creswell, Klassen, Plano Clark & Smith, 2011). Therefore, examining the concept by using different methods in this study was also for complementarity reasons to explain the complexity of the phenomenon (Jacobsen, Friesen, Daniels & Varnhagen, 2011).

In the social sciences, there are three preliminary types of mixed methods: convergent parallel mixed methods, explanatory mixed methods and exploratory mixed methods. These types determine the logical sequence of the data collection and analysis process (Yin, 2003). In convergent parallel mixed methods, quantitative and qualitative data are collected at the same time and the results are integrated into the interpretation process of overall results. Explanatory sequential mixed methods begin with quantitative research and the analysis of the results. It continues with qualitative research to be able to explain the results in more detail. Exploratory sequential mixed methods start with the qualitative phase. The interpretation of qualitative data is used to build an instrument for the quantitative phase (Creswell, 2014).

As seen in Figure 4, in the current study, an explanatory sequential mixed-methods design, which is the reversed version of exploratory sequential mixed methods, was applied to explain and expand upon the results gathered through quantitative methods in more detail with qualitative methods.

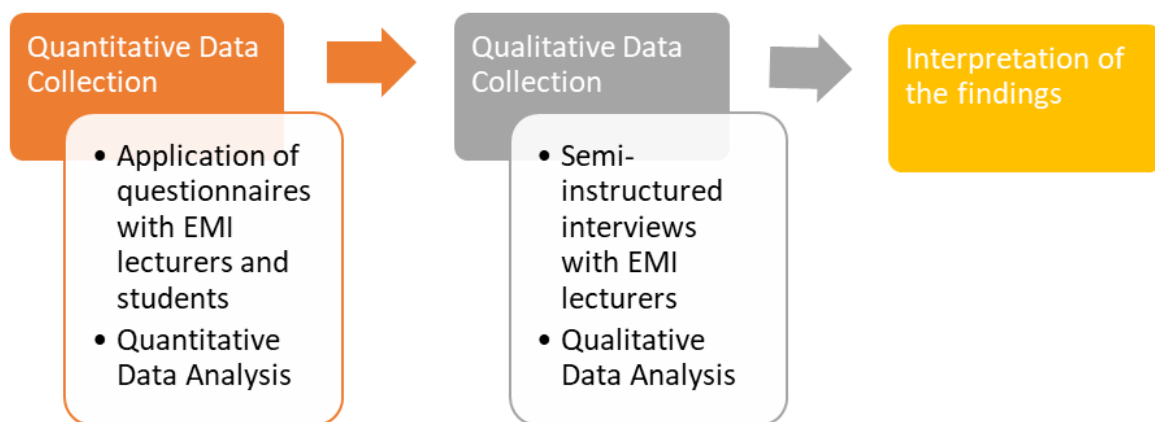


Figure 4. Explanatory sequential mixed methods

3.2. Purpose Statement and Research Questions

The purpose of the current study is to investigate the instructional methods, techniques, and instructional materials that are used by EMI lecturers at the Faculty of Arts and Science and the underlying reasons for them, to seek the students' opinions and comparing the data in relation to two programs, i.e. 100% English and 30% English.

The study focuses on the following research questions:

R.Q.1. What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?

R.Q.1.1. What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?

R.Q.1.2. How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?

R.Q.2. What are the instructional materials used by MBG and Biology EMI lecturers?

R.Q.2.1. What are the factors considered by MBG and Biology EMI lecturers while designing, selecting, or using instructional materials?

R.Q.2.2. How do MBG and Biology EMI lecturers review and revise instructional materials?

R.Q.2.3. What are the criteria considered by MBG and Biology EMI lecturers while designing, selecting, or using instructional materials?

R.Q.3. How do instructional methods, techniques, and instructional materials interact with one another?

R.Q.4. What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods, techniques and instructional materials?

R.Q.5. Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?

3.3. Research Setting

This study was conducted at the departments of Molecular Biology and Genetics (MBG) and Biology in the Faculty of Arts and Sciences at Çanakkale Onsekiz Mart University, Çanakkale, Türkiye in the 2020-2021 spring and 2021-2022 fall academic years. These particular departments were chosen purposefully because they adopted the EMI policy in the academic year of 2013-2014. Both of the departments offer bachelor's, master's and Ph.D degrees to their students. The MBG department offers a 100% EMI program to students whereas the Biology department offers a 30% EMI program where 30% of the courses are taught in English while 70% are in Turkish.

The duration of the academic year is ten months, covering two terms. At the beginning of each academic year before the registration of the department, students take a proficiency exam administered by the School of Foreign Languages. The students who get at least 70 out of 100 in this proficiency exam directly start their departmental education in their faculties. Those who score lower than 70 have to attend the General English Preparatory Program in order to improve their English. According to CEFR, students are expected to have B1 or B1+ English proficiency levels before starting their departmental education. This means that students, who attended PYP education, took at least 80 out of 100 to be able to start their departmental education. However, since this program is a Preparatory Year Program (PYP) but not an English for Academic Purposes program (EAP), the main focus is not mainly on subject-specific terminology or on teaching academic studies but on developing language skills (Macaro et al., 2016).

As for EMI lecturers' proficiency levels, according to new standards announced by Higher Education Council (Official Gazette, 2016), all of these lecturers should take 80 out

of 100 in the centralized foreign language exams and the international foreign language exams that are equivalent to national exams so that they can teach in the EMI context.

According to the Self Evaluation Report of the departments (2020), the main aim of adopting an EMI policy is to train their students better so that they can reach information, keep up with the developments related to science and technology and acquire self-development skills. It is also stated in the same report that one of the main objectives of these programs is to train students who attach importance to learning foreign languages in addition to their subject matter. For that purpose, these programs offer compulsory and elective courses in which English is the language of instruction. In the same document EMI lecturers reported that within the scope of these courses, they use instructional methods such as lecturing, problem-solving, asking and answering, projects, case study and instructional techniques such as brainstorming, experiments, conferences, etc. As for instructional materials, EMI lecturers did not report any materials that they use in their courses. Therefore, this study tried to holistically understand their choices of instructional methods, techniques, and materials better, how they use them and why they prefer them.

On the other hand, in the same report, it is mentioned that offering these courses in English has clear benefits for higher education. It provides students with the chance of participating in exchange programs such as Erasmus and Farabi. They have an opportunity to study in non-English speaking countries of Europe. Students from different countries also have a chance to study in the departments of MBG and Biology. In addition to these courses, to be able to prepare students for the global market and help them to have the necessary knowledge for an international career and engage them with the advancement of the field, seminars, conferences and technical visits are held by the faculty.

Unlike the MBG department where all courses are taught in English, laboratory courses in the Biology department are taught in Turkish. Therefore, laboratory courses taught at both departments were not included in the scope of the current study. In the first year of both programs, there is a compulsory course called Development of Reading and Writing Skills I and II where students learn how to read academic papers, identify different types of texts, write facts and opinions, present information in a table, and to scan and summarize a text (see course catalogue for detailed explanations: shorturl.at/hiOUX) This course is taught by an EFL teacher from the School of Foreign Languages in order to support students for their departmental courses and to meet their needs in academic reading and writing in English. The purpose of this course is not to teach subject matter or subject

matter terminology. Besides, in the MBG department, there is an elective course called Scientific Writing taught by one of the EMI lecturers. Students are expected to learn how to write a scientific project, how to communicate with higher education institutions about education and training programs, and how to use the software systems that can be useful in academic writing during the course. Participant E, who teaches this course at the time, reported that students learn how to combine their academic knowledge with their language skills. Yet, there is not any other course than the compulsory course in the Biology department. This situation suggests that students are left alone in terms of language issues. Since they do not learn how to use language in a discipline-specific environment, they might have difficulties expressing their knowledge and skills in the target language.

3.4. Participants

In the current study, the total number of participants including the EMI lecturers and EMI students was 88. The participants are chosen with convenience sampling. Every lecturer, who teaches EMI classes in either MBG or Biology or both, and students, who study in these departments, were tried to be reached.

3.4.1. EMI Lecturers

Seven EMI lecturers participated in the study voluntarily. Two of the EMI lecturers work in the Department of Biology whereas five EMI lecturers work in the Department of MBG. Five of them accepted to participate in both the questionnaire and semi-structured interview phases while the other two accepted to participate in either the questionnaire or the interview phase. Participants were coded as A, B, C, etc. to preserve anonymity.

Table 1 illustrates the background information of EMI lecturers related to gender, the length of teaching experience in both general and EMI context, the educational levels of their students, the student population, and their educational background.

Table 1

Demographic information about EMI lecturers

Participants	Gender	Length of Teaching Experience	Length of Teaching Experience in EMI	Educational Level of Students	Student Population	EMI education as a student	Pedagogical Training	Training related to instructional methods, techniques and materials	EMI training
Participant A	Male	27 years	11 years	BA, MA, Ph.D	Local and International Students	Ph.D	-	-	-
Participant B	Female	35 years	10 years	BA, MA, Ph.D	Local and International Students	-	Graduated from Education Faculty	Participated	Participated
Participant C	Female	25 years	15 years	BA, MA, Ph.D	Local and International Students	MA and Ph.D Teaching Assistantship	Pedagogical Formation Certificate	Participated	Participated
Participant D	Female	21 years	20 years	MA and Ph.D	Local and International Students	BA, MA, Ph.D Postdoctoral Fellowship	Graduated from Education Faculty	Participated	-
Participant E	Male	6 years	6 years	BA and MA	Local Students	BA and Ph.D	-	-	-
Participant F	Male	2 years	2 years	-	-	-	-	-	-
Participant G	Female	9 years	8 years	BA and MA	Local and International Students	-	-	-	-

As it is seen in the table, four of the participants were female. Three of them were male. The average age of EMI lecturers was 47. The minimum length of teaching experience was two years whereas the maximum was 35 years. The average length of teaching experience was 18 years. As for experience in the EMI context, the longest time of teaching experience was 20 years whereas the shortest is two years. The average length was 10 years. The three of the EMI lecturers teach students from all degrees. The other two participants teach only BA and MA. The other one teaches students from BA and MA degree programs. Since Participant F did not accept filling out the questionnaire, the researcher could not get information about the educational levels of his students and the student population. Almost all of the EMI lecturers have local and international students in their classes. That might lead us to think that they need to use English most of the time since they do not share a common language with these students.

In addition, the participants were asked about their educational background to be able to understand the research setting better. The data obtained from the questionnaire and the interview showed that four of the participants studied their academic subject in an EMI context as a student. These participants are Participant A, Participant C, Participant D, and Participant E. All these participants stated that they attended education programs in English-speaking countries (e.g., Ph.D program, Postdoctoral Fellowship and Teaching Assistantship). Only Participant D studied in an EMI context in Turkey and then attended an education program abroad. Since EMI lecturers are experts in their academic subjects but are not expected to take any courses related to pedagogical- methodological knowledge such as how to plan a lesson, how to convey information, etc., they were asked whether they attended any training to obtain teaching competencies. Participant B, Participant C, and Participant D have their pedagogical formation certificates. In Türkiye, students, who do not study at education faculty, should apply to a pedagogical formation program given by higher education institutions and take several courses related to educational sciences to obtain teaching competencies to be able to get the pedagogical certificate. These courses are generally similar to the courses in education faculty. Participants B and D graduated from a faculty of education and their diploma shows that they have completed educational science courses successfully. Participant C took her certificate by attending a pedagogical formation program. Besides, the participants were asked whether they attended any training on instructional methods and techniques. Participant B, Participant C, and Participant D confirmed that they have participated as students or audiences in such

training. As for EMI training, only Participant B and Participant C stated that they participated in a training. Participant B attended a nine-month language teaching program provided by the Ministry of Education. Participant C said that the training she participated in was about teaching techniques.

3.4.2. EMI Students

The current study was carried out with 81 EMI students in total. The students who are freshmen were not included in this study because they have not experienced face-to-face learning because of Covid-19. Table 2 illustrates the demographic information related to the following variables: gender, department, class, and PYP participation.

Table 2
Demographic information about EMI students

Variables	f	%
Department		
Biology (30% English)	31	38.3
Molecular Biology and Genetics (100% English)	50	61.7
Class		
2nd Year	27	33.3
3rd Year	27	33.3
4th Year	27	33.3
PYP participation		
Yes	69	85.2
No	12	14.8

Table 2 (Continued)

Variables	f	%
PYP's role for departmental sources		
Fully prepared	18	26.1
Partially prepared	34	49.3
Not prepared	18	26.1
Gender		
Female	65	80.2
Male	13	16
Not stated	3	3.7

As it is demonstrated in Table 2, the participants who study in the Department of MBG outnumbered the participants from the Department of Biology ($n_{\text{MBG}} = 50$, $n_{\text{Biology}} = 31$). From each grade, the equal number of EMI students participated in the present study ($n_{\text{2nd grade}} = 27$, $n_{\text{3rd Grade}} = 27$, $n_{\text{4th Grade}} = 27$). The data showed that the majority of the EMI students participated in the PYP ($n=69$) before enrolling on the academic program since they could not pass the proficiency exam. Eighteen of the EMI students said that the PYP prepared them for the department. Thirty-four of the participants reported that the PYP prepared partially them for the academic program. Finally, 18 of the EMI students said that the PYP did not prepare them for the academic department. The EMI students mentioned that the PYP focused on only general English language development but not on vocational English. The participants said that they shared their opinions about the fact that they want to focus on vocational English. However, since the classes consisted of different EMI students from different departments, this demand could not be met. Therefore, they reported that they had difficulty adjusting to the department. Yet, they stated that their general English skills improved with the help of the PYP program. Finally, more than half of the EMI students who participated in the present study were female ($n=65$). The three of the participants did not mention their gender.

3.5. Data Collection Instruments

As mentioned previously a mixed methods approach was utilized to collect data in this study. Questionnaires and semi-structured interviews were combined both to achieve a holistic understanding of the target phenomenon and to validate the findings of quantitative data with the help of qualitative data by looking at the phenomenon from different perspectives (see Figure 5). Information regarding these data collection tools is given below.

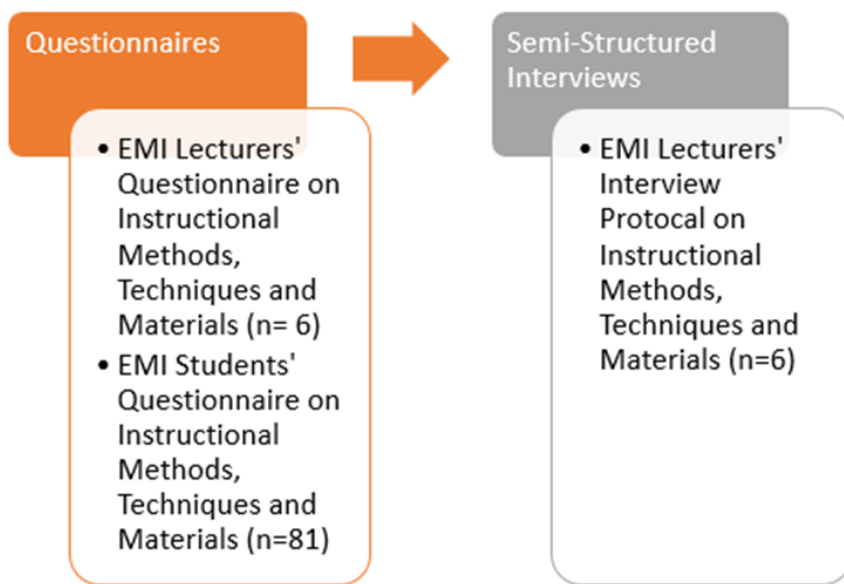


Figure 5. Data collection tools employed in the study

3.5.1. Questionnaires

In this study, two questionnaires were used to collect the data in the first phase of the study. They were developed by the researcher in the light of related literature since there was not any suitable questionnaire that fit the purposes and context of this study. There were two questionnaires, the items of which were written in the light of related literature. One of them was designed for EMI lecturers and was called EMI Lecturers' Questionnaire on Instructional Methods, Techniques, and Materials (see Appendix 1) whereas the other was for students in the EMI context and was called EMI Students' Questionnaire on the Use of Instructional Methods, Techniques, and Materials (see

Appendix 2). Both questionnaires were designed in Turkish to help participants to express themselves better and freely.

Brown (2001) describes questionnaires as “any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers.” (p. 6). This means that questionnaires can include both multiple-choice items and open-ended questions. In the present study, the EMI Lecturers’ Questionnaire on Instructional Methods, Techniques, and Materials consists of two parts (see Appendix 1). In the first part, nine factual questions are used to find out about the demographic characteristics and background information about the participants. The second part has two sections. In the first section, the participants were asked to rate a five-point scale, ranging from never to always, in order to investigate how often they use the listed 27 methods and techniques. Following these items, four open-ended questions were asked to reach detailed information related to their choices of instructional methods and techniques, which could be further discussed. In the second section which is similar to the first section, five-point scale items are asked to investigate how often they use the listed instructional materials. In this section, finally, there are five open-ended questions related to lecturers’ preferences of instructional materials.

Similar to the EMI lecturers’ questionnaire, the EMI Students’ Questionnaire on the Use of Instructional Methods, Techniques, and Materials consists of two parts (see Appendix 2). The first part is for gathering the demographic and background information related to the EMI students. As same as the lecturer questionnaire, in the second part, there are two sections. In the first section, participants are asked to mark the listed instructional methods and techniques if they are used by EMI lecturers in the EMI courses. Following that, the participants are asked to rank a three-point scale, ranging from effective to no effective, so that the researcher can gain a deep understanding regarding the effect of the EMI lecturers’ choices of instructional methods and techniques on the students’ learning process. Lastly, there are three open-ended questions aiming to gather more information about their opinions of EMI lecturers’ practices of instructional methods and techniques. In the second section, items related to instructional materials are listed and the participants are asked to mark the materials that are used by the EMI lectures in the EMI context. Similar to the first section, three-point scale items, ranging from effective to no effective, and three

open-ended questions are asked in order for EMI students to reveal their opinions about EMI lecturers' preferences of instructional materials in detail.

Development of the questionnaire items. As expected from all data collection instruments used in social sciences, the findings of a questionnaire are also expected to be valid and reliable (Büyüköztürk, 2005). The validity of a questionnaire indicates whether the tool measures what is intended to measure (Field, 2005) while the reliability of a questionnaire shows the consistency of the findings in repetitive measurements. To be able to make a questionnaire reliable and valid, there are different phases to be followed that are mentioned by different scholars in the literature. Büyüköztürk (2005) suggests that there are four common phases to develop a questionnaire. As it is seen in Figure 6, these are “problem description, writing questionnaire items, receiving opinions of content experts on questionnaire items, conducting a pilot study and making modifications to the questionnaire based on the pilot study”.

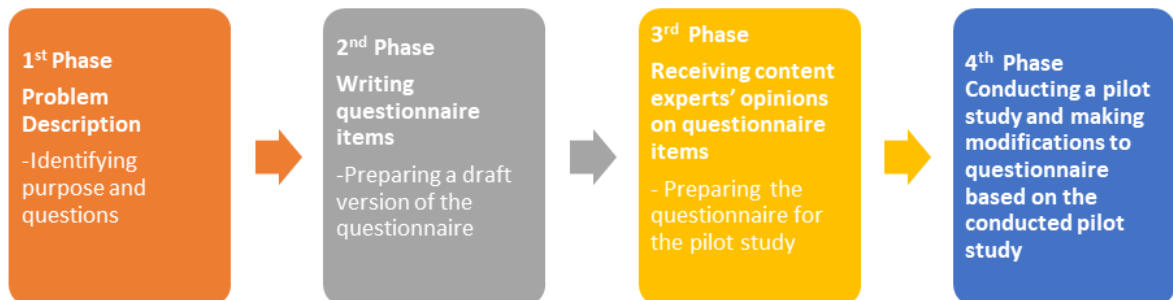


Figure 6. Questionnaire development process (Büyüköztürk, 2005, “Anket Gelistirme Süreci” Section)

These phases were followed in the current study while developing the questionnaires. In the first phase, to be able to identify the variables related to instructional methods, techniques, and instructional materials and to determine the scope of the questionnaires, the related literature was reviewed by using potential keywords of this study. As a result of reviewing the related literature in the light of research questions, general and sub-purposes (i.g. factors affecting the choice of the instructional methods and techniques and materials) were determined. Depending on these purposes, in the second

phase, the types of items such as close-ended items and open-ended questions were determined by the researcher. In the third phase, to be able to test the initial version of the questionnaires, the questionnaires were sent to content experts together with a form on which they were asked to write their feedback. Depending on their feedback, the researcher made additions (i.g. explanations of instructional methods and techniques) changes or edits (i.g. the sequence of the questionnaire items, the choice of words). As a final step, a pilot study was conducted in order to analyze the questionnaires regarding instructions, organizations, clarity, understandability and appropriateness of the questionnaire items.

Piloting the questionnaires. In the 2019-2020 fall academic year, The EMI Students' Questionnaire on the Use of Instructional Methods, Techniques, and Instructional Materials was sent to 11 EMI students from different universities and departments (e.g. Interior Architecture, International Relations, Biology, etc.) via Google Forms for the pilot study. Collecting the data took two weeks. It took five days to analyze the data by using SPSS. 22.0 and the content analysis. The findings of this pilot study showed that students did not understand and interpret open-ended questions as expected because their answers were generally irrelevant to the questions. Therefore, to be able to increase the clarity and understandability of the questions for students, the researcher conducted a respondent debriefing after she analyzed the respondent's answers. Depending on the respondent's feedback, the changes (i.e. vocabulary choice, writing important parts in capital to get the participants' attention) and additions (i.e. adding examples to help them remember instructional methods and techniques) were made. As for EMI Lecturers' Instructional Methods, Techniques, and Materials, it was sent to two EMI lecturers via Google Forms for the pilot study in the 2019-2020 fall academic year. Minor changes (i.e. adding Never on the Likert scale) were made to minimize the hardships that they might face while marking the items in the questionnaire.

3.5.2. Semi-Structured Interviews

To be able to further investigate the data gathered through questionnaires, follow-up interviews, also called "conversation with a purpose" (Burgess, 1984,p. 102 as quoted in Heigham & Croker, 2009), with the EMI lecturers became a need for this study (see Appendix 3).

The semi-structured interview protocol includes four parts. In the first part, there are questions to collect demographic and background information about the participants. The second part includes transition questions, which provide information about what participants have already known about instructional methods, techniques, and materials and prepare the participants for the main questions. The main question part has two sections. The first section consists of 13 questions all of which are related to instructional methods and techniques. The second section has 11 questions related to instructional materials. All these main questions were used to gather detailed information about EMI lecturers' practices of instructional methods, techniques, and materials in the EMI context. The closing question part is for asking further explanations that the participants want to mention apart from the interview questions discussed. Consequently, these data were used to develop the fullest picture of the phenomenon through building an intensive description of the case itself (Merriam, 1985).

Development of the semi-structured interview. While preparing the semi-structured interview, the interview protocol refinement (IPR) framework was used to make sure the interview questions aligned with the research questions and the aims of this study. This protocol framework involves four phases: “ensuring interview questions align with research questions, constructing an inquiry-based conversation, receiving feedback on interview protocols and piloting the interview protocol” (Castillo-Montoya, 2016, p. 812). In this study, these phases were followed sequentially to develop essential questions to obtain detailed data to enhance the reliability of the interview questions.

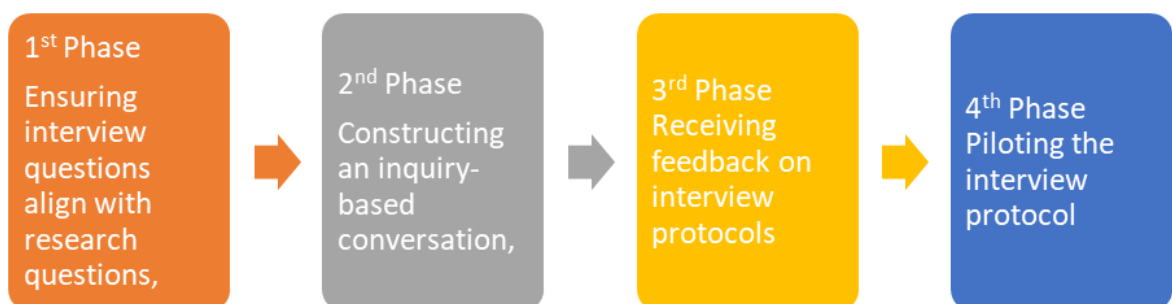


Figure 7. Interview protocol development phases (Castillo-Montoya, 2016, p.812)

Accordingly, the researcher formed the interview questions in the light of related literature. As it is seen in Figure 7, in order to elicit the related experiences or specific information through asking interview questions, the researcher created a matrix to check whether interview questions align with research questions (Appendix 4). In phase 2, the word choices and the form of questions gain importance to make interview questions more understandable and accessible to the participants. Therefore, jargon and theoretical language related to the phenomenon were avoided to be able to create an ordinary conversation; however, having a structured organization of questions including introductory questions, transition questions, key questions and closing questions and asking follow-up questions helped the researcher to preserve the inquiry goals of interview questions in this study. As for phase 3, the interview protocol was sent to two content experts via Google Mail to receive feedback in order to enhance the reliability of the interview questions. Feedback showed that the interview questions aligned with research questions and were easy to understand.

Piloting the semi-structured interview protocol. As a final step, to be able to understand how long the interview takes, whether questions work as it is expected and whether the participants can answer the questions, a pilot study was conducted with an EMI lecturer working in the department of Molecular Biology and Genetics at Çanakkale Onsekiz Mart University in 2020-2021 fall academic year via an online tool called Zoom. It took one hour and ten minutes. The pilot study showed that there are no major problems. The clarity and answerability of the interview questions were ensured.

3.6. Researcher's Role

Researcher's role in quantitative and qualitative research designs differs due to their epistemological, theoretical and methodological underpinnings. Quantitative research methods are based on objectivist epistemology that aims to measure the static reality statistically (Yılmaz, 2013). Therefore, it is accepted that the bound between the subject being studied and the researcher are separate and independent. In the present study, by using questionnaires which were preconstructed with predetermined response categories, the researcher aimed to have a neutral role (an etic perspective). However, since this approach does not provide insights regarding the phenomenon or the participants'

experiences in detail, qualitative research methods such as semi-structured interviews and protocols were employed to describe and understand the participants' practices in depth without predetermined categories or standpoints. From a qualitative perspective, in this study, the researcher had an emic perspective (insider's point of view) by directly interacting with the participants in the EMI context and using their own terms and concepts to describe the phenomenon (Heigham & Croker, 2009).

3.7. Research Ethics

In this study, the recommendations about the ethical issues stated by Creswell (2013) were taken into consideration by the researcher. Before conducting the current study, ethical approval from Çanakkale Onsekiz Mart University School of Graduate Studies Ethics Committee was obtained (Appendix 5). Firstly, the supervisor and researcher made initial talks with the lecturers via telephone during the 2020-2021 fall academic year. They arranged a meeting to inform the participants about the scope of the research and how the findings were planned to be used in detail. After this meeting, the informed consent letter which includes further information and participants' rights was sent to the participants via Google Forms. The participants were assured that their participation in this research was voluntary and they were free to withdraw from the study at any time for any reason.

To be able to minimize the risk of any harm to the participants, they were given pseudonyms during the study. Their names and personal information that they shared with the researcher were not shared with the third parties.

3.8. Data Collection Procedure

Since an explanatory sequential mixed method design was utilized in this study, questionnaires were conducted as the first phase of the data collection process during 2020-2021 spring and 2021-2022 fall academic years as it is seen in Figure 8. The participants were informed with the consent letter about the scope of the study and what was expected from them during the study before the collection of the data. Thereafter, the questionnaires were sent to EMI lecturers and EMI students at the departments of MBG and Biology via an online survey tool called Google Forms.

After the questionnaires, interviews were conducted on suitable days and hours for EMI lectures that were determined beforehand via common online communication platforms (e.g. Google Calendar or Gmail) during 2021-2022 fall and spring academic year. All the interviews were conducted in Turkish so that the participants feel comfortable and express themselves better. Depending on the participants' preferences, interviews were utilized either face to face or via online communication apps (e.g. Zoom). After taking the consent of the participants, the interviews were audio-recorded in order to analyze the responses to the questions in detail. The recordings were transcribed verbatim and translated into English.

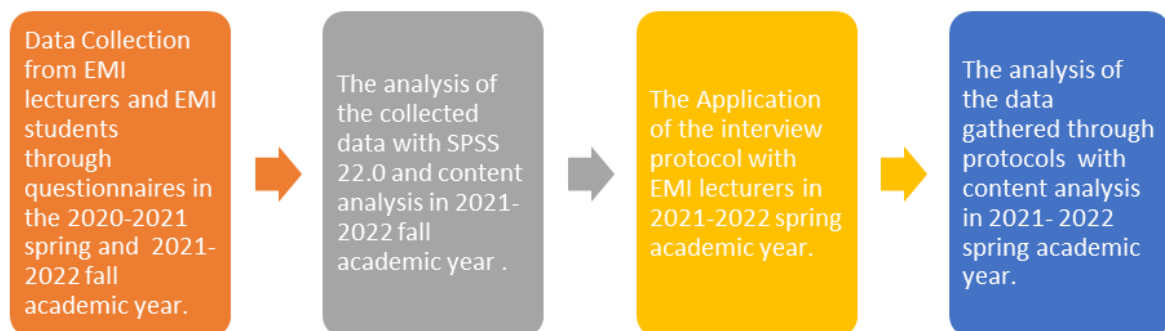


Figure 8. Data collection and analysis procedure

3.9. Data Analysis Procedure

By using the Statistical Package for the Social Sciences (SPSS) 22.0 program, the closed-ended items of questionnaires were analyzed through descriptive and frequency statistics in order to better understand the participants, and the case and summarize the collected data by using charts and tables. The open-ended items in the questionnaires, which were translated into English, were analyzed through content analysis to categorize the responses and identify the patterns.

As stated before, the data collected both through open-ended questions in the questionnaires and interview protocol were analyzed through content analysis. According to Creswell (2014), there are six steps to analyze the data: first, data are transcribed and organized; second, data are read through; third, data are coded; fourth, the coded data are divided into themes and descriptions are generated; fifth, themes are combined together; and finally, meanings are interpreted out of themes. Following these steps in this study, the

data was organized and prepared for analysis by transcribing interviews verbatim, scanning the data that was already written and sorting and arranging them into different types based on the sources of information. All the arranged and organized data was read to be able to find and reflect on the overall meaning. As a third step, to be able to make sense of the data, see the patterns among the data and also to handle the rich amount of data, the data was coded by dividing it into chunks and using a word representing a category. Bogdan and Biklen (1998) explain the process of “coding categories” as follows:

As you read through your data, certain words, phrases, patterns of behavior, subjects' ways of thinking, and events repeat and stand out. Developing a coding system involves several steps: You search through your data for regularities and patterns as well as for topics your data cover, and then you write down words and phrases to represent these topics and patterns. These words and phrases are coding categories. They are a means of sorting the descriptive data you have collected... so that the material bearing on a given topic can be physically separated from other data. (p. 156)

In relation to the research questions, the coding categories were compared and refined continuously and simultaneously, which is called the constant comparative method (Maykut & Marehouse, 1994). The aim of this method is to reconstruct the gathered data in a reasonable way and to interpret it to have a deep understanding of the phenomenon (Lincoln & Guba, 1985 as cited in Demir, 2019). As a final step, the interrelationship between the coding categories and patterns among the code units was analyzed by the researcher.

Finally, as for the validity of the semi-structured interview protocol, as Creswell (2014) stated, the validity in qualitative research methods is different from the validity in quantitative research methods. In the literature related to qualitative research methods, validity- also addressed as trustworthiness, authenticity and credibility- means the accuracy of the findings that are checked by the researcher by applying exact procedures. It can be checked with the help of some validity strategies such as “triangulation, member checking, rich and thick description, clarifying the bias, presenting negative or discrepant information, spending prolonged time, peer debriefing and external auditor” (Creswell, 2014, p. 251). To be able to strengthen the validity of the semi-structured interview protocol, some of these validity strategies were employed in the current study. To increase the reliability and the validity of the data analysis process, another researcher who is an

expert researcher coded the data. The coded data were compared and used to ensure inter-coder reliability and credibility. The researcher performed the Kappa statistic to compare the data and determine the consistency between the coders. The inter-coder reliability for coders is found (κ) = 0.81, which means that the coders are in almost perfect agreement over the analysis of the data. Besides, the thick and rich description was presented to increase the transferability of the findings to other contexts.

Table 3

Data collection tools

Research Questions	Quantitative Data Collection	Quantitative Data Analysis	Qualitative Data Collection	Qualitative Data Analysis
R.Q.1. What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?	Questionnaire	SPSS 22.0 Descriptive Statistics	Interview	Content Analysis
RQ1.1. What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?	Questionnaire	SPSS 22.0 Descriptive Statistics	Open-ended questions & Interviews	Content Analysis
RQ1.2. How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?			Open-ended questions & Interviews	Content Analysis

Table 3(Continued)

Research Questions	Quantitative Data Collection	Quantitative Data Analysis	Qualitative Data Collection	Qualitative Data Analysis
RQ2. What are the instructional materials used by MBG and Biology EMI lecturers?	Questionnaire	SPSS 22.0 Descriptive Statistics	Interviews	Content Analysis
RQ2.1. What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using instructional materials?	Questionnaire	SPSS 22.0 Descriptive Statistics	Open-ended questions & Interviews	Content Analysis
RQ2.2. How do MBG and Biology EMI lecturers review and revise instructional materials?			Open-ended questions & Interviews	Content Analysis
RQ3. How do instructional methods, techniques, and instructional materials interact with one another?			Interviews	Content Analysis
RQ4. What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods and techniques and instructional materials?	Questionnaire	SPSS 22.0 Descriptive Statistics	Open-ended questions	Content Analysis
RQ5. Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?	Questionnaire	SPSS 22.0 Descriptive Statistics	Open-ended questions & Interviews	Content Analysis

3.10. Chapter Summary

In the present study, an explanatory sequential mixed method design was utilized in order to determine the instructional methods and techniques and materials used in the EMI context, the factors affecting their choices, how the lecturers review and revise them, the criteria considered during the design, selection, and use of the instructional materials, how they interact one another, the students' opinions regarding these choices and whether EMI lecturers' choices and students' opinions differ depending on the Department of MBG (100%) and Biology (30% English). This chapter presents the research design, research setting, participants, data collection tools, how they are developed and the data collection and analysis procedure in detail.

CHAPTER IV

FINDINGS

Introduction

This case study aims to investigate the instructional methods, techniques, and instructional materials that are used by EMI lecturers from two departments, namely MBG (100% English) and Biology (30% English), at the Faculty of Arts and Science. To be able to gain a deep understanding of these preferences, this study also seeks to find out the factors affecting EMI lecturers' choices, how they review and revise them, the criteria considered by EMI lecturers while designing and selecting the materials, how the selection of instructional methods and techniques and the selection of instructional materials interact with one another, students' opinions in relation to lecturers' choices and whether EMI lecturers' choices and students' opinions differ depending on programs run fully in English (100% English) and partially in English (30% English). To this end, the related data were collected through questionnaires and semi-structured interviews. The results of the current study will be presented in this section in line with the research questions.

4.1. Findings of RQ1. *What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?*

To be able to gain deep insights into the data collected through the questionnaire, follow-up interviews were conducted with the EMI lecturers. As it is mentioned before, the interview protocol has four parts. The second part includes transition questions (TQs) which provide the researchers with information about what the EMI lecturers have already known and how they define instructional methods, techniques and materials. With the answers obtained from the participants regarding the questions *TQ1 "How do you define instructional methods?"*, *TQ2 "How do you define instructional techniques?"* and *TQ3 "How do you define instructional materials?"*, the researcher wants to capture how the participants categorized instructional methods, techniques and materials and how they perceived and understood them.

As a result of the analysis of TQ1, two main categories emerged: *the facilitators of the learning process and materials or tools as representative of methods*. In the first category, the EMI lecturers emphasized the importance of using instructional methods that

help students to understand the content presented. Participant A defines instructional methods as follows:

PA: *The methods that are required to lecture on any topic at the level of students.*

Participant B and Participant E have a similar views to Participant A. They stated that:

PB: *To me, instructional method is the method that is student-centred and students can understand the most.*

PE: *I can say that it is pointing the content out to students understandably by using different techniques.*

Participant C, Participant D and Participant F view instructional methods as materials or tools that they use during the lesson. They describe it as follows:

PC: *Using everything. Using the internet, resources....*

PD: *Instructional methods... The tools that we use.*

PF: *The materials that I use in the lesson come to my mind.*

According to the analysis of the answers to TQ2, two of the participants do not have a clear understanding of instructional techniques. Participant D and Participant F said that “*I define it (instructional techniques) in the same way with instructional methods*”. Their answers to these first two transition questions reveal that they perceived both of them as instructional materials that they use in the classroom. They think that these two overlap with each other.

Without a clear explanation of what he meant by ‘*different techniques*’, Participant E said, “*Different techniques that I use*”. On the other hand, Participant A defines instructional techniques as a sub-category of instructional methods by saying as follows:

PA: *Is it a discussion-based lesson? Is it a lecture-based lesson? Or is it a practice-based lesson? Depending on that, the techniques that I use.*

While defining the instructional techniques, Participant B also describes the choices related to instructional materials. In addition, she stated the relationship between instructional techniques and instructional methods as follows:

PB: As to techniques, I use something in some way. Tools... Something I use. Which path you will follow is about methods. Yet, while using a technique, up to me, what can I use in this situation? Which tools can I use? These might be visuals, audial or might be an item. It might be experiments that we use in the lab. Mostly... I.... As techniques, instructional materials are involved in this. How are you going to use instructional materials? In which way are you going to use it? It means that to me. By saying instructional techniques, it means which way I am going to follow and what I am going to use in order to implement these techniques.

Participant C associates instructional techniques with long-term memory. She stated:

PC: How can I deliver the topic to the students much better? Which technique should I use? With which technique can it stick in mind? With which one does it become unforgettable? With which one can it be remembered after a long time?

As for the last question of transition questions which is how they define instructional materials, the data obtained from the semi-structured interviews indicate that the EMI lecturers describe instructional materials by giving examples. They have a clear understanding of what instructional materials are. They basically mentioned the books, PowerPoint, computer, articles and hand-outs that they use. In addition, Participant A defined instructional materials as examples by saying as follows:

PA: As a material, we use examples that our students can benefit from as much as possible and that we can access easily.

Participant B views instructional materials as concrete materials used for improving the technique.

With these definitions in mind, findings related to the research questions were addressed in detail below.

The first research question aimed to reveal the EMI lecturers' choices of instructional methods and techniques in the departments of MBG (100% English) and Biology (30% English). Since explanatory sequential mixed method design was followed in this study, firstly the quantitative data collected from six EMI lecturers working at either MBG or Biology departments were analyzed and presented below. The data was gathered through the 5-point Likert scale (e.g. never, rarely, sometimes, often, and always). Yet, since the number of the participants is low, the findings were presented on the 3-point Likert scale (never-rarely, sometimes, and often-always) to be able to reach meaningful results.

In the given list in the questionnaire, there are eight methods, namely case study method, question and answer method, demonstration method, lecture method, problem-solving method, discussion method, project-based learning, demonstration and practice method. The rest of the items in the list are instructional techniques. Figure 9 provides information about how often EMI lecturers use the listed instructional methods and techniques.

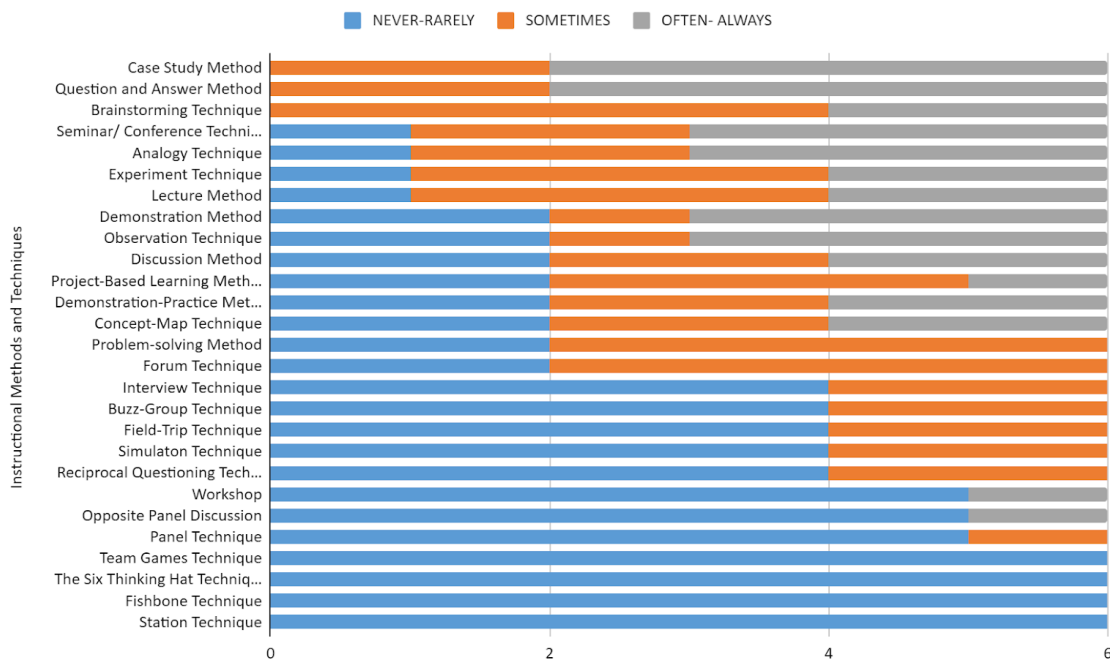


Figure 9. Frequency chart of EMI lecturers' use of instructional methods and techniques (n= 6)

As it is seen in Figure 9, case study method, question and answer method, and brainstorming technique were found to be employed at various degrees, ranging from *sometimes* to *often or always*, in the classroom. However, they are generally *often or always* implemented by the lecturers. Following these methods and techniques, it is seen that the frequency level of EMI lecturers' use of methods and techniques up to the team games technique is not as frequently as the case study method, question and answer method, and brainstorming technique. The number of participants, who reported that they *rarely or never* apply the methods and techniques, increases as we go down in Figure 9. The team games technique, the six thinking hats technique, and the fishbone technique are not preferred to be implemented as much as the previous methods and techniques ($n_{\text{rarely}} = 2, 33.3\%$). Besides, the station technique is the least used one in the EMI context ($n_{\text{rarely}} = 1, 16.7\%$).

Furthermore, these methods and techniques given in Figure 9 were analyzed one more time in relation to whether they are individual-centered, teacher-centered, or interaction-centered in terms of Fer's categorization (2011) (as mentioned in 2.9.3 Section in Literature Review Chapter). Table 4 illustrates the categorizations of the listed methods and techniques and whether they are used by the EMI lecturers or not.

The case study method, which is frequently used by the EMI lecturers, is individual-centered whereas the question and answer method and brainstorming techniques, which are also frequently used, are interaction-centered. These findings might reveal that EMI lecturers aim to make EMI learners active during the lessons by both using case studies to investigate the problem in-depth, asking questions, and sharing their opinions about the problem to increase learners' engagement in the learning process. The following 20 methods and techniques are not used as frequently as the previous ones. Six out of 20, namely the analogy technique, experiment technique, observation technique, project-based learning method, problem-solving method, and workshop technique, are individual-centered. These methods and techniques aim to teach the students to think independently about how to reach outcomes individually. Next, seven out of 20 methods and techniques, namely seminar/ conference technique, lecture method, demonstration method, demonstration and practice method, concept-map technique, forum technique, and field trip technique, are teacher-centered methods and techniques. These methods and techniques are based on deductive reasoning and informative instruction. Students are

passive listeners in the classroom. They are generally preferred because of the large class. Even if in the current study, EMI lecturers teaching at the MBG department have 60 and more students in the classroom, it is seen that these methods are sometimes preferred by the participants. The other methods and techniques, which are *sometimes* employed by the EMI lecturers, are discussion method, interview technique, buzz group technique, simulation technique, reciprocal questioning technique, opposite panel discussion, technique, and panel technique. These methods and techniques are interaction-centered. The techniques are generally used with discussion method. Students share their opinions about a topic individually or in a group under the lecturers' supervision. They come together, research, practice and discuss a problem. These methods and techniques are the most appropriate ones for students to demonstrate thinking skills orally.

Finally, the never or rarely used methods and techniques are fishbone technique, the six thinking hats technique, team games technique, and station technique. The fishbone technique and six thinking hats technique are individual-centered. Students are expected to be active and take responsibility for their own learning process. Team games and station techniques are teacher-centered. These two techniques are used together with either demonstration and practice method or demonstration method. Students have an opportunity to see the actual occurrence of an event.

In conclusion, the findings of quantitative data showed that EMI lecturers frequently prefer to use one individual-centered method, one interaction-centered method and one interaction-centered technique. Up to team games technique, all 20 instructional methods and techniques whose categories differ from individual-centered to interaction-centered are *sometimes* employed by the EMI lecturers in the classroom. The last four methods and techniques are never or rarely used by the EMI lecturers.

To be able to gain deep insights into what instructional methods and techniques are used by EMI lecturers in the EMI context, semi-structured interviews were conducted with six EMI lecturers. One of the participants (Participant F), who did not fill out the questionnaire, participated in the one-on-one interview whereas one of the participants (Participant G), who filled out the questionnaire, did not attend the interviews. Therefore, findings obtained from the content analysis based on six EMI lecturers' interviews are presented below.

Table 4

Classifications of instructional methods and techniques used by the EMI lecturers

	Classifications		
	Individual-centered	Teacher-centered	Interaction-centered
Frequently used	Case Study		Q&A Method, Brainstorming Technique
Sometimes used	Analogy Technique, Experiment Technique, Observation Technique, Project-based Learning Method, Problem-solving Method, Workshop Technique	Seminar/ Conference Technique, Lecture Method, Demonstration Method, Demonstration and Practice Method, Concept-map Technique, Forum Technique, Field Trip Technique	Discussion Method, Interview Technique, Buzz Group Technique, Simulation Technique, Reciprocal Questioning Technique, Opposite Panel Discussion, Technique, Panel Technique
Never or rarely used	Fishbone Technique, The Six Thinking Hats Technique	Team-games Technique, Station- Technique	

The data analysis reveals one main theme, namely instructional methods and techniques. As it is seen Figure 10, under this theme, there are three hyper-categories: *teacher-centered instructional methods and techniques*, *individual-centered instructional methods and techniques*, and *interaction-centered methods and techniques*.

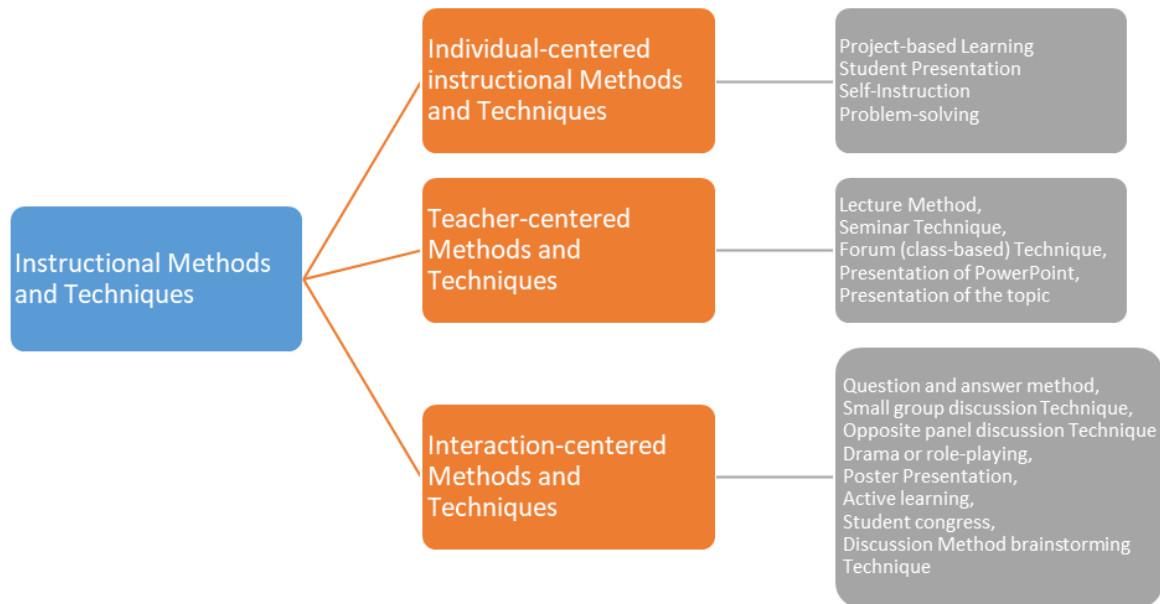


Figure 10. EMI lecturers’ choices of instructional methods and techniques

With regard to the hyper-category of teacher-centered instructional methods and techniques, the analysis of EMI lecturers’ interviews reveals that there are five different categories: lecture, seminar, forum (class-based), presentation of PowerPoint, and presentation of the topic. Participant B, Participant E and Participant D stated that they use the lecture method in their courses. Participant B reported, “*What did we implement? the most is the lecture. There is a presentation with the help of PowerPoint. As a method, it is maybe the lecture, presentation method*”. Similarly, Participant D said, “*...But generally, I start to lecture on a topic and then I ask a question*”. Participant E said, “*After I provide some background knowledge to the students, I ensure their discussion through asking questions reached by making interpretations so that they reach the next step*”. As for the seminar technique, Participant A reported, “*We sometimes invite scholars from outside. To give information on a specific topic. In fact, coming together with the content experts is a method, too*”. When it comes to the forum technique (class-based), Participant B reported that she explained this technique that she uses in her EMI classroom as follows, “*For*

example, I give them some interesting topics. They read and present them in the classroom. Let's say that we have 40 minutes lesson. I am not the only one that speaks during all 40 minutes. For 10 or 15 minutes, the children that I give topic in the previous lesson or want to present, present in the course. While they are presenting, the others listen and ask questions. If they ask in-point questions, they will get a point”.

Under the category of presentation of PowerPoint, two of the participants said that they present the topic first with the help of the PowerPoint. Participant B explained as follows *“The most used one is PowerPoint presentation. ...Mostly, I go with presenting something by myself ”*. Similarly, Participant D said, *“Mostly, the lecturing through the presentation of Powerpoints...”*. The final category is the presentation of the topic. Participant A and Participant F mentioned that they present the topic. Participant A reported, *“... I make the presentation of the topic...”*. Similarly, Participant F said, *“ Mostly, I present the topic.”*

As for the second hyper-category, namely individual-centered methods and techniques, there are six categories. These are project-based learning, self-instruction, student presentation, and problem-solving. Participant A mentioned two types of implementation of project-based learning depending on the courses in the EMI context. He said that they, as EMI lecturers in the MBG department, want their students to study on TUBITAK projects, and research projects. He reported, *“In the scope of a course, we want our students to do something... Writing project. Scientific projects. We send them to TUBITAK. I apply for TUBITAK. As a result, if they are accepted, they are the conductor of the research and they can work physically in the labs“*. He added, *“In the fourth grade, there is a lesson called Special Topic. We change its name a little bit but it is the same meaning, same scope as the previous one. We give students projects that they conduct from the beginning to the end. Just one course. Let's say we have 30 students. We randomly divide students as many as the lecturers in the department. We want the lecturers to be supervisors for two semesters... In fact, we turn this into whole faculty activity. They present verbally by preparing posters... Some of the students go into labs and present the results. Some of them review and present the literature. Some of them present their projects in their mind”*.

Another category is self-instruction, mentioned by Participant B. She reported, “*Sometimes, the children should learn by themselves. I think the most beautiful learning is learning by oneself*”. In a way, she supports student autonomy. She also mentioned students’ presentations in the EMI context. She explains this method she uses as follows, “*For example, I want them to review the latest literature related to the topic I teach in the classroom. I want them to present them by gathering at least three or five articles together*”. Similarly, Participant A also provides an opportunity for the students to present a topic that appeals to their interests. Another method is problem-solving, which is used by Participant F. He said, “*I generally present the topic. If there is problem-solving, I project the problem onto the board. I want several people to explain. If we do problem-solving, I expect at least 10 or 15 people out of 60 students to answer and solve the problem*”. Yet, the EMI lecturer did not explain the steps of problem-solving in detail. Therefore, this implementation of the problem-solving method might not carry the characteristics of this method. Further investigation is need to be said that it is really the implementation of that method.

The final hyper-category is interaction-centered instructional methods and techniques. The categories are question and answer method, small group discussion, opposite panel discussion technique, drama or role-playing, poster presentation, active learning, student congress, discussion and brainstorming. Nearly all of the participants use the question and answer method in the EMI courses. Participant B reported, “*For example, I explain a topic and then we continue with the question and answer in the classroom*”. Participant C said, “*I use the question and answer three times: at the beginning, in the middle, and at the end*”. As previously stated above, Participant D said that she uses question and answer after she presents the topic. Participant E said, “*I turn my lessons into questions and answer by directly keeping eye contact*”. Another category is the small group discussion technique. Participant A mentioned it as follows, “*There are studies that I want them to discuss among themselves as a group and choose a group member as a spokesperson and tell the information to the other groups*”. As for the opposite panel discussion technique, Participant B reported, “*Within 15 minutes, you will read a passage and you will prepare three questions. And you will write them down. But, do not forget these questions will be asked to you and you will answer them. Now, I have two lists on my hand: a question group and an answer group. If you ask good questions, you will get a*

point. *If you answer well, you get a point*". The next category is drama or role-playing. Participant B said that she uses this method actively in her courses. She mentioned it as follows "*I am using drama actively... Mimics... I become just like a player in the middle. Or I give roles in the drama. You will become this, you will become that, you will become this, too. I give tasks*". As for students' poster presentation, which could not be put under a specific method or technique, Participant A said, "*I bring pencils and want them to prepare posters for just that lesson. After I give the required information, I divide them into groups and make them do it*". Active learning, which is not included in the questionnaire but mentioned by two of the participants, is also under this hyper-category. Active learning is an instructional method in which students engage in the learning process and do meaningful activities in the classroom. Both participants use it by introducing student activity into the traditional lecture. Participant A reported, "*After I finish the topic, now you have five minutes. Within these 5 minutes, everyone turns to his friend and tells him or her what they understand*". Similarly, Participant B implements this method in this classroom as follows, "*I also think that when someone tells something to somebody, it reinforces*". Student congress is a kind of place where content experts come together and listen to and ask questions to the students in this EMI context. Participant A said, "*In addition, we have a seminar lesson. They present their studies in this lesson. We prepare an environment like a congress for the students... At the end of the two semesters, all the faculty members come. We invite other scholars from different faculties... These scholars ask questions*". As for the discussion method, Participants D and E mentioned it once but any questions related to that method were not asked to explain their implementation in detail. Finally, Participant D said that she uses brainstorming in her classes.

Consequently, the results of the first research question show that almost all of the EMI lecturers use one of the interaction-centered instructional methods and techniques. In contrast to the result of the quantitative data, the case study method, which is the most preferred one in the questionnaire, is not mentioned in the interviews. The question and answer method is one of the most used ones according to both quantitative and qualitative data. In contrast to the low frequency of the use of teacher-centered methods and techniques in the quantitative data, the analysis of semi-structured interviews shows that lecture and presentation of PowerPoint and topic is among the most preferred ones. Finally,

individual-centered methods and techniques are among the least mentioned ones by the EMI lecturers in interviews even if their frequency levels in the questionnaire are not low.

4.1.1. Findings of RQ1.1. *What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?*

Regarding the second research question, in the questionnaire, the EMI lecturers were asked to indicate what factors affect their choices of instructional methods and techniques from a given list in the questionnaire. Figure 11 illustrates the factors that affect their choices.

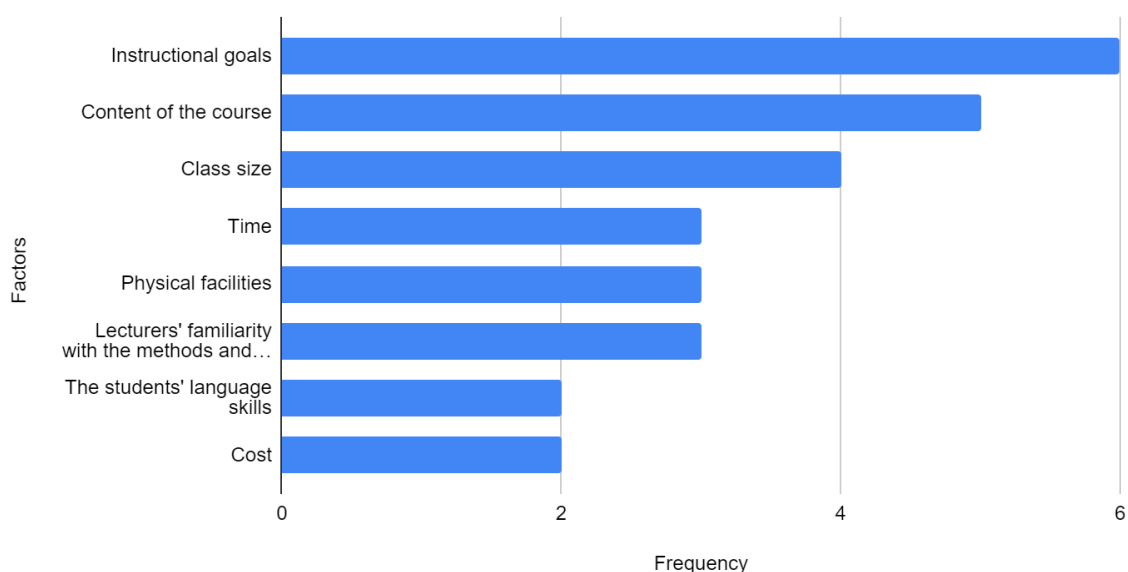


Figure 11. Frequency of factors affecting the choices of instructional methods and techniques (n=6)

As can be seen in Figure 11, the instructional goals are the major reasons affecting the selection of instructional methods and techniques (n=6, 100%), which is followed by the content of the course (n=5, 83.3%). Class size is the next factor that affect their choices (n=4, 66.7%). Following that factor, time, physical facilities and the lecturers' familiarity are chosen as factors (n=3, 50%). Finally, students' language skills and cost are selected as other factors that affect their preferences (n=2, 33.3%).

Additionally, in the questionnaire, the EMI lecturers were asked whether teaching in the EMI context affects their preferences of instructional methods and techniques. Only Participant G reported that EMI is another factor that affects her selection. However, she does not think that students' language abilities are one of the factors. As seen in Figure 11,

two of the lecturers (33.3%) chose students' language abilities as a factor, which is also related to EMI since their language abilities can limit their understanding. Yet, the same participants reported that EMI is not one of the factors affecting their selection. Therefore, it can be said that students' language abilities are seen as an independent factor from the EMI context itself.

The content analysis of the semi-structured interviews reveals that there are several factors that affect the EMI lecturers' choices of instructional methods and techniques in the EMI context. Under the theme of factors affecting instructional methods and techniques, there are three hyper-categories, namely *positive factors and negative factors*. Table 5 below provides information about the positive factors that are mentioned in the interviews.

Table 5

Positive factors affecting the EMI lecturers' choices of instructional methods and techniques

Category	Codes	Participant Codes
Desire to enhance students' engagement	Creation of open classroom environment	PA
	Increase in competitiveness among students	PA
	Creation of equal opportunities	PA
	Increase in students' confidence	PA
	Students' low proficiency	PA
Students' qualities	Previous knowledge	PB
	Level of students	PB
	Readiness of the students	PB
	Students' capability and interest	PB
	Students' interest	PE
Demographic features	Age	PB

Table 5 (Continued)

Category	Codes	Participant Codes
Teachers' informed decisions	Lecturers' experience	PC, PF
	On the spot decision making	PB

As presented in Table 5, with regard to the category of desire to enhance students' engagement, there are several factors, namely creation of open classroom environment, increase in competitiveness among students, creation of equal opportunities, increase in students' confidence and students' low proficiency. Only Participant A mentioned these positive factors to enhance students' engagement. For the first factor, Participant A mentioned, *"I tell students that if you want to share information about any topic with us, with your friends or whatever you want to share related to our course but it does not have to be related to the main topic of our course but related with our field. I can spare time for you"*. This means that students are provided with an opportunity and open environment to do presentations related to the field. In addition, Participant A said that the reason behind the implementation of this method is to increase competitiveness among students. He reported, *"In a class with 60 people, it emerges a competitive environment because we need a long time to discover one by one with 60 students"*. Another reason is to create equal opportunities for all students. He explained this factor as follows, *"As I say, some of the students prefer not to speak. They prefer to stay silent. But you see that these students have the highest scores in the course. This means this kid is hesitant and does not know how to express himself or herself.... Accordingly, these children are provided with an opportunity to show themselves"*. Besides, he uses the project-based learning method because they need to choose specific students among 60 students. This method helps him to create equal opportunities for all and to make a fair decision. Finally, Participant A said that he uses the small group discussion technique. The factor affecting this choice is to increase students' confidence. He explained this as follows, *"The first-grade students prefer not to make long sentences, but when they get together with their friends, they overcome this embarrassment... Choosing a spokesperson as a group and deciding on it together make them move as a group. And it provides to increase the self-confidence of the*

person who will speak". In addition, Participant A said, "*Students hesitate to make friends. Also, they hesitate to talk in English with me. They prefer not to talk. Short sentences... They prefer not to use long sentences. But, first grades... When they are with their friends, they overcome this embarrassment*". He turns students' low proficiency into a positive factor. He tries to help them to communicate in the target language by using interaction-centered methods and techniques.

The final categories are students' qualities, demographic features, and teachers' informed decisions. Under the category of students' qualities, there are five codes, namely previous knowledge, level of students, the readiness of the students, students' capability and interest, and students' interest. Participant B listed these factors as follows, "*The students' age, knowledge, levels in the classroom... I mean which method you choose is identified here*". Demographic features of the students were also mentioned. She added, "*If I implement what I think, I will employ different methods and techniques, but conditions, I mean class conditions, equipment conditions, students' readiness conditions limit us*". Besides, Participant B also mentioned students' capabilities and interests. She said, "*Depending on the class's condition. Depending on their capability. It can change depending on students' capabilities and interests in the classroom*". Similarly, Participant E also mentioned students' interests. He said that he uses the question and answer method in order to appeal to their interests. As for lecturers' informed decisions, lecturers' experience is also another factor affecting their choices. Participants B and F mentioned this factor. Participant B reported that the experience she had throughout the years is affecting her choices. Finally, Participant F said, "*Maybe because of my own experience. I try to implement the things that I see effective during my education...*". Participant B said that she finds methods and techniques in front of the children without planning beforehand just by making on-spot decisions.

The next hyper-category under the theme of factors affecting the choices of instructional methods and techniques is *negative factors*. This hyper-category has six categories, namely *institutional resources, features of the content, lecturers' perceptions of their professional role, lecturers' emotional state, and EMI*. Table 6 illustrates these factors and their categories.

Table 6

Negative factors affecting the EMI lecturers' choices of instructional methods and techniques

Category	Codes	Participant Codes
Institutional resources	Physical facilities and arrangement	PA, PB
	Large class size	PA
The features of the content	Nature of the academic content	PA, PC
	The content barrier	PA, PF
Lecturers' perceptions of their professional role	Lecture as a faculty members' responsibility	PA
Lecturers' emotional state	Lecturers' motivation	PB
Lecturers' professional experience		PB
EMI	Students' low English proficiency levels	PB, PC, PD, PE
	EMI program type	PC, PD, PE
	EMI lecturers' proficiency levels	PB
	Time-consuming	PC
	Language Barrier	PF
Students qualities	Previous knowledge	PB
	Level of students	PB
	Readiness of the students	PB
	Students' capability and interest	PB
	Students' interest	PE
Demographic features	Age	PB
Teachers' informed decisions	Lecturers' experience	PC, PF
	On the spot decision making	PB

Under the category of institutional resources, there are two categories: physical facilities and arrangement and large class size. The first category is mentioned by both Participants A and B. Participant A explained this factor as follows, “*Coming together physically and interactively in the classroom... They can't do this because physically there is no environment for this*”. Besides, in the following interview questions, he also added, “*Not having an environment physically is the biggest handicap*”. Similarly, Participant B reported, “*Why is the board directly opposite to us? It gives us our roles. The student will sit at the desk, the teacher will stand next to the board and give a lecture. It does not give any role to you*”. As for large class size, Participant A said, “*Reaching large numbers of students, which is 60 now, is not the number we want. It causes me to turn to different methods. It caused me to abandon these methods (poster presentation of the students and small group discussion)*”.

The next category is the features of the content. It has two codes: the nature of academic content and content barrier. Participant A said that depending on the content, students' roles are changing. When they are in the first and second grades, they are listeners. Yet, when they are in third and fourth grades, they are active participants. Participant C said, “*My courses do not allow me to do something else. My lessons... A lab lesson can be convenient....Mine is not for group work*”. She added, “*Since it is a theory-based lesson, if it was a lab course, it would have more interaction. It is because of my lessons' nature*”. Another factor is mentioned by Participants A and F. Participant A said, “*I ask whether the topics are clear to you or not. Because some issues can be high level*”. Besides, Participant F reported that the content they are conveying is unfamiliar to the students, which makes the situation more difficult for them when it is combined with the language barrier that is going to be mentioned under the hyper-category of EMI.

Under the category of teachers' perceptions of their professional role, there emerges one code, which is mentioned by Participant A. He stated, “*I tell my students this. After all, lecturing is my responsibility. I do the lecture myself*”. This perception might influence and limit the lecturer's choice of methods and techniques. Lecturers' emotional state is another category that emerged as a result of the content analysis. Participant B reported, “*Depending on situation and conditions and my mood. Now, this is also important. Sometimes we are in good spirits. We find many creative methods and techniques. But, sometimes we do not want it. We just do the lecture and go*”. Another category is lecturers' professional experience. Only Participant B mentioned it in the

interviews as follows, *“As age progresses. Experience increases. With this experience, you become a little more idealistic at first. You try so many ways, so many things. As time progresses, you now know which ones work and which ones don't. You are wasting energy for nothing. You are wasting working methods”*.

The last category is EMI with the codes of students' low English proficiency levels, EMI program type, proficiency levels of lecturers, time consuming, and language barrier. The majority of the EMI lecturers reported that the students' low English proficiency level is a factor that affects their preferences. Participant B reported, *“I pity the children. I mean how the lessons are. How much do they understand? How efficiently do they learn the content? I mean I feel sorry for them, too.... I had difficulty making them understand the topics...”*. Even if Participant C did not explain whether this low proficiency of the students directly affect her choices, she mentioned it as follows, *“ They (students) need more Turkish at the beginning. Now, they are better. I mean we have finished 5 weeks. They say we do not understand anything”*. Participant D said, *“I mean... Do the students understand? Don't they? What are their levels? The biggest problem in the second and third grades is language. Language for us... I mean the level of understanding of what they learn is the problem. I can see that second grades do not understand. Prep-school is not enough”*. Participant D also points out that PYP education based on general language skills is not enough for students to enrol in the department. This might suggest that they need to take responsibility for language education as an academic expert. Finally, Participant E said, *“As the number of students increases, our entry success decreases. Since students' understanding of English is the problem, this makes us feel obliged to talk slowly and give what we have talked about as a written source”*.

The next code is EMI program type as a factor. Participant C, who is from the department of Biology (30%) explained it as follows, *“ The other lesson after my lesson they take it in Turkish. But I need to provide them with background knowledge for those lessons. They need to know both of them so that they can gather them together. I think 30% has its disadvantages”*. Participant D asserted, *“Exposure to 100% English and exposure to 30% English. I think the lecturers' qualities might not be so good. Most of the lessons are taught through Turkish even if it is said it is English”*. Participant E also said, *“ Besides, since the student's instinct is to learn in his or her first language, s/he can understand better. He prefers his or her first language under stress anyway. Since the teacher can explain more easily in the mother tongue, these demands overlap over time. There is a risk*

that the event will completely turn into Turkish". As for the code of EMI lecturers' proficiency levels, Participants B and E mentioned it. Participant B said, *"My English is not so good. Upper-intermediate. I can explain my problem. But when I want to explain more than my problem, I can't explain it.... This situation limits me. What am I doing? Let the student understand the subject I have to teach"*.

The final two codes are time-consuming and language barrier. Participant C explained that gathering students' attention and trying to be sure about the fact that students do not miss any points take a long time. When it comes to the language barrier, Participant F said, *"They try to learn something, but there is also a language barrier. And not every ones' level is equal. Accordingly, language issues and even if it is an easy topic, how it is conveyed become a matter of concern"*.

Surprisingly, the next three categories, namely students' qualities, demographic information and teachers' informed decisions also appeared within the negative factors as Participants C, E and F stated.

In conclusion, it can be said that apart from the listed factors in the questionnaire, there are different factors affecting the choice of instructional methods and techniques. This shows that the teachers cannot only think of the lesson or content itself by ignoring other external factors. They need to take into account many factors related to themselves, the environment, conditions, and students while making informed decisions regarding the choices of instructional methods and techniques.

4.1.2. Findings of R.Q.1.2. *How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?*

In the questionnaire, the EMI lecturers were asked whether they evaluate the instructional methods and techniques they use in the classroom. Two of the participants (33.3%) reported that they do not evaluate the methods and techniques. The majority of the participants (66.7%) said that they review and revise them. In the open-ended questions in the questionnaire, Participant A, who teaches at the department of MBG (100% English Program), reported that he asks for students' opinions and evaluations. He said that depending on these evaluations, he updates the methods and techniques he uses. Similarly, Participant C, who teaches at the department of Biology (30% English Program), said that she uses students' evaluations. Participant E, who is from the department of MBG,

evaluates the methods and techniques by applying self-reflection so that he can see the impact of these methods and techniques on students. Participant G, who is also from the MBG department, applies self-reflection and students' evaluations so as to evaluate the methods and techniques. She updates them depending on these evaluations.

To be able to gain a deep understanding of this research question, in the semi-structured interview, EMI lecturers were also asked whether they evaluate the methods and techniques that they implement in the classroom. Table 7 shows the result of the content analysis of the interviews.

Table 7

Review and revision of instructional methods and techniques

Category	Codes	Participant Codes
Expert evaluation	Exchange of ideas with colleagues	PA, PB, PF
Students' feedback	In-class students' oral feedback receiving	PA, PD
Lecturers' senses	Evaluation depending on intuition and experience	PA
Exam as an evaluation tool	Evaluation depending on the success of students in exams	PF

Participants A, B and F said that they exchange ideas about how to teach with their colleagues. The second category is *students' feedback*. Participants A and D reported that they receive students' oral feedback regarding the instructional methods and techniques used in the classroom. Participant A added, "*I ask students in a specific phase of the lesson. I use this method but are you satisfied with this method? Especially after a few weeks. As an alternative, it might be this or that method*". Another category is *lecturers' senses*. Participant A said, "*We do not keep a record. It continues with intuition. Our own things. Gaining experience*". Finally, Participant F reported that he uses assessment tools

as an evaluation tool. He said, “*After mid-terms, if I see problems in the papers, I start to do some changes*”.

There are several differences between the findings of the interviews and the questionnaire. Although Participant C said that she receives students’ feedback in the questionnaire, she said that she does not evaluate the methods and techniques in the interview. Similarly, Participant B said in the interview that she talks with her colleagues. Yet, she did not mention it in the questionnaire. In addition, Participant D takes students’ feedback even though she said she does not evaluate the methods and techniques in the questionnaire. Participant A added in the interview that he asks for his colleagues’ opinions together with students’ feedback.

In conclusion, except for Participants E and G, all of the participants review and revise the instructional methods and techniques they use in the classroom. However, these participants do not follow any systematic process in which the evaluator collects, analyzes, and presents the results. They talk casually about methods and techniques that they use in the classroom with colleagues and students or depending on their experience, they keep using or abandoning them. They do not keep a record of it.

4.2. Findings of RQ2. *What are the instructional materials used by MBG and Biology EMI lecturers?*

To be able to answer the question, the researcher asked the EMI lecturers how often they use the given instructional materials in the questionnaire. Similar to the results of instructional methods and techniques, to be able to reach meaningful data, the data obtained through the 5-point Likert scale was presented on the 3-point Likert scale due to the low number of participants. Figure 12 provides information related to the frequency of the use of the listed instructional materials.

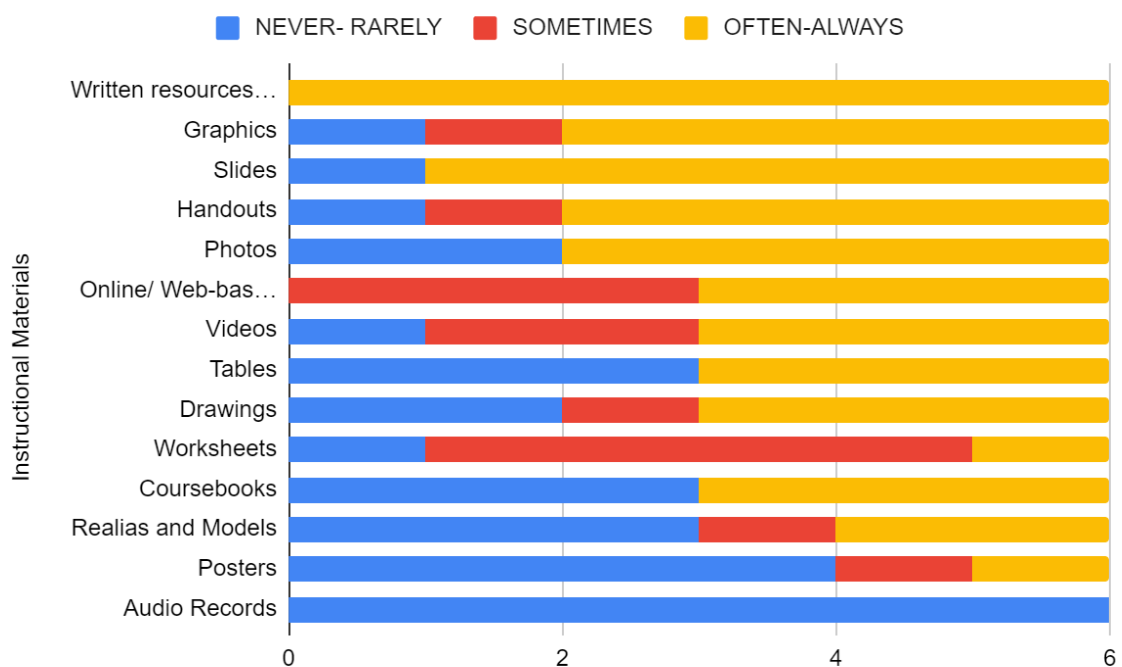


Figure 12. Frequency of EMI lecturers' use of instructional materials (n=6)

As seen in Figure 12, all EMI lecturers *often or always* use written sources such as articles, periodical publications, and resource books. The second preferred one is slides. Only one of them *rarely* uses this material in the EMI classroom. The majority of the participants *often or always* use slides. As for online/ Web-based tools, half of the participants generally *sometimes* use them whereas the other half frequently prefer them. The frequency of the other eleven instructional methods and techniques is not as frequently as slides, written sources, and online/ Web-based tools. Finally, the audio records are the least used ones in the EMI context. They are rarely used by the EMI lecturers ($n_{rarely} = 1$, 16.7%).

The qualitative data analysis reveals that there are three hyper-categories, namely, *visual materials*, *audio-visual materials*, and *instructional methods and techniques*. Under the title of the visual materials, there are different categories: realia, Powerpoint, books, projector, photos, articles, handouts, posters (big papers), pencils and written resources. All of the participants at least use one of the visual materials. PowerPoint presentation is used by all of the EMI lecturers. The projector is mentioned only by Participant B. Photos are preferred to be used by Participant C. Realia, posters and pencils are used only by Participant A. Participants A, C, and D uses books as instructional materials in the EMI

context. Articles are utilized by Participants A, C, and E. Handouts are preferred to be used by Participants D and E. Finally, written sources are used as visual materials by Participants E and F in the EMI classroom.

As for the hyper-category of audial materials, the only material mentioned in the interview is the lecturers' speech. Participant E said, "*My materials are generally my speeches*". The hyper-category of audio-visual materials consists of four categories. The first one is videos. Videos are used by five of the EMI lecturers, namely Participants A, B, C, D, and F. Computer is another material used by Participant B. Films are used by Participant C. Animations are preferred by Participant F in the EMI classroom.

The final hyper-category is instructional methods and techniques. Two of the participants mentioned instructional methods and techniques as their materials. Participant A said, "*As a material, I prefer verbal expression such as lecture*". Participant C mentioned seminar as an instructional material when she was asked what instructional material is. She explained it as follows, "*Maybe in some branches, maybe in everything, maybe not so much in our field. It hasn't happened so far. Seminar... It happens in specific lessons, though. In general, it is brought together in the lessons and the seminar is in it*".

Consequently, it can be said that visual materials, especially PowerPoints, are among the most preferred materials by the EMI lecturers according to the analysis of both qualitative and quantitative data. Following the visual materials, videos as audio-visual materials are another mostly used material in the classroom. Only one of the participants mentioned that he uses audial material as a resource. Two of the participants could not differentiate materials from instructional methods and techniques. Therefore, they named teacher-centered methods and techniques, namely lectures and seminars, as materials that they use in the classroom.

4.2.1. Findings of RQ2.1. *What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using instructional materials?*

In relation to the sub-question of the second research question, the EMI lecturers were asked about the factors that they consider while designing, selecting or using the instructional materials. In the light of the related literature, the factors such as the content of the course, instructional goals, students' language skills, instructional technologies,

time, class size, physical facilities, cost and others are listed in the questionnaire. The frequency of these factors is presented below in Figure 13.

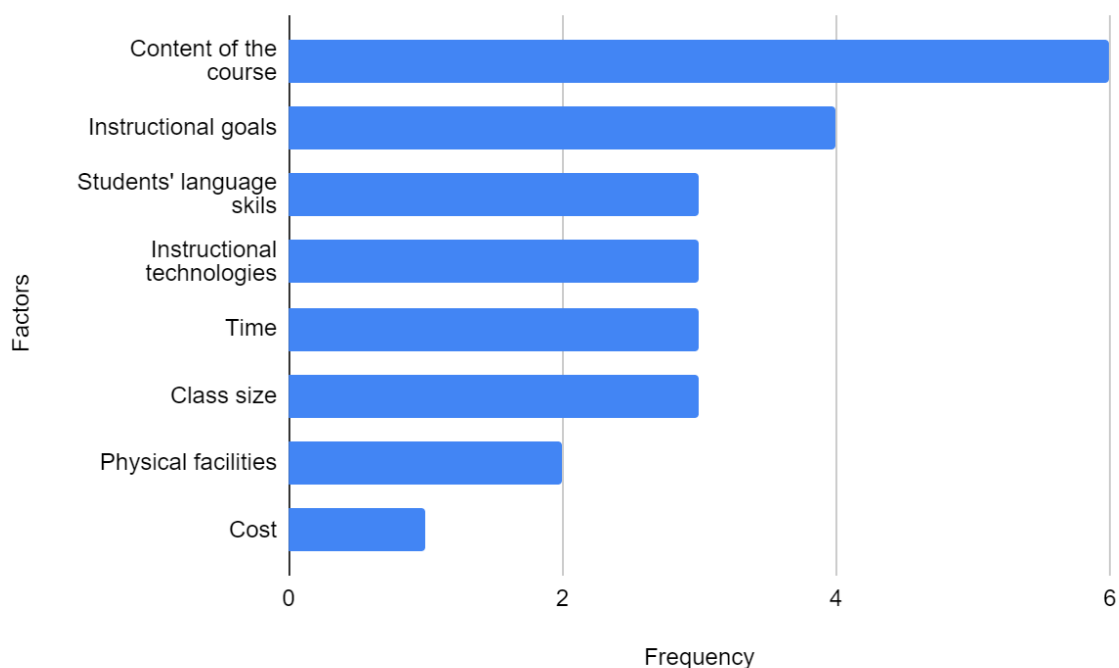


Figure 13. Frequency of factors affecting the choices of instructional materials (n= 6)

All of the EMI lecturers agree that the content of the course is one of the factors affecting their selection, design and use of instructional materials, which is followed by instructional goals. Four of the participants (66.7%) reported that it influences their selection, design and use. Half of the participants (50%) said that students' language skills, instructional technologies, time, and class size are factors in the process. Two of the participants (33.3%) choose physical facilities as one of the factors. Finally, only one of the EMI lecturers sees cost as one of the factors.

Besides, in the questionnaire, the EMI lecturers were also asked whether teaching through EMI is one of the factors affecting the process of selection, design and use of instructional materials in the classroom. Half of the participants (50%) said that EMI influences the process. Participant B, Participant E and Participant G reported in the questionnaire that nearly all of the literature related to Biology and visuals are in English. Since students have a language education background, it helps them to use all of these materials in the classroom. However, Participant E did not see students' language skills as a factor even if he reported that EMI is one of the factors. Participant D who chose

students' language skills as a factor did not consider EMI as a factor in the selection, design and use of instructional materials. Since the academic content is taught through the English medium in the EMI context, students' language abilities can limit their understanding of concepts, and share opinions. Therefore, these two factors are related to each other. Since these two participants did not consider the factors related to one another, they might not make informed decisions in the selection, design and use of instructional materials in the EMI context.

Content analysis of the interviews indicates that under the theme of factors affecting the selection, design and use of instructional materials, there are three hyper-categories, namely *positive factors* and *negative factors*. Table 8 provides information about the positive factors related to the instructional materials.

Table 8

Positive factors affecting EMI lecturers' selection, design, and use of instructional materials

Category	Codes	Participant Codes
Facilitation of learning	To make students understand better	PA
	To make them visualize	PA
	Learning styles of the students	PC
	To make them active	PE
EMI	Easily accessible material	PB
	Catching up with up-to-date material	PD
	The origin of the field	PA
Instructional goals	The goals of the course	PD

The hyper-category of *positive factors* has two categories: *facilitation of learning* and *EMI*. Firstly, under the category of facilitation of learning, different codes emerged. These codes occurred as a result of the question that was asked to EMI lecturers about why

they choose to use the materials that they mentioned in the interview. Participant A said, *“To make them understand better”*. In addition, Participant A reported, *“ There is some topic that cannot be understood just by lecturing. When I share it with the video, it becomes easy for them to imagine. They visualize”*. Participant C said, *“Everyone has a different understanding. For some, whatever you do, it becomes understandable with shapes. But for some, it becomes understandable with sentences. So, add both”*. Participant E said, *“I choose them to make students active”*. As for the category of EMI, Participant B asserted, *“ It has got this kind of benefit: for example, if I want them to watch a video, English resources can be found easily”*. Participant D reported, *“ EMI affects. Because we follow up-to-date information easily. They question more with the information they learn on English websites. They follow the up-to-date information easily”*. Another code under the category of EMI is the origin of the field. Participant A said that since the origin of the field is from foreign countries and the most advanced developments happen abroad, instead of translating, he teaches through the English medium, which is helpful for him. The final category of factors is instructional goals. Only Participant D mentioned the goals of the courses as a factor to decide which material to use in the EMI classroom. She said, *“They (instructional materials) should be in line with the goals of the course”*.

The next hyper-category is *negative factors*. Table 9 shows the information regarding the negative factors affecting the selection, design and use of instructional materials.

As understood from Table 9, there are four categories, namely *institutional resources, the features of the courses, EMI, and lecturers’ professional experience*. The first category is institutional resources. Participant A mentioned it as follows, *“Everything is effective. Especially cost is very effective. We cannot prefer some things because no one afford them and pay money. And also, the lack of environment physically... For example, the lack of labs causes us problems”*. Participant F said, *“We have a cost problem. Foreign resources can be very expensive. I will follow this book to recommend it to students, but we cannot say that you should buy this book. There is such a problem”*. When it comes to the features of the courses, Participant B said, *“ For now, computer and projector. I mean lessons are theory-based”*

Table 9

Negative factors affecting EMI lecturers' selection, design and use of instructional materials

Category	Codes	Participant Codes
Institutional resources	Cost	PA, PF
	Lack of physical environment	PA
The features of the courses	Theory-based courses	PB
EMI	EMI program type	PA, PC, PD, PE, PF
	Informing students about Turkish materials	PA
	The students' low English proficiency	PA
Instructional goals	The goals of the course	PD

EMI category has three codes: EMI program type, informing students about Turkish materials, and students' low English proficiency. EMI program type is a negative factor affecting lecturers' selection, design and use of instructional materials. Participant A said, *"They have to use Turkish for the things that are explained in Turkish in the Turkish department. They have to prefer Turkish materials"*. Participant C reported, *"It (EMI program type) has pros and cons. I am talking about 30% English. Making them understand the next lesson. What they say, even in the dictionary, look from English to English. It should be like that in fact but 70% of it is Turkish, which causes problems"*. Participant D said, *" I think there is a difference between them. They definitely are using Turkish"*. Similarly, Participant E asserted, *"The source used in 100% English is definitely 100% English. In 30% English, I think there is a Turkish source and I guess they are trying to explain it in English"*. Participant F added, *"There may be such a difference. Most of the good resources in our field are written in English. It is translated into Turkish. Sometimes very good sources may not have a Turkish translation. This may push teachers, who teach*

in Turkish, to other resources. I see this as an advantage for English education. Direct access to the best resources in the field". As for informing students about Turkish materials, Participant A reported, *"In other words, I do not hold them responsible in the course for the Turkish materials. I'm saying this. Some of the books we use have both English and Turkish versions. In other words, if you have requests, you can get the Turkish versions, but I recommend the English version to you"*. He said that this is because of students' low English proficiency levels.

The final category of factors is instructional goals. Only Participant D mentioned the goals of the courses as a factor to decide which material to use in the EMI classroom. This category was put under both positive and negative factors since she did not give further explanation about whether this factor affects her decision process negatively or positively.

In conclusion, the emergence of different hyper-categories shows how multifaceted the factors affecting the design, selection and use of the instructional materials are. Depending on the priorities of the EMI lecturers, the factors affecting the decision process change. Since the focus of the current study is on the EMI context, only two of the EMI lecturers see EMI as a positive factor. Almost all of the participants view EMI as one of the negative factors.

4.2.2. Findings of RQ2.2. *How do MBG and Biology EMI lecturers review and revise instructional materials?*

The EMI lecturers were asked whether they evaluate their instructional materials, how they evaluate, and what they do after evaluating. Only one of the participants, who is Participant G, said that she evaluates the materials through self-reflection and students' evaluation. Then, she updates instructional materials. The other five participants reported that they do not evaluate the materials.

As a result of the data obtained from the semi-structured interviews, three hyper-categories emerged, namely *exam as an evaluation tool, expert evaluation and students' feedback and understanding*. Table 10 indicates the findings of the content analysis.

Four of the participants reported that they use *exams as their evaluation tool*. They stated that if they see any problem and students are not successful in exams, they change

their materials. Participants A and F *exchange their ideas* about the materials with their colleagues. Yet, this is not a systematic evaluation. They just talk about it casually. In contrast to these participants, Participant B said that she do not exchange ideas with her colleague. She explained it as follows, “*They (PYP teachers and faculty members) have so much work to do. I mean I also have a lot of work. How am I going to ask how I prepare this to my colleague? What if he or she says go away*”. The last category is *students’ feedback and understanding*. Participant A explained it as follows, “*Sometimes I look at the children, the material I use is heavy. The book or subject I use. Or there are more popular topics that children are interested in, I give priority to them*”. He added, “*In fact, we discuss these with the children during the lesson. How do you find this book? For example, is the language heavy for you? It happens when I ask*”.

Table 10

Review and revision of instructional materials

Category	Codes	Participant Codes
Exam as an evaluation tool	Evaluation depending on the success of students in exams	PA, PB, PC, PF
Expert evaluation	Exchange of ideas with colleagues	PA, PF
Students’ feedback and understanding	Review of the materials in terms of the students' understanding	PA
	The choice of materials depending on students’ proficiency levels	PA

In conclusion, it can be said that the majority of the EMI lecturers focus on the outcomes of the materials. Depending on the outcome, they abandon and continue using the materials. This kind of evaluation of the instructional materials is a summative evaluation in which evaluators see whether the materials are effective or not.

4.2.3. Findings of R.Q.2.3. *What are the criteria considered by MBG and Biology EMI lecturers while designing, selecting and using instructional materials?*

When the EMI lecturers were asked whether they have any criteria to consider while designing, selecting or using the instructional materials, five of the participants said that they have criteria. In the questionnaire, following that question, the participants were asked what their criteria are. Participant A said that the content should be understandable. Participant B mentioned that materials should be visuals including concept maps and should be brief and understandable. Besides, she added that the English that is used in videos should be fluent and understandable. Participant C reported that materials should be updated all the time and reliable. Participant E said that the quality of the material is an important criterion for him. Participant G mentioned that the content of the course and the students' feedback regarding the material influence her decision.

The qualitative data analysis reveals that there are three main criteria for the design, selection and use of instructional materials as it is seen in Table 11.

The first hyper-category has one category, which is *reliable sources*. Participants A said, "*I use the materials which are produced by the known people in the field*" and Participant B reported, "*The information I use is important. Being from a reliable source is important. That's why I use published materials directly*". Participant E said, "*Having been tested. Accepted sources*". Participant F explained this criterion as follows, "*I generally prefer the books that are used mostly in the field. In order not to be missing in the flow and content of the subject. I usually follow the progress of the source books*".

All of the participants have a criterion related to *the facilitation of students' learning*. Four of the participants, namely Participants B, C, D and F, said that instructional materials should get students' attention. Three of the participants said that materials should include detailed information but should be brief and understandable for the students. Participant B explains it as follows, "*I want it to present more comprehensive information in a short time and in the most easily understandable way. And I want it to attract attention*". Also, Participants A and D said that visualization of the topic in the materials is important rather than writing everything on the slides.

The last hyper-category is *features of resources*. Under this hyper category, there are two categories, namely *up-to-date and miscellaneous*. Participants C and D said that the instructional materials that they use should be current. Participant C also added the

needed time for using materials as a criterion by saying, “*Especially, it is necessary to finish the section, to finish that part, and to leave it while you are at it without distracting the students’ attention*”. Another code is mentioned by Participant A. He said that instructional materials should be easily accessible examples. As for the next code, Participant E reported that for him, the scientific knowledge the materials include should be sufficient. Moreover, he added that the language used in the material should be understandable for the students.

Table 11

EMI lecturers’ criteria affecting the choices of instructional materials

Hyper-category	Category	Codes	Participant Codes
Credibility of the resources	Reliable resources	Production by known people	PA
		Published materials	PB
		Tested materials	PE
		Mostly used in the field	PF
Facilitation of students’ learning	Desire to enhance students’ understanding	Attention gather	PB, PC, PD, PF
		Detailed but brief and easily understandable	PB, PE, PF
		Visualization of the topic	PA, PD
Features of the resources	Up-do-date	Current	PC, PD
	Miscellaneous	Needed time for using the material	PC
		Easily accessible	PA
		Adequacy of scientific knowledge	PE
		Language	PE

Having considered the findings above, it can be said that the findings of the quantitative data analysis and qualitative data analysis are in line with each other. All the participants have at least one criterion. The majority of EMI lecturers give importance to

the reliability of the resources and facilitation of the students' resources when designing, selecting, and using the instructional materials.

4.3. Findings of RQ3. *How do instructional methods, techniques, and instructional materials interact with one another?*

The RQ3 seeks to reveal the interaction between instructional methods, techniques, and materials used by the EMI lecturers in the EMI context. To be able to answer this question, all quantitative and qualitative data were examined. As it is mentioned under the RQ1, when the EMI lecturers were asked to define instructional methods, techniques and materials, three participants, namely Participants C, D, and F, reported that instructional methods and techniques are the resources that they use. Similarly, as mentioned before in RQ2, Participants A and C mentioned the seminar/ conference technique as instructional materials. Participant A also said that he uses lectures as instructional material. These results indicate that they have difficulty differentiating instructional methods and techniques from instructional materials. This might mean that they relate these two variables with each other, but they cannot really explain it.

When the overall findings are examined, it can be said that there is a relationship between instructional methods, techniques, and materials. When qualitative data and quantitative data are compared, it is seen that the EMI lecturers, who prefer to use teacher-centered methods and techniques, use PowerPoint presentations and written resources in their courses as materials. Only Participant A mentioned that he brings posters (he means big papers) and pencils as materials to the classroom so that students work in groups, discuss the given topic and share their results. This shows that interaction-centered methods and techniques, namely small group discussions, require materials which students share with their group members, organize and write their ideas on. Besides, Participant A said, “ *The lack of labs is a problem... The number of microscopes is limited*”. This explanation of the participant shows that there is a two-way relationship between instructional methods, techniques, and materials. When the material, which is a must for a method and technique such as experiment technique, observation technique, etc., is not enough, the need of changing the choice of instructional methods and techniques emerges.

Consequently, it can be said that instructional materials are significant tools to achieve the outcomes of the courses and how and when to use these materials depends on

the choices of instructional methods and techniques used in the classroom. Yet, the accessibility to the materials can also affect the choice of methods and techniques.

4.4. Findings of RQ4. *What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods and techniques and instructional materials?*

This research question aimed to reveal students' opinions regarding the instructional methods and techniques used by EMI lecturers. Eighty-one EMI students studying at either MBG (100 % English Program) or Biology (30% English Program) participated in the current study. The students were asked to mark the listed instructional methods and techniques if they are used by the EMI lecturers during the EMI courses. Figure 14 illustrates the instructional methods and techniques used by the lecturers. These chosen methods and techniques by the students are put in descending order depending on the frequency of students' selection.

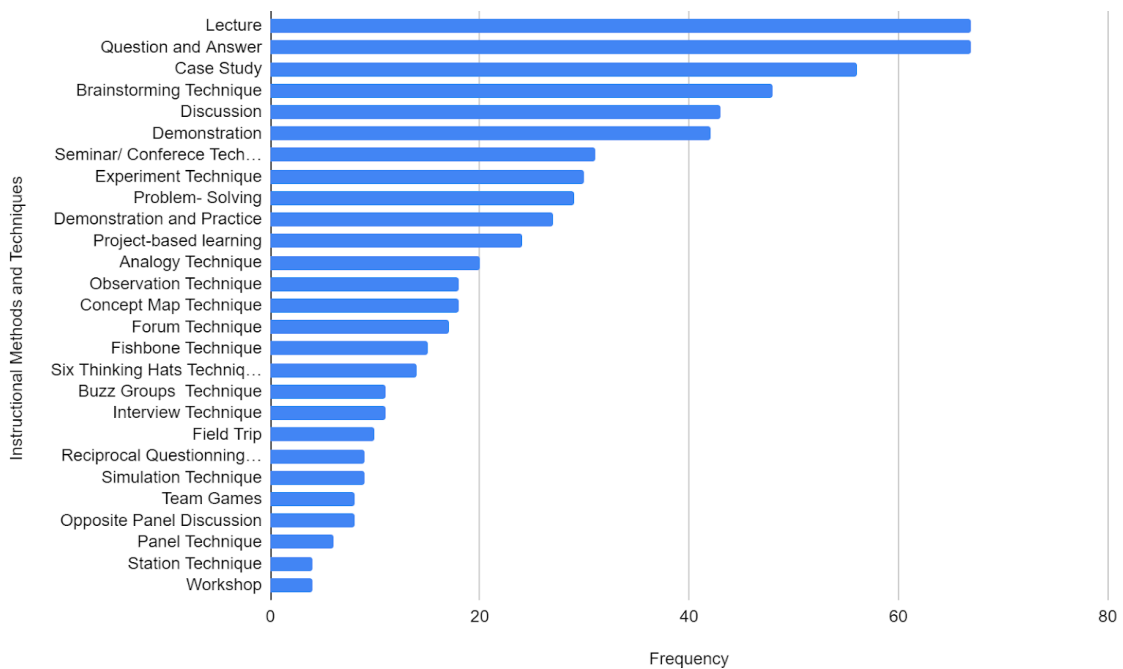


Figure 14. Students' opinions regarding the instructional methods and techniques used by the EMI lecturers (n= 81)

As seen in Figure 14, except for the demonstration and lecture, the first four methods and techniques are interaction-centered. Students are expected to be active and share their opinions. Out of 81 participants, 67 EMI students (83.75%) choose lecture and question and answer methods as the instructional methods that are used by the EMI lecturers in the EMI context. Following these two, 56 participants (70%) said that EMI lecturers use case study in the classroom. According to 48 students (59.3%), the brainstorming technique is another technique that EMI lecturers employ. Forty-three of them (53.8%) reported that discussion is employed in the courses. As for the demonstration method, 42 EMI students (52.5%) said that this method is applied in the classroom.

After the demonstration method, less than half of the participants agreed that the following methods and techniques are employed by the EMI lecturers in the EMI context. Thirty-one participants (38.8%) reported that the seminar/conference technique is applied. This technique is teacher-centered. Students are generally listeners. Thirty EMI students (30%) choose the experiment technique, which is one of either the individual-centered or teacher-centered techniques. According to the opinions of 29 students (36.3%), the problem-solving method is one of the methods used in this context. It is also individual-centered. Following that, 27 out of 81 participants (33.8%) said that the demonstration and practice method, which is teacher-centered, is employed by the EMI lecturers. Project-based learning is one of the individual-centered methods. Twenty-four of the participants (30%) reported that it is utilized by the lecturers. Twenty participants (25%) marked analogy as one of the techniques preferred by the lecturers. It is an individual-centered technique.

According to 18 students (22.5%), the EMI lecturers employ observation and concept-map techniques. The concept-map technique is teacher-centered while the observation is individual-centered. Seventeen participants (22.5%) pointed out that the forum technique, which is teacher-centered, is applied by the lecturers. Of all the participants, 15 participants (18.8%) choose the fishbone technique, which is individual-centered. Fourteen of the EMI students (17.5%) said that EMI lecturers apply the six thinking hats. This technique is also individual-centered. The buzz group and interview techniques are interaction-centered. As it is seen in Figure 14, eleven participants (13.8%) pointed out that EMI lecturers use them in the EMI context. Ten of the participants (12.5%) reported that the field trip technique, which is teacher-centered, is employed by the lecturers. Nine of the participants (11.3%) marked the reciprocal questioning technique

and the simulation technique as techniques used in the classroom. Both are interaction-centered. Eight of them (10%) choose team games and opposite panel discussions. Six participants (7.5%) said that the panel technique is used by the lecturers. Finally, the station technique and workshop are the least preferred ones by the EMI lecturers. Accordingly, they are also the least used ones by the EMI lecturers in the EMI classroom.

In the questionnaire, with the help of open-ended questions, students were asked whether the instructional methods and techniques used by the EMI lecturers affect their acquisition of knowledge and skills related to the academic subject matter. Fifty-seven of the students (70%) reported that they think the instructional methods and techniques affect their acquisition process. Sixteen participants (19.8%) said that they affect partially whereas eight of them (9.9%) said that they do not affect the process of acquisition of knowledge and skills. The participants who said that instructional methods and techniques affect or partially affect were asked how they affect.

The content analysis showed that there are two hyper-categories: individual and interaction-centered methods and techniques and neutral points of view. Under the first hyper category, there are two categories: permanent memory and students' engagement. In the first category which is permanent memory, three of the participants (3.8%) reported that the methods and techniques, which make students active, share their opinions, and practice, ensure long-term memory. Fourteen of the EMI students (17.5%) mentioned individual and interaction-centered methods such as question and answer, experiment, observation, discussion, etc. They added that these methods and techniques help them to have different perspectives, develop thinking skills and keep the knowledge that they gain in long-term memory. Under the category of students' engagement, one of the participants (1.3%) mentioned that the methods and techniques which require active participation raise his or her interest. One of the participants (1.3%) added that the methods and techniques used in the classroom increase his or her motivation. As for the hyper-category called neutral points of view, there are two categories, which are permanent memory and students' comprehension. Without mentioning the type of methods and techniques, nine of the participants (11.3%) said that they help them to keep information in long-term memory depending on the methods and techniques. As for students' comprehension, one of the EMI students (1.3%) said that they make them comprehend the topic better.

Another open-ended question in the questionnaire is whether the instructional methods and techniques affect EMI students' English language development. The results show that fifty-four of the EMI students (66.7%) think they affect English language development whereas fourteen of them (17.3%) think they partially affect it. Thirteen of them (16.3%) think that the methods and techniques do not have any effect on English language development. Following that question, they also were asked how they affect or why they do not affect. Sixty-nine of the participants (86.3%) answered the question "how instructional methods and techniques affect English language development". The results show that the methods and techniques, which increase students' participation, and the interaction between peers and lecturers, require discussion and answers from the students, help the EMI students to develop their listening and speaking skills. Nine of the EMI students (11.3%) answered why instructional methods and techniques do not affect English language development. Only three of the answers are related to the question. Two of the participants (2.5%), who are from the department of Biology, said that all day they take the lessons in Turkish and one-hour lesson taught in English is not enough for developing English. One of the participants (1.3%) reported that there is no interaction in the classroom. Therefore, there is no development.

Following that question, whether the instructional methods and techniques used by the EMI lecturers affect their participation was asked to the EMI students. Fifty-two of the participants (64.2%) think that they affect the participation and 13 of the EMI students (16%) think that they partially affect it whereas 16 of the participants (19.8%) think that they do not affect their participation. When the EMI students were asked how the methods and techniques affect their participation, two hyper-categories emerged: the nature of the methods and techniques and students' self-efficacy. Firstly, under the hyper-category called nature of the methods and techniques, there is a category called the features of the methods and techniques. The participants said that if the EMI lecturers use interaction and individual-centered methods and techniques such as brainstorming, discussion, and question and answer, they participate in the lesson but they do not participate actively if the lecturers do not use these methods and techniques. As for the students' self-efficacy, there are two categories: students' language proficiency and students' self-confidence. Only two of the participants (2.5%) said that even if interaction and individual-centered methods and techniques are used, their English proficiency is not enough to participate in the lesson

actively. As for the students' self-confidence, they hesitate to participate in the lesson since they have low self-confidence.

The next question is about the appropriateness of the instructional methods and techniques for the English proficiency level of EMI students. Fifty-seven of the EMI students (70.4%) said that they are appropriate to the level of the students whereas 24 of them (29.6%) said that they are not appropriate. When they were asked why they do not think that the methods and techniques are not appropriate, they reported that the PYP does not prepare them for the academic courses that they take in the department. Besides, the EMI lecturers' proficiency levels are also a problem for them. The two of EMI students (2.5%) reported that if the EMI lecturers do not have a good command of English, they read the slides. Therefore, the students have difficulty understanding what is taught in the classroom.

In addition, the EMI students were also asked whether they exchange their ideas about the instructional methods and techniques. The findings show that 67 of the participants (82.7%) do not share their opinions whereas 14 of them (17.3%) exchange their ideas regarding the methods and techniques used in the EMI classroom. Those, who share their opinions, said that the EMI lecturers asked their opinions about how they can plan the lesson. Only two of the participants (2.5%) reported that they exchange their ideas about whether it is possible for the EMI lecturers to teach the courses through interaction-centered methods instead of reading slides.

Finally, the students were asked whether there are any methods and techniques that they want to be implemented by the EMI lecturers in the EMI context. Out of 81 participants, 61 EMI students (76.3%) said no to that question. Twenty of them (25%) said that they prefer more interaction-centered and individual-centered methods and techniques such as experiments, panels and brainstorming instead of memorization. Only one of them (1.3%) mentioned that the heavy load of the courses should be lowered to apply the methods and techniques that she or he wants.

Within the scope of the research question, 81 EMI students' opinions regarding instructional materials were also investigated. In the questionnaire, the EMI students were asked to mark the instructional materials used by the EMI lecturers in the EMI classroom. The following figure illustrates the information regarding the use of instructional materials. They are listed in descending order.

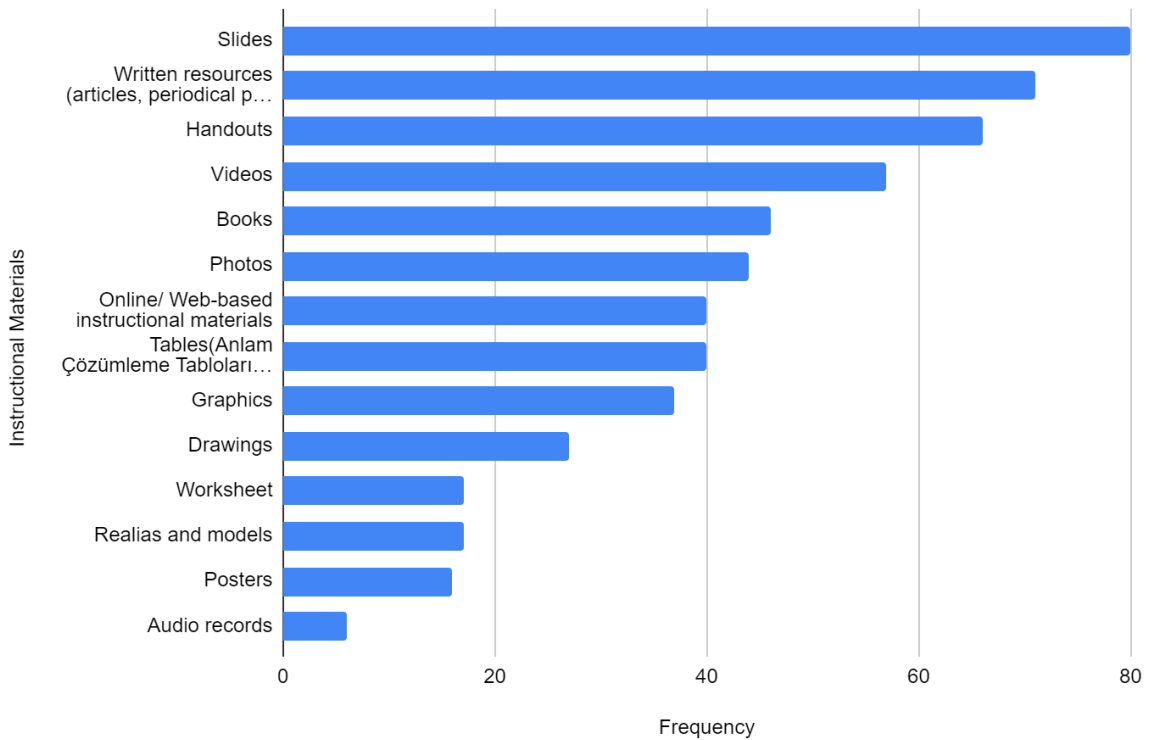


Figure 15. Students' opinions regarding the instructional materials used by the EMI lecturers (n= 81)

As it is seen in Figure 15, 80 of the EMI students (98.8%) choose slides as instructional materials used by the EMI lecturers in the classroom. Out of 81 participants, 71 EMI students (87.7%) reported that the EMI lecturers use written resources. According to 66 participants (81.5%), the lecturers use handouts. Fifty-seven EMI students (70.4%) said that videos are used by the lecturers. Another material is books which 46 participants (56.8%) reported that they are used in the EMI classroom. Following books, 44 of them (54.3%) choose photos as the materials. Forty out of 81 EMI students (49.4%) said that web-based instructional materials and tables were utilized in the classroom. Graphics are chosen by 37 students (45.7%). Drawings, worksheets, realias and models, posters and audio-recording are the least chosen ones. Twenty-seven of them (33.3%) said that drawings are used in the EMI context. Seventeen participants (21%) reported that the EMI lecturers use worksheets and realia and models. Of all the participants, 16 EMI students (19.8%) confirmed that EMI lecturers use posters in the classroom. Finally, only six participants (7.4%) said that audio-recording is used by the lecturers in the EMI context.

Following that section, six open-ended questions were asked to the EMI students. One of the questions is whether instructional materials used in the EMI classroom affect their acquisition of knowledge and skills related to the academic subject matter. Fifty-eight of them (71.6%) said that instructional materials affect and 15 of the participations (18.5%) said that they partially affect whereas eight of them (9.9%) reported that they do not affect. When they were asked how instructional methods affect, they generally said that the visual materials or audio-visual materials help them to comprehend the topic better and keep the knowledge and skills in long-term memory and increase their interest in the topic.

The other question is whether instructional materials used by the EMI lecturers affect students' language development. Twenty-nine of the participants (35%) said that they affect language development and 31 of them (38.3%) said that they partially affect it. Twenty-one of them (26.6%) reported that instructional materials do not affect language development. They were also asked how they affect and why they think they do not affect. Seven participants (8.6%) said that instructional materials, especially visuals, help them to learn vocabulary. Two of the participants (2.5%) said that they develop their reading and listening skills. Two students (2.5%) reported that they provide an opportunity to practice the language. Only one of the participants (1.2%) said that they help to understand what the lecturer teaches through English better. As for those who said that there is no effect of instructional materials on language development, two of them (2.5%) reported that they have language proficiency. Therefore, they do not need to learn it. One of them (1.2%) said that there is not any relationship between materials and language development. The other participant (1.2%) uses translation tools, therefore, he or she thinks they do not affect. An EMI student said that the materials are easy for him or her, so this does not help him or her to improve. Finally, the last participant reported that since he or she only focuses on the information in the material but not the language itself, they do not improve his or her language.

Another question is about EMI students' participation in the lesson. Thirty-seven (45.7%) of the EMI students said that instructional materials affect their participation and 18 of them (22.2%) said that partially affect it. Twenty-six of the participants (32.1%) reported that instructional materials do not affect their participation. Twelve of the participants (15%) said that visuals affect their participation because they attract their attention and increase their motivation. Five of the participants (6.7%) reported that visuals make the topic more understandable, therefore, they participate in the lesson.

The next question is whether the instructional materials are appropriate for their English proficiency levels. Fifty-nine of the participants (72.8%) reported that they are appropriate, but 22 of them (27.2%) said that they are not. As for the question of why they think that they are appropriate. Three of the EMI students (3.8%) said that the materials are simple and basic. Yet, those (12.8%), who said that the materials are not appropriate for their language levels, reported that their English language proficiency levels are low. Therefore, they have difficulty understanding the materials since they have academic language.

The EMI students were also asked whether they exchange their opinions with the EMI lecturers about instructional materials. Only seven of the participants (8.6%) said that they share their ideas. Finally, they were asked whether they have any additional instructional materials that they want to be implemented by the EMI lecturers. Only seven of the participants (8.6%) said yes to this question. One of the participants (1.3%) reported that simulation apps, which are web-based tools and realias and models, can be used by the EMI lecturers in the EMI classroom.

Having considered the findings above, the majority of the students think that instructional methods, techniques, and instructional materials affect their acquisition of knowledge and skills, English language development and their participation in the lesson because of different factors explained above. They exchange ideas with lecturers about how to plan lessons. They prefer lecturers to use interaction-centered or individual-centered methods and techniques. In terms of instructional materials, they prefer visuals to be used by the EMI lecturers since they make the topic understandable, attract their attention and practice the language.

4.5. Findings of RQ5. *Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?*

This research question seeks to reveal whether there is any difference between programs run fully in English (100% English) and partially in English (30% English) in terms of the EMI lecturers' choice of instructional methods and techniques and also students' opinions regarding these choices. Firstly, in the current study, there are five MBG

EMI lecturers (100% English) and two Biology EMI lecturers who filled out the questionnaire. The results obtained from the questionnaire from the MBG department are presented below in Figure 16. As it is presented in the RQ1, even though the data was gathered with a 5-point Likert Scale, it is presented with 3-point Likert Scale so that the researcher can reach meaningful results with a low number of participants. All the data is listed in Figure 16 depending on the frequency of their use.

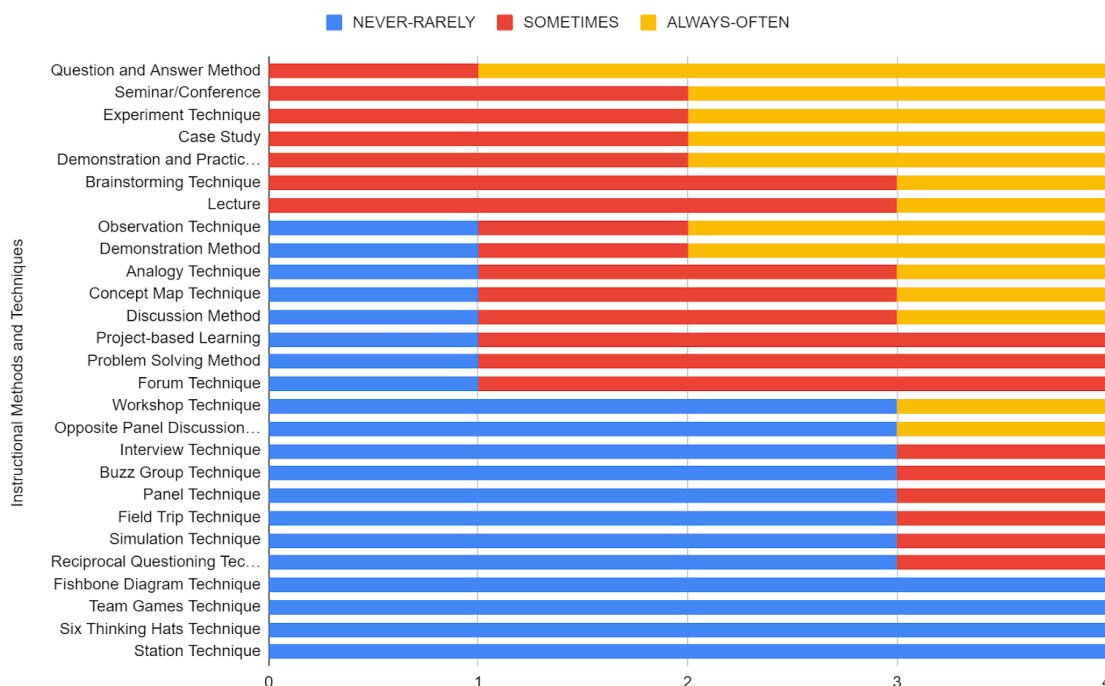


Figure 16. EMI MBG lecturers' choices of instructional methods and materials (n= 4)

As it is seen in Figure 16, the question and answer method, seminar/conference technique, experiment technique, case study method, demonstration and practice method, brainstorming technique, and lecture method are methods and techniques that are used frequently by lecturers teaching at the MBG department. The following 16 methods and techniques are implemented at various degrees, ranging from *rarely or never* to *often or always*. The number of participants who reported that they use *rarely or never* increases as we go down. The least used ones are fishbone diagram technique, team games technique, six thinking hats technique and station technique. All of these techniques are *never* employed by the three of the participants (75%) whereas one of them (25%) *rarely* employs them.

In addition to these four EMI MBG lecturers, two EMI lecturers from the department of Biology run 30% English participated in the study. The choices of instructional methods and techniques of EMI lecturers are provided in Figure 17 below.



Figure 17. EMI Biology lecturers' choices of instructional methods and techniques (n= 2)

As understood from Figure 17, the analogy technique and case study method are the most preferred instructional methods and techniques, which are followed by brainstorming technique and question and answer method. When we analyze the next 15 instructional methods and techniques, it can be said that they are *rarely or never* implemented by one of the EMI lecturers. Yet, one of them employs them at different frequency levels, ranging from *sometimes* to *often or always*. The team games technique, six thinking hats technique, workshop technique, opposite panel discussion technique, panel technique, demonstration and practice method, station technique, and fishbone technique are not used frequently in the classroom. They are generally *rarely or never* preferred by both EMI lecturers.

In addition to this quantitative analysis, the content analysis of semi-structured interviews shows that EMI lecturers from the department of MBG (100% English) implement several instructional methods and techniques which are mentioned under RQ1

in detail, namely lecture method, seminar technique, presentation of the topic, presentation of the PowerPoint, project-based learning, student presentation, problem-solving method question and answer method, small group discussion, poster presentation, active learning, student congress, discussion and brainstorming. The first four of these methods and techniques are teacher-centered. Four of the MBG lecturers prefer to employ them in the EMI context. Students passively listen to the topic taught by the EMI lecturers. They are not expected to share their opinions regarding the issue. Following these methods and techniques, individual-centered methods and techniques such as the project-based learning method, student presentation, and problem-solving method are mentioned by two of the MBG lecturers. Students are expected to apply higher-order thinking skills during the learning process. The last seven ones are interaction-centered. They are expected to work in groups or individually and discuss the issue and exchange ideas. Three of the EMI participants reported that they implement these methods and techniques. As for the Biology EMI lecturers, different methods and techniques are used in the EMI context. These methods and techniques are lecture method, forum technique, presentation of PowerPoint, self-instruction, student presentation, question and answer method, opposite panel discussion, drama, and active learning. The first three methods and techniques are teacher-centered. They are mentioned by both of the participants. Self-instruction and student presentation, which are mentioned by one of the participants, are individual-centered. The last four methods and techniques are interaction-centered. Only the question and answer method is reported to be used by both of the participants. The other three are only employed by one of them.

As seen in Figure 18, having considered the findings above, quantitative analysis shows that except for the experiment technique, demonstration and practice method, lecture method, project-based learning, discussion and interview, seven out of the first ten methods and techniques employed by MBG and Biology EMI lecturers are the same even though their rank in the list differs. When the categories of instructional methods and techniques used in the MBG context are examined, it is seen that only four of the methods and techniques (40%) are teacher-centered and can be put under presentation strategy. The rest of the methods and techniques are either individual-centered or interaction-centered. The qualitative data also shows that most of the MBG lecturers prefer teacher-centered and half of them prefer interaction-centered methods and techniques. As for the Biology department, only two of the methods and techniques are teacher-centered. The rest of them

are either individual-centered or interaction-centered. When it comes to qualitative data, Biology lecturers generally choose teacher-centered and interaction-centered methods and techniques. When two departments are compared, their choices do not differ significantly in terms of the choices of instructional methods and techniques.



Figure 18. Comparison of the instructional methods and techniques used by both departments.

The instructional materials are the other focus of the current study. The materials used by MBG lecturers and Biology lecturers are listed in Figure 19.

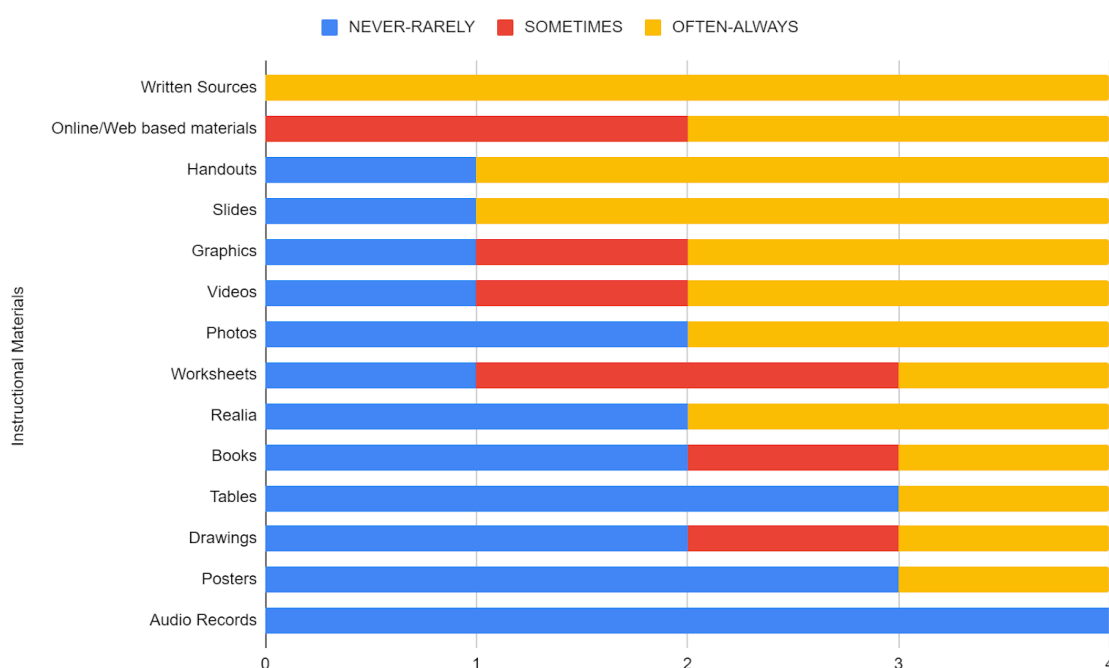


Figure 19. MBG lecturers' choices of instructional materials (n= 4)

As presented in Figure 19, all of the EMI lecturers from the department of MBG *often or always* use written sources in the classroom, which is followed by online/web-based materials. After these two materials, the frequency of the use of instructional materials decreases compared to the previous two materials. The least frequently used one is audio records, which are *rarely* used by only one of the MBG lecturers (25%).

The following figure illustrates the frequency of the use of instructional materials in the context of the Biology department. There are only two participants in this department.

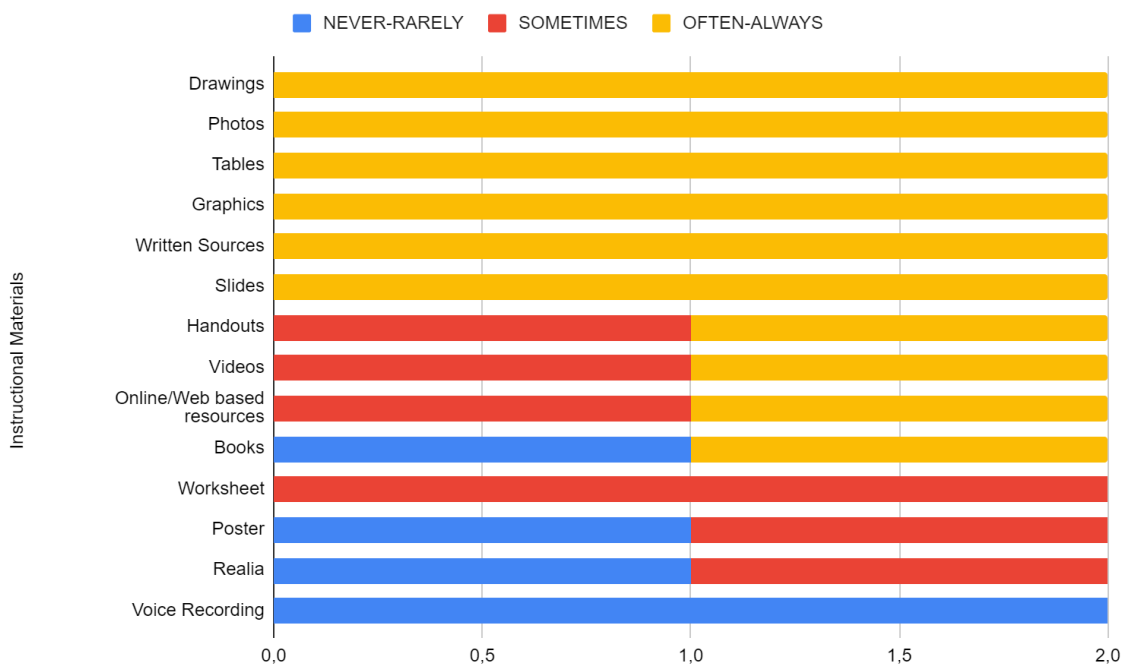


Figure 20. Biology lecturers' choices of instructional materials (n= 2)

As presented in Figure 20, two of the EMI lecturers (100%) from the department of Biology *often or always* prefer to use the first six instructional materials, namely drawings, photos, tables, graphics, written sources, and slides. The following three materials, which are handouts, videos and online/web-based resources, are *sometimes* used by one of the EMI lecturers (50%). The other one (50%) *often or always* uses them in the classroom. The other materials are books. They are *rarely* used by one of the participants (50%) whereas the other lecturer (50%) *often or always* uses them. Both of the EMI lecturers (100%) reported that they *sometimes* use worksheets. As for realia, it is *never* preferred by one of the participants (50%) whereas the other one (50%) *sometimes* uses it. Finally, both of the EMI lecturers from Biology (100%) said that they *never* use voice recording.

As for the qualitative data, four of the MBG lecturers reported that they use at least one of the visual materials such as realia, PowerPoint, books, articles, handouts, and written sources. Only one of the participants, namely Participant E, said that he uses his speeches in lessons as a material, which is an example of the audial materials. Three of them said that they use audio-visual materials such as videos and animations. Only one of the participants, namely Participant A, said that he uses conferences and lectures as instructional materials. When it comes to the Biology department, similar to the MBG lecturers, EMI lecturers use at least one of the visual materials, namely Powerpoint, books, projector, photos, and articles. They both use videos in their classroom. In addition, one of them, namely Participant B, mentioned computers as materials. Films as audio-visual materials are also stated by Participant C. Similar to the lecturer from MBG, Participant C mentioned the seminar technique as an instructional method.

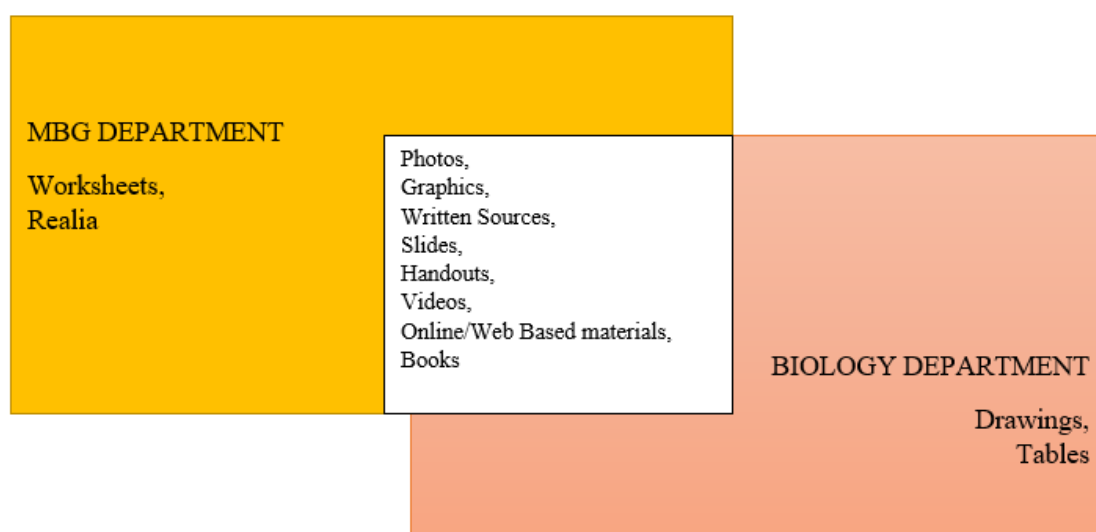


Figure 21. Comparison of the instructional materials used by EMI lecturers in both departments.

As seen in Figure 21, when two departments are compared in terms of their choices of instructional materials in the EMI context, the quantitative data shows that except for drawings, tables, worksheets and realia, the first ten instructional materials are the same even if their ranking on the list changes depending on the department. Drawings, which are among the last three instructional materials in the MBG department, are the most preferred ones for the Biology department. Similarly, tables are the third most used one for the Biology department whereas they are among the least used ones for the MBG department.

Worksheets and realia are preferred by the MBG lecturers while they are among the least used ones for the Biology department. Yet, except for these differences, the lecturers from both the department of Biology and MBG generally choose visual materials. As it is mentioned in previous research questions, many factors influence the choices of EMI lecturers. When it comes to qualitative data, the findings are similar to the quantitative data. Both findings show that the EMI lecturers mostly prefer to use visual materials. Both of them also mentioned that they use audio-visual materials such as videos, animations, and films. Finally, One of the participants from each department has difficulty differentiating instructional methods from instructional materials. They think that they overlap with each other.

The second part of this research question is related to students' opinions and whether they change depending on the department where they study. From the department of MBG (100% English), 50 EMI students participated in the current study. Their opinions regarding whether the listed instructional methods and techniques are used in the EMI context are presented in Figure 22.

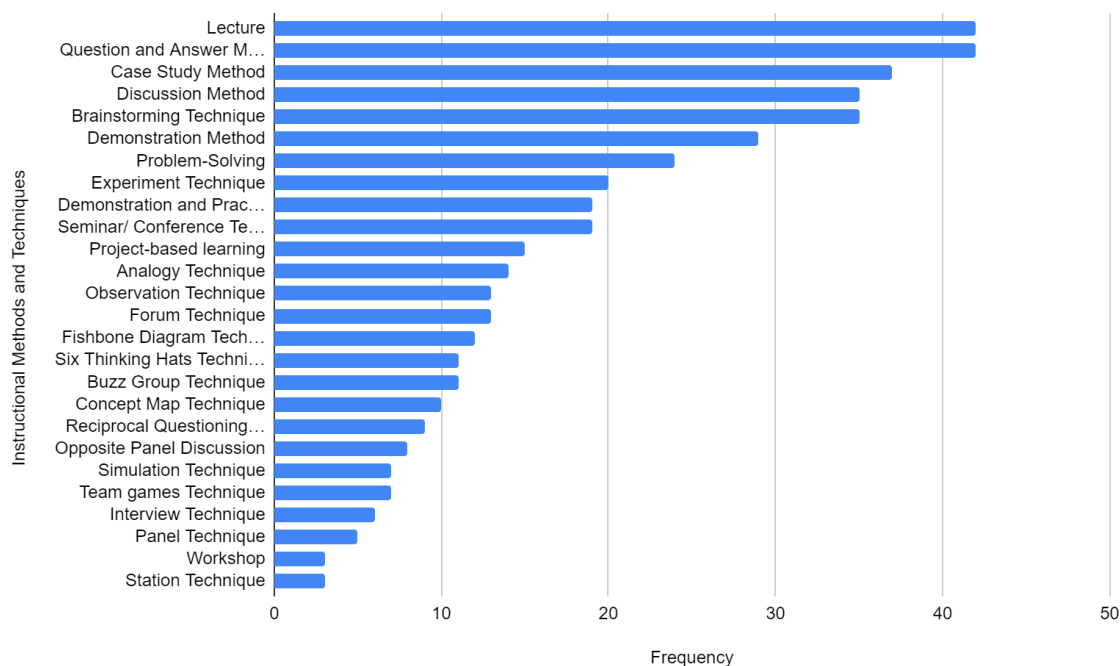


Figure 22. MBG students' opinions on the instructional methods and techniques used by the EMI lecturers (n= 50)

As seen in Figure 22, according to students' opinions, the lecture and question and answer method are the most preferred methods in the EMI context. Forty-two out of 50 participants (84%) choose these two methods. Following these methods, 37 of the participants (74%) said that EMI lecturers in the department of MBG use the case study method. The discussion method and the brainstorming technique are chosen by 35 of the participants (70%), which put these two among the most used instructional methods and techniques in the MBG department. More than half of the participants (58%) said that EMI lecturers implement the demonstration method. Twenty-four of the EMI students (48%) reported that the problem-solving method is employed by the EMI lecturers. The experiment technique is another technique used by the EMI lecturers in the MBG department. Twenty of the participant (40%) said that it is applied in the classroom. Nineteen of the participants (19%) reported that the demonstration and practice method and the seminar/conference technique are utilized in the EMI context. Fifteen of them (30%) agreed that project-based learning is used by the EMI lecturers. Fourteen of them (28%) choose the analogy technique as one of the instructional techniques implemented in the classroom. The observation and forum techniques are chosen by 13 participants (26%). Twelve of them (24%) asserted that the fishbone diagram is used in the EMI context. The six thinking hats and buzz group techniques are taught to be implemented by 11 of the EMI students (22%). Ten of them (20%) reported concept map technique is used in the MBG department. Nine of the EMI students (18%) marked the reciprocal questioning technique. Eight of them (16%) said that EMI lecturers in the MBG department use the opposite panel discussion technique. The simulation and team game techniques are used by the EMI lecturers according to seven EMI students (14%). Six participants (12%) choose the interview technique. Panel technique is only chosen by five students (10%). The workshop and station techniques are preferred by only three of the EMI students (6%).

Following that section, the answers of the EMI students regarding whether the subject matter knowledge and skills, their participation in the lesson, and English language development are affected by the choices of instructional methods and techniques are examined. Besides, their answers in relation to whether the instructional methods and techniques are appropriate for their proficiency levels, whether they exchange ideas with the lecturers, and whether they want EMI lecturers to implement different instructional methods and techniques are investigated depending on the department where they study.

Firstly, 40 EMI students from the MBG department (80%) said that instructional methods and techniques affect their acquisition process of knowledge and skills whereas eight participants said that they partially affect it. Two of the participants (2%) reported that they do not affect the process of learning. When students were asked about English language development, 38 out of 50 participants (78%) reported that the choices of instructional methods and techniques affect language development whereas seven of them said that they partially affect. Yet, five students asserted that they do not affect language development. As for their participation in the lesson, 40 students (80%) asserted that their participation is affected by instructional methods and techniques whereas four participants (8%) said that their participation is affected partially. Six participants (12%) reported that they do not affect their participation. Following those questions, 40 out of 50 (80%) students said that instructional methods and techniques are appropriate for their language proficiency whereas ten students (20%) think that they are not. As for students' feedback, nine students (18%) said that they exchange ideas with the EMI lecturers whereas 41 students reported that they do not exchange. Finally, when they are asked whether there are any different instructional methods and techniques that they want EMI lecturers to implement in the classroom, only 11 of the participant (22%) said yes to that question.

When it comes to the EMI students from the Biology department, there are 31 students who voluntarily participated in the current study. Figure 23 provides information on their opinions regarding whether the listed instructional methods and techniques are used by EMI lecturers in the Department of Biology.

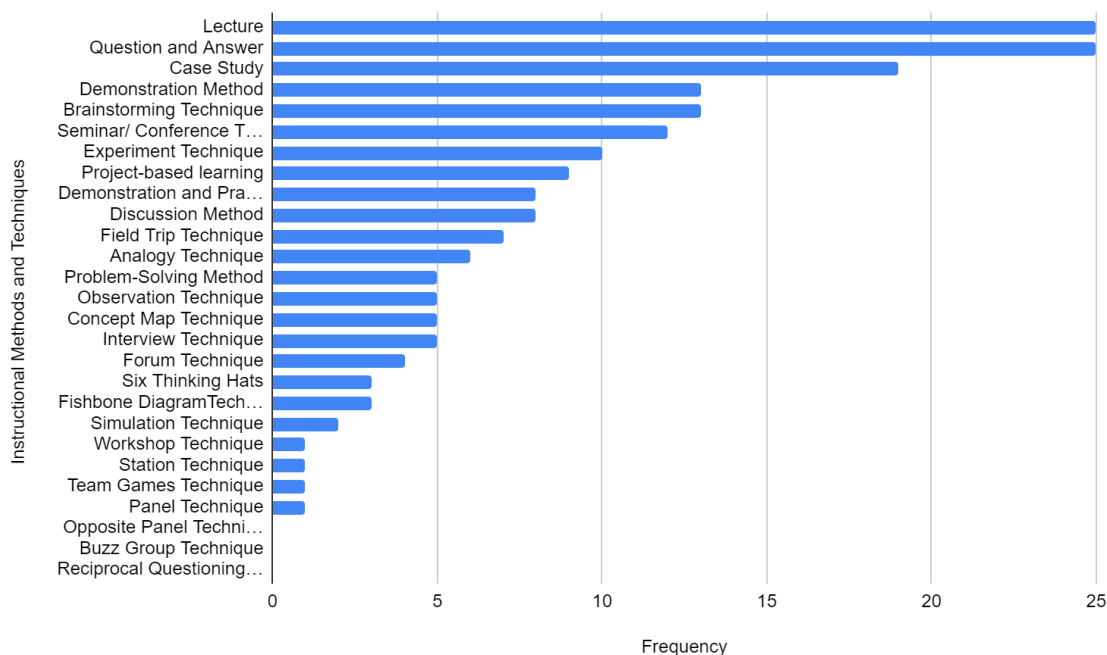


Figure 23. Biology students' opinions on the instructional methods and techniques used by the EMI lecturers (n= 31)

As understood in Figure 23, out of 31 students, 25 participants (80.7%) said that EMI lecturers use the lecture method and question and answer method during the courses. Following these two methods, according to 19 EMI students(61.3%), the case study method is used by the EMI lecturers in the department. Thirteen of them (41.9%) reported that the demonstration method and the brainstorming technique are other ones used in the classroom. Twelve of the participants (38.7%) said that the seminar technique is used by the EMI lecturers. The other technique is the experiment technique. Ten participants (32.3%) said that EMI lecturers implement this technique. Nine of the participants (29%) choose project-based learning. Eight of the participants (25%) asserted that EMI lecturers use the demonstration and practice method and the discussion method. Seven of them (22.6%) choose the field trip technique as one of the techniques implemented in the classroom. Six of them (19.4%) said that the analogy technique is preferred by EMI lecturers. Five of them (16.1%) reported that EMI lecturers from the department of Biology apply the problem-solving method, the observation technique, the concept map technique, and the interview technique. The forum technique is marked by four of the participants (12.9%). Three of the participants (9.7%) said that the six thinking hats and the fishbone diagram techniques are employed by the lecturers. According to two of the

participants (6.5%), simulation is another technique used in the department. Only one of the participants (3.2%) reported that workshop technique, station technique, team game technique, and panel technique are implemented in the EMI context. Finally, none of the participants choose opposite panel discussion, buzz group and reciprocal questioning techniques.

Following that part, Biology students were also asked questions related to the acquisition of the subject matter, English language development, their participation, appropriateness of instructional methods and techniques for their language proficiency, their feedback, and whether they want the EMI lecturers to implement different methods and techniques in the classroom. Seventeen out of 31 students (54.8%) reported that the acquisition of the subject matter knowledge and skills are affected by instructional methods and techniques used by the EMI lecturers in the classroom. Besides, eight participants (25.8%) said that they partially affect their acquisition. The rest of the participants (19.4%) asserted that they do not affect it. When students were asked about English language development by means of instructional methods and techniques, 16 participants (51.6%) said that they affect their development. In addition, seven of them said that they partially affect it. Eight out of 31 reported that they do not affect English language development. As for their participation in the lesson, 12 EMI students (38.7%) asserted that methods and techniques affect their participation in the lesson and nine of them asserted that they partially affect it whereas 10 participants said that the methods and techniques do not affect their participation. When they were asked whether the methods and techniques used in the classroom are appropriate for their language proficiency, seventeen of them (54.8%) reported that they are appropriate whereas 14 participants (45.2%) said that they are not appropriate for their proficiency. As for students' feedback, only five EMI students (16.1%) exchange their ideas with the EMI lecturers. Also, only nine participants (29%) expect EMI lecturers to apply different methods and techniques in the classroom.

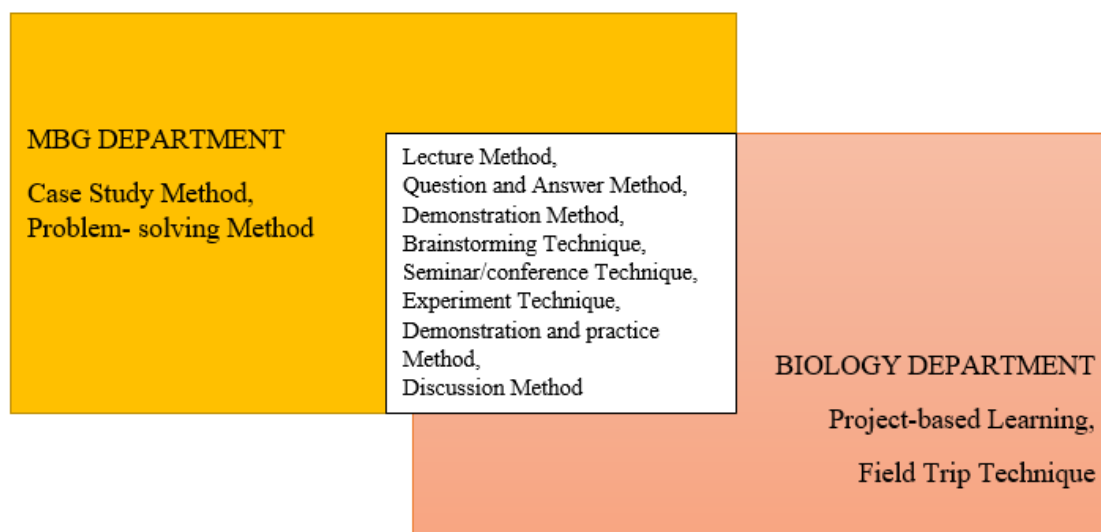


Figure 24. Comparison of MBG and Biology students' opinions on instructional methods and techniques

As seen in Figure 24, when two departments are compared, it can be said that eight out of the first ten instructional methods and techniques used by the EMI lecturers are the same even though their ranking changes depending on departments. Students from both departments reported that the lecture method and question and answer method are the first two instructional methods used in the EMI context. The five of these first ten methods and techniques implemented by EMI lecturers in the department of Biology according to the students' opinions are teacher-centered. These teacher-centered methods are the lecture method, the demonstration method, the seminar technique, the field trip technique, and the demonstration and practice method. When EMI lecturers' choices of instructional methods and techniques and students' opinions are compared, it is seen that out of the first ten methods and techniques, half of them match each other. As for the MBG department, it can be said that according to students' opinions, the EMI lecturers apply individual and interaction-centered methods and techniques as much as they apply teacher-centered ones. This means that EMI lecturers provide students with an opportunity to be active in the classroom. Instead of directly presenting the information to the students, they try different methods and techniques to support students' problem-solving skills. Moreover, when students' opinions and MBG lecturers' choices are compared, it is seen that out of the first ten methods and techniques, eight of them match each other although their ranking in the

list differs. It can be said that these two data sets are compatible with each other. Finally, the answers that EMI students give to the open-ended questions are examined, more than half of the students from both departments reported that instructional methods and techniques affect their acquisition of subject matter knowledge and skills and English language development. Yet, in terms of participation, half of the students from MBG said that the methods and techniques affect their participation whereas in the Biology department, those, who said that methods and techniques affect participation, are less than half of the participants. The majority of the EMI students from both departments reported that instructional methods and techniques are appropriate to their language proficiency. Most of the students do not exchange their ideas with the EMI lecturers in terms of the choice of instructional methods and techniques. Finally, they do not want the EMI lecturers to implement any other methods and techniques.

The final section of this research question is about the students' opinions regarding the choice of instructional materials of the EMI lecturers depending on the departments. This research question seeks to answer whether their opinions change according to the departments in which they study. Figure 25 illustrates the information about MBG lecturers' choice of instructional materials according to students' opinions.

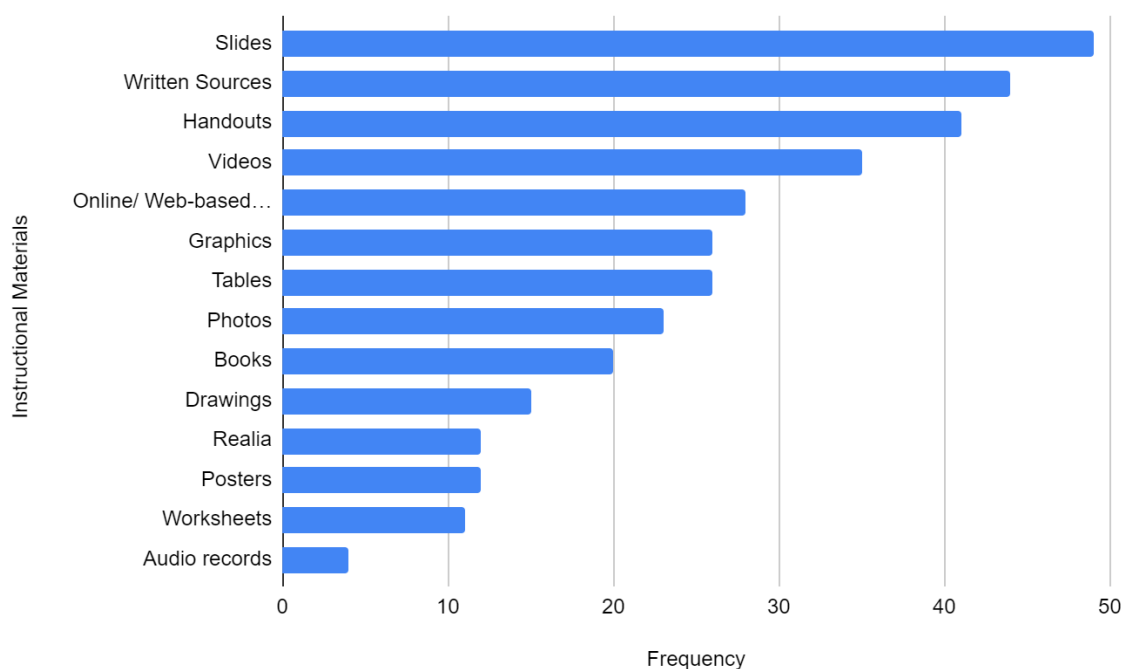


Figure 25. MBG students' opinions on the instructional materials used by the EMI lecturers (n= 50)

According to the majority of the EMI students' opinions (98%), EMI lecturers utilize slides in their classrooms. Forty-four of them (88%) reported that the lecturers choose written sources. Forty-one of the participants (81%) said that handouts are used in the EMI context. More than half of the participants (70%) asserted that videos are used by the EMI lecturers. According to 28 of the participants (56%), in the department of MBG, EMI lecturers use online/web-based instructional materials. Twenty-six of the participants (52%) said that graphics and tables are preferred to be used. Twenty-three of the students (46%) pointed out that photos are used by the EMI lecturers. Books are chosen by less than half of the EMI students (40%). Fifteen participants (30%) asserted that EMI lecturers use drawings. Twelve of them (24%) reported that posters and realia are preferred by the EMI lecturers in the MBG department. Eleven of them (22%) choose worksheets as materials used in the classroom. Finally, only four of the participants (8%) said that voice recordings are utilized in the classroom.

As for the follow-up questions, when they are asked whether instructional materials influence their subject-matter acquisition process, 41 students (41%) said that they affect their process of learning whereas five of the participants (10%) said they partially affect. Only four students (8%) reported that they do not affect. As for English language development, 19 participants asserted that the materials affect language development whereas 18 students (36%) said that they partially affect it. Thirteen of the EMI students (26%) said that they do not affect English language development. In terms of participation, 26 out of 50 students (52%) reported that the materials affect their participation whereas nine of them (18%) said that they partially affect it. Fifteen participants (30%) said that they do not affect their participation in the lesson. When students were asked whether the materials are appropriate to their language proficiency, 42 of them (84%) said yes to that question. Yet, eight out of 50 (16%) said no. As for students' feedback, only five of the participants (10%) exchange their ideas and only three of them (6%) want EMI lecturers to use different instructional materials.

As for the Biology department, there are 31 participants. The information related to the students' opinions regarding the instructional materials is presented below.

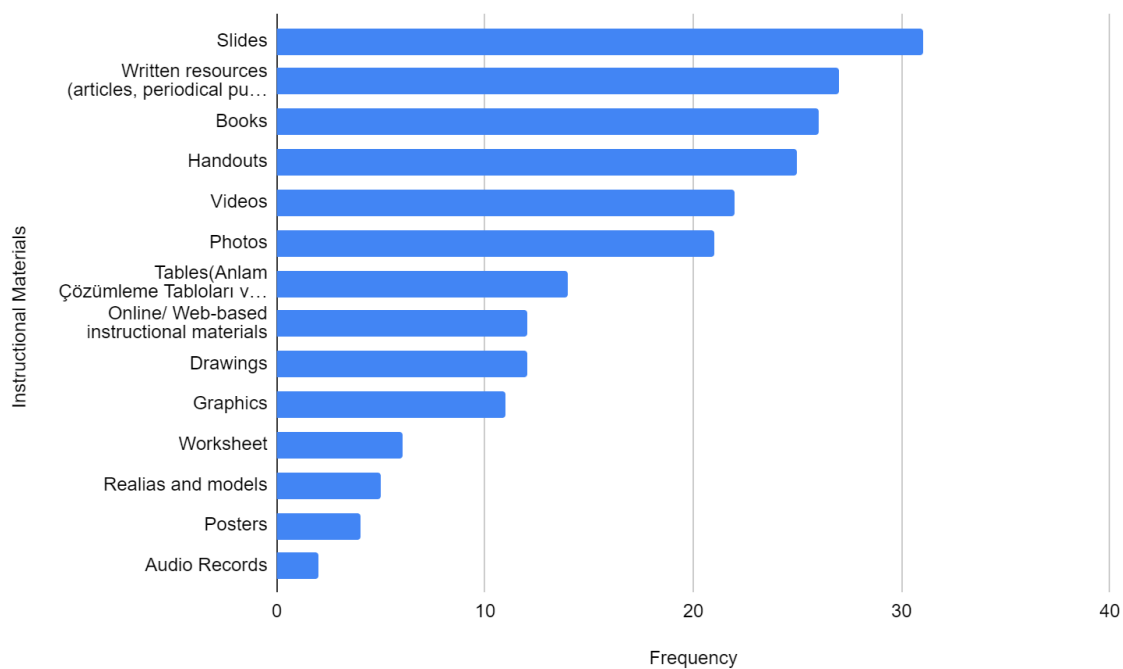


Figure 26. Biology students' opinions on the instructional materials used by the EMI lecturers (n= 31)

As presented in Figure 26, all of the participants agreed that EMI lecturers use slides in their lessons. The majority of the participants (87.1%) said that written sources are preferred to be used by the EMI lecturers. More than half of the participants (83.9%) reported that books are instructional materials used by the EMI lecturers. Twenty-five of them (80.6%) asserted that handouts are utilized in the classrooms. Twenty-two of them (76.9%) pointed out that videos are one of the materials used in the EMI context. Twenty-one of the students (67.7%) reported that photos are preferred by the EMI lecturers. According to less than half of the participants (45.2%), the EMI lecturers prefer tables as instructional materials. Drawings and graphics are the other instructional materials utilized in the classroom. Twelve of the EMI students (38.7%) reported that they are used in the EMI context. Eleven of the participants (35.4%) asserted that graphics are used in the classroom. Six participants (19.3%) said that Biology lecturers use worksheets. Five of them (16.1%) reported that realias and models are preferred by the lecturers. Four of them said (12.9%) that posters are utilized. Only two out of 31 participants (6.5%) said that voice recording is preferred to be used by the EMI lecturers.

The EMI students from the Biology department (30 % English) were also asked whether instructional materials affect their acquisition of subject matter, 17 of the participants (54.8%) said that they affect and 10 participants (32.3%) reported the materials partially affect whereas only four students (12.9%) asserted that the materials do not affect their acquisition. As for English language development, 10 participants (32.3%) reported that the materials affect their language development and 13 participants (41.9%) said that they partially affect it. Eight of the participants (25.8%) said that they do not affect it. In terms of participation, instructional materials affect the students' participation according to 11 participants (35.5%). Nine of the participants asserted that they partially affect the participation. Yet, 11 EMI students (35.5%) reported that they do not affect. When students were asked whether the materials are appropriate to their language proficiency, 17 students (54.8%) reported that they are appropriate. In terms of students' feedback, only two participants (6.5%) said that they exchange their ideas and only four participants (12.9%) said that they want EMI lecturers to utilize different materials in the EMI context.

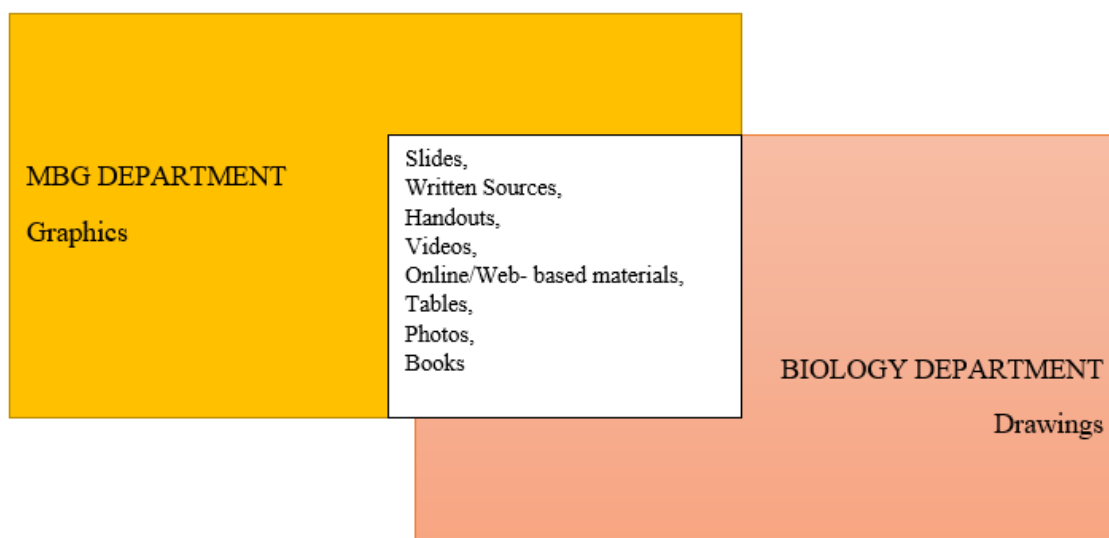


Figure 27. Comparison of MBG and Biology students' opinions on the instructional materials

As it seen in Figure 27, the data obtained from both departments are compared. It is seen that out of the first ten instructional materials, nine materials match each other even though the rank of these materials changes depending on the department. Yet, the first two materials, namely slides and written sources, are the same. When students' opinions are

compared with EMI lecturers' choices in the Department of Biology, the findings show that they have a one-to-one match with each other. As for the MBG department, only two of the materials are not compatible with two data sets. Both of the departments' findings reveal that visual materials are the most used ones by the EMI lecturers in the EMI context. Finally, the answers that EMI students give to the open-ended questions are examined, more than half of the students from both departments reported that instructional materials affect their acquisition of subject matter knowledge and skills and English language development. Yet, in terms of participation, half of the students from the MBG and Biology departments said that the materials affect their participation. The majority of the EMI students from both departments reported that instructional materials are appropriate to their language proficiency. Most of the students do not exchange their ideas with the EMI lecturers in terms of the choice of instructional materials. They do not want the EMI lecturers to utilize any other materials.

4.6. Chapter Summary

This chapter presents the findings of the current study regarding the research questions. Each research question was addressed in relation to the quantitative and qualitative data that provided an answer to each question.

CHAPTER V

DISCUSSION, CONCLUSION, AND IMPLICATIONS

Introduction

This chapter presents the discussion of the key research findings with reference to each of the research questions. Following this part, conclusions, and implications for further studies are also provided.

5.1. Discussion of RQ1. *What are the instructional methods and techniques employed by MBG and Biology EMI lecturers?*

This study examined the EMI lecturers' choices of instructional methods and techniques in the EMI context. Yet, when the low number of participants is taken into account, generalizations regarding the use of methods and techniques in both departments might not be done. Therefore, the tentative results are discussed below. The analysis of the data which were gathered through the questionnaire shows that the EMI lecturers frequently use case study method, question and answer method, and brainstorming technique. Besides, team games technique, six thinking hats technique, fishbone technique and station technique are the least used ones by the EMI lecturers. When they are analyzed in terms of Fer's categorization (2011), EMI lecturers' first choices are either an individual-centered method, namely case study method, or an interaction-centered method and technique, namely question and answer method and brainstorming technique. These findings suggest that EMI lecturers expect the students to be active and would like to increase students' engagement in the EMI classroom. As for the qualitative data obtained from the semi-structured interviews, the analysis shows that except for one of the EMI lecturers, five of them reported that they implement at least one of the interaction-centered methods and techniques (e.g. question and answer method). All EMI lecturers said that they employ at least one of the teacher-centered methods and techniques (e.g. lecture method, seminar/conference technique, presentation of PowerPoint, etc.) in their classroom.

The types of lecturers' choices differ in both quantitative and qualitative data analysis. Their choices might be affected by several factors (Küçükahmet, 2000; G. Ocak, 2015). These factors might be time, cost, class size, lecturers' familiarity with the method,

instructional goals, and the feature of the content, physical facilities and arrangement. The heavy cognitive load of lessons with the aim of attaining several goals in a limited time might limit EMI lecturers' choices. They might tend to choose teacher-centered methods and techniques such as lecture method and seminar/conference technique since they need to convey so much information to a large class size in a short time. Yet, the quantitative data results of the current study show that EMI lecturers frequently prefer individual and interaction-centered methods and techniques compared to teacher-centered methods and techniques. This finding suggests that even though they have a heavy load of lessons, they, in a way, try to provide an environment for students where they can be active participants and have responsibility for their learning process. In addition, individual and interaction-centered methods and techniques are effective to be able to check students' understanding. Therefore, as Beaumont (2020) and Beltrán-Palanques (2021) stated, EMI lecturers might support learners' cognitive process of acquisition of knowledge and skills with these types of instructional methods and techniques. The use of them might decrease the students' comprehension difficulties in terms of content and language.

The results of qualitative data analysis show that they implement teacher-centered methods and techniques as well as interaction-centered methods and techniques. Since the research setting of this study is EMI, language abilities of EMI students and lecturers might affect the lecturers' choices. Galloway et al. (2017) and Başıbek et al. (2014)'s findings indicate that EMI lecturers avoid asking and answering questions because of their and students' low English language proficiency. The lack of English proficiency of the lecturers and students might cause less flexibility and the use of teacher-centered methods and techniques where long monologues without including rapport with students occur. Yet, the current study's findings show that the EMI lecturers convey the content by implementing interaction and individual-centered methods together with teacher-centered methods and techniques. Therefore, the findings are not in line with these previous studies (Başıbek et al., 2014; Galloway et al. 2017). The reason behind including different types of methods and techniques in lessons might be related to keeping students' attention, aiding students' cognitive processing, supporting students' learning, and enriching the teaching and learning environment (Wilson & Korn, 2007; Gibbs & Jenkins, 1984; Lynch, 1994, Wogkietkachorn, Prakoonsuksapan, & Wangsaturaka, 2014, as cited in Beaumont, 2020).

In conclusion, the results of the present study which was conducted with two departments, namely MBG (100% English) and Biology (30% English) are not compatible

with the previous studies (Başıbek et al., 2014; Galloway et al. 2017). The current study shows that the EMI lecturers' first choices are individual and interaction-centered methods and techniques. Yet, all of the EMI lecturers reported in the semi-structured interviews that they also prefer to implement teacher-centered methods even if the frequency of these methods is not high in the quantitative data.

5.1.1. Discussion of RQ1.1. *What are the factors affecting MBG and Biology EMI lecturers' choices of these instructional methods and techniques?*

The findings show that there are many factors affecting the EMI lecturers' choices of instructional methods and techniques. According to the analysis of the data obtained from the questionnaire, more than half of the EMI lecturers reported that instructional goals, the content of the course, class size, time, physical facilities and lecturers' familiarity with the methods and techniques are important factors that affect their choices. Only two of the participants said that students' language skills and cost are factors affecting their preferences. When they were asked whether EMI is a factor or not, those, who reported that the students' language abilities are one of the factors, said that EMI is not one of the factors. The participant, who said yes to that question, reported that students' abilities are not one of the factors. As for qualitative data, the findings indicate that there are other factors which are gathered under different hyper-categories, namely positive and negative factors. Under the positive factors, there four are categories, which are desire to enhance students' engagement, students' qualities, demographic features, teachers' informed decisions. As for negative factors, there are nine categories, namely institutional resources, the features of the content, teachers' perceptions of their professional role, lecturers' emotional motivation, lecturers' professional experience, EMI, students' qualities, demographic features, and teachers' informed decision. The last three factors are the same for both positive and negative factors since further information about how they affect their choices was not shared by the lecturers.

As Küçükahmet (2000) states, it is seen that there are several factors: time, cost, class size, lecturers' familiarity with the method, instructional goals, the feature of the content, and physical facilities and arrangement. The order of importance of these factors depending on the faculties' facilities and lecturers' priorities might change. In the present study, when the factors affecting the lecturers' choices obtained from quantitative data

were examined, they are also found as factors affecting the preferences of the EMI lecturers. As for students' language abilities and EMI as a factor, the ones, who reported the language abilities as factors, did not report EMI as a factor whereas the ones who reported EMI as a factor, did not say language abilities as factors. This means that they do not see any connection between language abilities and EMI. According to Dearden (2016), this might be because of the fact that EMI lecturers are not aware of the language issues the students face and overcome during the teaching and learning process. Therefore, in the related field, this issue should be examined in depth to find solutions to facilitate students' learning and strengthen the lecturers' instructional practices.

As for positive factors, they are generally related to increasing students' internal motivation and students' engagement in the EMI courses. One of the participants reported that he uses interaction and individual-centered methods and techniques so that students become active, discuss and share their opinions regardless of their proficiency levels. In doing so, he thinks that he creates an open classroom environment and provides equal opportunities for all students. Besides, since they are with their friends, they feel more comfortable sharing their ideas in English, which is peer support for them. Vygotsky's socio-cultural theory (n.d.) supports the fact that peer support facilitates the learning process. Since the language of the instruction is not the first language of the students, by scaffolding, which means that more knowledgeable other scaffolds the task and support the other student's development, they might be motivated, students' interest in the task might increase and students' anxiety level might decrease. Similarly, Goodenow (1993) and Wentzel (1994) stated in their study that when students are emotionally supported by their teacher and peers, their speaking anxiety is getting lower and they tend to become more active in the classroom. Therefore, the use of individual and interaction-centered methods and techniques in the EMI classroom, whose aim is to make students active participants in their learning process, might decrease students' anxiety levels since they feel more secure while being with their peers. Therefore, in the EMI classrooms, these types of instructional methods and techniques might be preferred by the EMI lecturers to support their students and facilitate the learning process.

Negative factors, such as institutional resources, features of the content, and lecturers' professional experience- lecturers' familiarity with the method or the technique- are compatible with the factors mentioned in the literature review (Küçükahmet, 2000; Vural, 2016). Teachers' perceptions of their professional role, lecturers' emotional

motivation, and EMI are factors that emerged in the analysis. In terms of institutional resources, namely large class size and physical facilities and arrangement, according to Vural (2016), the large number of students with stable rows of desks might influence lecturers' decision-making process in terms of instructional methods and techniques. Similarly, one of the participants said that the roles of the students and lecturers are given to them with the arrangement of the class. Therefore, in line with Vural's statement (2016), they tend to use teacher-centered methods and techniques in the EMI context. According to the reports of the lecturers, the nature of the courses such as theory-based courses including abstract concepts and dense topics that students are not familiar with might limit lecturers' choices of instructional methods and techniques. Vural (2016) stated that lecturers may implement teacher-centered methods and techniques since they are more economical methods and techniques in terms of time and effort. As a result, the load of the lessons might be lowered and the organization of the class might be more flexible for the lecturers to arrange their environment depending on their needs.

How lecturers perceive themselves and their responsibilities as lecturers, lecturers' emotional motivation, and lecturers' professional experience are emerged in the analysis. These three factors narrow their choices of instructional methods and techniques according to the reports of EMI lecturers. According to Saunders (2013), lecturers' beliefs about themselves affect how they organize tasks and solve problems in the classroom. Besides, Frenzel et al. (2021) stated that lecturers' emotions affect students' outcomes such as their performance and motivation. Similarly, one of the participants said that if she is in good spirits, she implements creative methods and techniques but if not, she employs teacher-centered methods and techniques. This means that lecturers' emotional motivation influences their choices of instructional methods and techniques, which might affect students' motivation, performance, and understanding. As for lecturers' professional experience, Weston and Cranton (1986) stated in their studies that EMI lecturers do not take any training on teaching pedagogy and methodology and do not have any guidelines for their teaching process. Therefore, they rely on their previous experiences as lecturers. Similar to the result of Weston and Cranton (1986), one of the participants mentioned that she uses methods and techniques since she has previous experiences on how to employ them in the classroom. Küçükahmet (2000) also stated that they use these methods and techniques because they feel comfortable. Yet, to be able to enrich the process of learning and teaching, lecturers should implement as many methods and techniques as possible.

Therefore, in-service training for the lecturers can be held for lecturers to support their instructional practices.

EMI is another negative factor in the current study. The students' lack of English language proficiency is mentioned as a negative factor by more than half of the EMI lecturers. This finding suggests that EMI lecturers assume language abilities and EMI as independent factors. Yet, The findings of Cankaya (2017), Galloway et al. (2017), Kılıçkaya (2006), Macaro (2018), and Yeh (2014) reveal that the lack of language proficiency causes less amount of participation, the reduced ability of students to understand concepts, lessons and lecturers, withdrawing from the department, etc. Therefore, students' language abilities and EMI is interrelated. Similarly, Kerestecioglu and Bayyurt (2018) reported that the language abilities of the students might limit the selection of instructional methods and techniques since they cannot understand the concept immediately, participate in the lesson, and share their thoughts comfortably. One of the participants also mentioned that PYP education does not prepare students for the academic subject matter since they focus on general language skills. Similarly, Collins (2010) and Macaro et al. (2016) stated in their studies that students have difficulty participating in classroom discussions even if they have attended PYP education. In addition, one of the EMI lecturers mentioned lecturers' proficiency levels as a factor. Similarly, Dearden (2014) and Galloway et al. (2017), the English language proficiency of the EMI lecturers affects the lecturers' performance and the quality of the instruction. Eventually, the selection of instructional methods and techniques is also affected because lecturers have less flexibility in conveying the contents of the courses. Also, similar to the findings of Macaro et al. (2016), they do not think of any systematic way to match English language input with students' language abilities and ability to understand. Therefore, they can work with language teachers collaboratively to overcome students' language difficulties.

On the other hand, one of the participants said that getting students' attention and trying to be sure that they do not miss anything in the EMI context is time-consuming. This situation limits instructional preferences because just as Başibek et al. (2014), Cankaya (2017), Ekoç (2020), Galloway et al. (2017), and Kılıçkaya (2006) reported in their studies, students' lack of English language proficiency reduces students' abilities to understand information and consume longer time. Therefore, lecturers might choose less interaction-centered and individual-centered methods. Similarly, the language barrier is another factor, which also causes the same outcomes as the factor called time-consuming.

Yet, Beaumont (2020) said that implementing instructional methods and techniques and using interactive tasks and using different ways to check meaning might facilitate conveying meaning and constructing meaningful communication in L2. As a result, even if it is time-consuming, lecturers include various types of instructional methods and techniques, which might help students to comprehend the content better in the EMI classroom.

The EMI program type is one of the negative factors mentioned by EMI lecturers. Even though students have to attend PYP education if they do not have enough proficiency level for the department, their exposure to the language changes depending on the departments. In addition, the MBG department offers two courses for their students to improve their language abilities whereas the Biology department offers only one course in the first year of their education. In the MBG department, one of the courses is taught by a language teacher whereas the other one is taught by a content teacher. Other than these courses, all the courses offered are instructed in English in the MGB department whereas in the Biology department, they only have one content lesson in English during one semester, in total two courses. Therefore, the EMI program run partially (30% English) has less time to practice English compared to the EMI program run fully (100% English). According to Krashen (1985), the more the students are exposed to meaningful language, the more language abilities develop. Since those who study at the department of EMI run partially, are used to getting lessons in Turkish, teaching in English might require more preparation time for lecturers. Their choices of instructional methods and techniques might be affected since they need to find an efficient way to teach students so that they can understand the contents better. Also, one of the EMI lecturers reported that the language qualities of EMI lecturers change depending on the EMI program type. Yet, according to the standards of the Higher Education Council announced in 2016, all of these EMI lecturers should take 80 out of 100 in the centralized foreign language exams or should pass the international foreign language exams that are equivalent to national exams so that they can teach in the EMI context. This means that in terms of language skills, they might show similarities.

The factors, namely students' qualities, demographic features, and teachers' informed decisions are also mentioned in the literature review. They influence the lecturers' choices of instructional methods and techniques. EMI lecturers decide whether the methods and techniques are suitable for a specific group of students depending on these

factors. They need to know their limitations and contributions to find the most suitable one for the students.

In conclusion, even if most of the factors are compatible with the literature, some of the factors such as students' and lecturers' proficiency levels related to EMI might be subject-specific factors. Rather than positive factors, negative factors affecting the choices of instructional methods and techniques are mentioned by the EMI lecturers. These factors limit lecturers' preferences.

5.1.2. Discussion of R.Q.1.2. *How do MBG and Biology EMI lecturers review and revise the instructional methods and techniques?*

This research question aims to reveal whether EMI lecturers evaluate their implementation of the instructional methods and techniques. The data was collected from seven EMI lecturers through the questionnaire and the semi-structured interview. The results indicate that five out of seven EMI lecturers review and revise instructional methods and techniques. Their way of evaluating them changes from one participant to another. According to quantitative data, three participants use students' evaluations whereas two of them use self-reflection. One of them said that she does not evaluate. Qualitative data show that four out of six participants review and revise by means of students' feedback, expert evaluation, intuition and experience, and exams as an evaluation tool.

None of these participants implements any systematic approach for evaluation. They do not formally consult anybody about how to prepare a lecture for the EMI classroom. This finding is also in line with the findings of Macaro et. al.'s study (2016). They generally use the feedback that they receive from the students or the talk that they make with experts etc. to adopt or discontinue implementing instructional methods and techniques. According to Divayana et al. (2017), the evaluation of the effectiveness of the instructional methods and techniques can contribute to the learners' understanding of the presented concepts. Therefore, EMI lecturers should collect, analyse and present the information related to the object of the evaluation. By means of this kind of systematic way, they can make informed decisions.

One of the EMI lecturers said that he uses exams as an evaluation tool for reviewing and revising instructional methods and techniques. The participant only collects

the data to decide whether to continue using the methods and techniques or avoid using them. Yet, Divayana et. al. stated that evaluation is a long process, however, instruction should be evaluated to determine the problems related to the course, and then provide solutions and recommendations so that lecturers improve the running process of instruction. Therefore, even if the evaluation process takes time and effort, EMI lecturers should evaluate the process to develop the well effective running instruction programs. Another EMI lecturer said that she implements instructional methods and techniques depending on her intuition without formally reviewing and revising them. In accordance with Macaro et al. (2016), they reported in their study that none of the EMI lecturers informed the researchers that they wrote down a detailed lecture or lesson plan. In the current study, this is also the case for the EMI lecturers. As a result, since they do not do post-instruction reflection on their teaching process, they may face problems while detecting the exact limitations and strengths of their implementation. To be able to improve and support their instructional practices, they need to review and revise methods and techniques depending on students' needs, objectives, etc.

In conclusion, the EMI lecturers' ways of evaluating instructional methods and techniques are in line with the previous studies. They do not consult formally with the experts or students. Therefore, their following step after evaluating the instructional methods and techniques is to adopt or avoid using them. They do not use the information that they receive from the students and colleagues as formal recommendations for the decision-making process so that the learning and teaching process can have better quality.

5.2. Discussion of RQ2. *What are the instructional materials used by MBG and Biology EMI lecturers?*

This research question aims to reveal the instructional materials used in the EMI classroom. The quantitative findings show that EMI lecturers generally prefer visual materials such as written sources, graphics, and slides. According to qualitative data obtained from semi-structured interviews, there are three hyper-categories, namely visual materials, audio-visual materials, and instructional methods and techniques. All of the EMI lecturers reported that they use PowerPoints, which are given as slides in the questionnaire. The second most used ones are videos, which are audio-visual materials. Yet, two of the

lecturers reported that they use the seminar technique and the lecture method as instructional materials. They think that they overlap with instructional materials.

In the literature, there is not any research found on the EMI context for the researcher to use to compare and discuss the results of this study. However, the use of visual materials and audio-visual materials in the literature provides an opportunity for students to keep the information in their permanent memory and increase their learning motivation. Moreover, these materials might assist lecturers to reduce the required time for learning in the teaching process (Tan, 2021). They also get students' attention and help lecturers to present even abstract content more concrete. In Tan's book (2021), he said that using videos in language teaching programs is important because they are useful to show psychomotor skills and helpful for students to record these skills in their minds. Even if the aim of EMI is not to teach English, these instructional materials might be helpful for students to understand the concepts and for lecturers to teach these concepts since their proficiency levels are not too high.

According to Macaro et al.'s study (2016), lecturers choose resources written in English. Similarly, the present study's quantitative findings show that EMI lecturers use written resources in English. EMI lecturers reported that they write the information in the slides from other written sources such as books, articles, etc. Besides, Nocito and Obernyer (2020) stated that these "updated and real case studies" in these instructional materials might bring students closer to the labor market. On the other hand, the only materials that they design by themselves are their slides so that they can only teach their subject-specific topics. They do not prepare any materials in relation to language education. This finding might suggest that they do not see any relation between instructional materials and ELT. This might lead to language-specific problems for students to understand the content.

Finally, since EMI lecturers do not have a clear understanding of what instructional methods, techniques, and materials are, they assumed that the seminar technique and the lecture method that they use in the classroom are instructional materials. This might be because of the lack of pedagogical and methodological knowledge since they are not expected to take any training on educational sciences. Lecturers might be provided with in-service training based on what they are and how to use them in a discipline-specific context.

In conclusion, instructional materials are delivery systems which are used to convey and communicate a message or information. EMI lecturers use visual and audio-visual materials in their courses. In doing so, they make the taught concepts more understandable for students even if there is a language barrier.

5.2.1. Discussion of RQ2.1. *What are the factors considered by MBG and Biology EMI lecturers while designing, selecting or using instructional materials?*

This research question aims to reveal the factors that EMI lecturers consider while designing, selecting or using instructional materials. Quantitative results indicate that the factors mentioned in the literature review section, namely content of the course, instructional goals, students' language skills, instructional technologies, time, class size, physical facilities, and cost, are also seen as factors by the EMI lecturers. Yet, only two of the participants said that physical facilities are one of the factors whereas one of the participants reported cost as one of the factors. In addition, half of the participants think that EMI is one of the factors. However, one of the participants reported that the language skills of the students are one of the factors even if he said that EMI is one of the factors whereas the other participant said that students' language abilities are one of the factors even if she thinks EMI is not a factor. Similar to the findings of instructional methods and techniques, EMI and language abilities of the students are seen as independent factors. Yet, students' understanding is connected to their command of English, which is related to the EMI context itself where students' and lecturers' first language is not English (Pérez-Guillot, 2020). As for qualitative data, there are different factors that might be put under the hyper-categories, which are positive and negative factors. Positive factors have three categories, namely facilitation of learning, EMI, and instruction goals. As for negative factors, they are institutional resources, the features of the courses, EMI, and instructional goals. Institutional goals are put under both factors since the participant did not explain how it exactly affects her choices.

Positive factors, namely facilitation of learning and EMI, are compatible with the literature review (Tan, 2021). The reason why the participants choose visual and audio-visual materials mostly is because of the fact that they facilitate the learning process. As stated by Tan (2021), EMI lecturers use these materials to make students understand the concepts better, and make them visualize. These materials might cater for the needs of

students with different learning styles. Therefore, lecturers' choices might help students with comprehension difficulties in terms of the content and language. Similar to the findings of Colomen's study (2006), EMI helps EMI lecturers to reach up-to-date materials easily, they are easily accessible, which means they might close the gap between their students and the labor market. This might help lecturers to provide students with the necessary knowledge and skills for their jobs. Also, similar to the findings of Dearden and Macaro's study (2016), EMI is seen as one of the positive factors for EMI lecturers. It is easy for them to follow the academic developments without the need of translating them for the students since the origin of the academic field is based upon foreign countries and English is the lingua franca for their subject matter and academic publications.

According to Weston and Cranton (1986), there are different factors such as the optimal size of the group, physical facilities, availability of the materials, etc. In the present study, under the category of institutional resources, there are two codes, namely cost and physical facilities and arrangement. These factors are negative factors in the present study even if they are not mentioned as either positive or negative factors in the literature (Weston & Cranton, 1986). As it is understood from the interviews with the EMI lecturers, in the state university where the study was conducted, the budget, which EMI lecturers have to buy materials, such as microscopes or live organisms, is limited. Also, the desks and the chairs in the classrooms are stable and their labs where they implement methods and techniques such as the experiment technique, observation technique etc. are small for a large number of students. Therefore, since they do not have resources, they need to change their choices of materials. Even though this situation is related to macro-level regulations in higher education, their budget and facilities should be improved for lecturers and students to be able to use varieties of materials in the classroom.

Another negative factor is the feature of the course, which is mentioned by one of the lecturers. The lessons' cognitive load is high and the lessons are theory-based lessons. This kind of lesson limits the choices of the EMI lecturer. According to Weston and Cranton, pacing is one of the factors for instructional materials. Depending on the syllabus that they prepare at the beginning of the course, they need to present the information at a specific rate. Therefore, they might not choose the materials, which require more time to complete.

EMI is also one of the negative factors. Since one of the EMI lecturers from the MBG department think that students have low English language proficiency, he offers

students translated version of English books even though he does not hold them responsible for these books. In a way, he tries to make students understand the course content more easily than they do in English. In contrast to this finding, Macaro et al. (2016) reported that EMI lecturers use written sources for native speakers as instructional materials since they think that they are more attractive and have a more systematic approach than Turkish equivalents. These materials are examples of how academic language is used. Therefore, students should be exposed to an optimal level of difficulty to improve their language skills. Byun et al. (2011) stated in their study on the effectiveness of the EMI policy that adopting the EMI policy at the university has produced positive outcomes such as improving students' proficiency levels. By exposing the students to English as much as possible through -written or spoken- materials, their English proficiency might be improved.

EMI program type is another negative factor. The majority of the EMI lecturers reported that since students, who study at the Department of Biology (30% English), are exposed to language in a meaningful context less than those who study at the Department of MBG (100% English), their English language might not be adequate to read the materials in English. In contrast to these findings, according to Dearden and Macaro's study (2016), EMI improves students' English simply by being exposed to English without saying a specific duration. Krashen (1982) supported this idea by stating that without mentioning the allocated time for the language, the goal of learning a language is better achieved when a learner is exposed to a comprehensible input with meaningful information. Even if those from the Biology (30% English) department are exposed less than those from MBG (100% English) department and this does not improve their English language skills dramatically, exposure to English instructional materials might make positive changes for these students' language abilities.

Finally, only one of the EMI lecturers from the MBG department mentioned a namely the instructional goals. According to Tan (2021), which purpose and behavior are going to be gained through which instructional material is an important factor to decide which instructional materials are appropriate for the students. As a result, EMI lecturers should also consider whether their material choices reflect their instructional goals.

In conclusion, as it is mentioned in the literature review, factors affecting the design, selection and use of the materials are similar to the findings of the current study. Yet, their effect changes from positive to negative. Even if EMI is not mentioned as a

factor in the literature, because of the context of the present study, it has become an emerging factor. Only two of the participants consider it a positive factor in the data obtained from the questionnaire whereas nearly all of the participants think of it as a negative factor.

5.2.2. Discussion of RQ2.2. *How do MBG and Biology EMI lecturers review and revise instructional material materials?*

This research question aims to reveal how the EMI lecturers review and revise the instructional materials. The data was collected through the questionnaire and semi-structured interviews conducted with seven EMI lecturers in total. The quantitative data analysis shows that only one of the participants who teaches at the department of MBG (100% English) evaluates her materials through self-reflection and students' feedback. Qualitative data analysis shows that lecturers do not consult anybody formally. Four of the participants reported that they use exams as evaluation tools for instructional materials.

There is not any research study found on this topic in the EMI context. However, the material evaluation in the literature and their relation with the current study are discussed. According to Kandaswamy (1980), if the purpose is to collect the data through any tool- in this study, they are exams- and they are used for the adoption and discontinuation of the instructional materials, this process is called summative evaluation. The evaluators focus on the outcomes of the materials. Similarly, EMI lecturers reported that if they see that their students are not successful in the exams and have difficulty answering the questions, then they think that their aims are not fulfilled. Therefore, they change their instructional materials.

On the other hand, in the semi-structured interviews, only two of the EMI lecturers exchange ideas with a colleague about evaluating their materials. Only one of them said that he receives the students' feedback. It can be said that to be able to understand students' readiness, and whether the materials are suitable for their levels and previous knowledge, discussion of the material with the students and colleagues might be helpful for both students and lecturers. According to Tan (2021), just like instructional materials have benefits, sometimes when the right choice and use could not be done, the negative sides might emerge. The prepared materials, which do not serve the purposes, are not for the

students' thinking and hinder the communication with each other, might damage instead of providing benefits. Therefore, to be able to prepare and prefer the right choices for the purposes of the lesson and students, the EMI lecturer should reflect and receive feedback from the students and colleagues.

In conclusion, just like instructional methods and techniques, EMI lecturers do not consult anybody formally and do self-reflection for reviewing and revising. They use summative evaluation whose results are not used as formal recommendations for the next decision-making process. Their next step, generally after the exams, is to adopt or avoid using the instructional materials.

5.2.3. Discussion of R.Q.2.3. *What are the criteria considered by MBG and Biology EMI lecturers while designing, selecting and using instructional materials?*

The EMI lecturers were asked whether they have any criteria to consider while designing, selecting or using the instructional materials. The data was gathered from seven EMI lecturers. The questionnaire and semi-structured interviews were used as data collection tools. The findings show that five of the participants have a criterion. Participants listed several criteria such as understandable, up-to-date, fluent English, quality of the material and content of the course. The qualitative data analysis reveals that there are three hyper-categories, namely credibility of the resources, facilitation of students' learning, and features of resources.

The credibility of the resources refers to the EMI lecturers' choices of reliable sources. They have different criteria for this purpose such as being produced by known people, published materials, tested materials, and mostly used in the field. They want to make sure that they use the correct information for their courses. To be able to facilitate students' learning process, they have criteria such as visualization of the topic, getting students' attention and being detailed, brief, and easily understandable. Tan (2021) stated in his book that if the materials are visualized, detailed, brief and easily understandable, and get students' attention, their different sense organs will work and the effectiveness of the instruction will increase. Moreover, it will facilitate the work of learning and learning motivation. The content will become more concrete. Yet, the EMI lecturers' criteria do not have any connection with the EMI context. They reported that they also have the same

criteria for Turkish medium courses. These criteria are not language-specific in the current study.

Features of the resources refer to up-to-date information, needed time for using the materials, easily accessible, adequacy of scientific knowledge, and language. These criteria are in line with the criteria mentioned in Tan's book (2021). Except for the language criterion, the other criteria are important for all fields regardless of whether it is taught through EMI or not. Since English is the second language of the students, their PYP education does not specifically focus on subject-specific contents and vocabularies, and the content is also not familiar to them, Tan (2021) stated that the appropriateness of the instructional materials should be provided in terms of students' language use and skills, and the students' pre-learnings. Therefore, language is an important criterion in the EMI context.

In conclusion, there is not any information found in the EMI context in terms of criteria affecting the design, selection and use of EMI lecturers. Therefore, the present study could not be compared and discussed with the previous studies. EMI lecturers have general criteria for instructional materials regardless of the EMI context. Only one of the lecturers reported that he has a criterion related to language. This criterion emerged because of the context of this study.

5.3. Discussion of RQ3. *How do instructional methods, techniques, and instructional materials interact with one another?*

This research question aims to reveal the interaction between instructional methods, techniques, and instructional materials. To be able to answer this research question, both qualitative and quantitative data gathered through the questionnaire and semi-structured interviews were examined. The findings show that half of the participants define instructional methods and techniques as instructional materials. This shows that they have difficulty differentiating these three terms from each other. Overall findings show that there is a two-way relationship between instructional methods, techniques, and materials.

Similar to the results of the present study, Vural (2016) stated that materials affect the choices of methods and techniques. The lack of materials or the cost of the materials which have an important role in the implementation of the methods and techniques might limit lecturers' choices and lead them to use teacher-centered methods and techniques such

as the lecture method or presentation of PowerPoint as stated by the participants. Also, instructional methods and techniques, which are used in order to realize the objectives of the course, might lead the lecturers to the use of specific instructional materials. For example, one of the participants said that she uses a computer and projector because her lessons are generally theory-based. This finding suggests that depending on the content of the courses, lecturers choose instructional methods and techniques. If the cognitive learning demands of their lessons are high, they prefer teacher-centered methods and techniques. As a result, their choices of instructional materials become materials that provide one-way interaction from teachers to students. Tan (2021) said that the right choice of instructional materials in relation to instructional methods and techniques might narrow down the personal differences of the students during the teaching and learning process. Therefore, the implementation and use of them in the classroom should be done in light of the factors affecting the choices of both methods and techniques and materials. EMI lecturers should take this two-way interaction between methods and techniques and materials into account during the decision-making process.

In conclusion, there is a two-way interaction between instructional methods, techniques, and materials. The accessibility to the materials that are planned to use in the classroom might influence the preferences of instructional methods and techniques. Similarly, how and when to use these materials might be affected by the choices of instructional methods and techniques. Factors that are mentioned in the literature review such as cost, size of the group, physical facilities and arrangement, etc. affect the relationship between these two variables.

5.4. Discussion of RQ4. *What are the opinions of students with regard to MBG and Biology EMI lecturers' choices of methods and techniques and instructional materials?*

To address this research question, students were asked whether the listed methods and techniques and instructional materials in the questionnaire are used by the EMI lecturers in the EMI context. For the instructional methods and techniques, more than half of the EMI students reported that the lecture method, question and answer method, case study method, brainstorming technique, discussion method, and demonstration method are implemented by the EMI lecturers in the EMI context. Except for the lecture method and demonstration method, all the instructional methods and techniques that they select are

either individual-centered or interaction-centered methods and techniques. Following that part, several open-ended questions were asked to the students and the answers are going to be discussed below. As for the materials, the majority of the EMI students marked slides, written resources, handouts, videos, books, and photos. Except for videos, all of them are visual materials. Following this part, several open-ended questions were asked and their answers are going to be discussed below.

Firstly, several questions related to the acquisition of content knowledge and skills, English language development, participation, appropriateness of the instructional methods and techniques to their level, students' feedback and whether they want EMI lecturers to implement different methods and techniques were asked in terms of the use of instructional methods and techniques in the EMI context. When the students were asked whether instructional methods and techniques affect the acquisition of content knowledge, more than half of the students responded to this question as yes. The findings of Byun et al.'s study (2011) show that there is a concern about the students' acquisition of subject matter. Similarly, in higher education institutions in Turkey, it is a growing concern (Başibek et al., 2014). To be able to decrease the negative effect of EMI, the effective use of instructional methods and materials might be a solution. According to Tan (2021), the right choice of methods and techniques increases the memorability of the content. The constructivist theory also suggests that students can construct their knowledge and keep them in their memory by being active and learning by doing. In the present study, students reported that the individual or interaction-centered methods and techniques help them to keep the information that they learn in the courses in their long-term memory since they are active during the learning process. As for English language development, most of the EMI students reported that interaction or individual-centered methods and techniques affect their language development positively. Since these types of methods and techniques naturally let them produce the language regardless of the correct output and negative feedback for the output, their language develops. This finding is also supported by one of the participants who said that taking a one-hour lesson together with lessons taught in Turkish without any interaction in English between the students and teachers does not help them to improve their English. They need to expose to and practice the language with help of either individual or interaction-centered instructional methods and techniques.

When it comes to participation, most of the participants reported that instructional methods and techniques influence their participation in the lesson. The methods and

techniques such as the discussion method, the question and answer method and the brainstorming technique naturally lead them to take an active role in their learning process. Yet, two participants reported that their proficiency levels are not enough to participate. This finding is compatible with the findings of the studies of Başibek et al. (2014), Cankaya (2017), Ekoç, (2020) Galloway et al., (2017) Kılıçkaya (2006). According to these studies, students' lack of English language proficiency leads to problems such as less amount of participation and asking and answering questions. In the current study, students also do not participate due to language issues even if the individual or interaction-centered methods and techniques in the lesson. Self-confidence in relation to language proficiency emerged as a factor in the present study.

Appropriateness of the instructional methods and techniques for their English proficiency level is another open-ended question in the questionnaire. Most of the students think that they are appropriate for their level of English. Yet, those, who think that they are not appropriate, reported that the PYP program that they take before enrolling on the department does not prepare them for the academic subject matter. The findings of Collins (2010) are parallel with those of the present study. Collins (2010) stated that even if the students take PYP courses and English proficiency exams before studying their academic subject, the majority of the students have difficulty studying in English. On the other hand, in the current study, students said that EMI lecturers' proficiency levels are a problem. They read slides and do not have flexibility. The findings of Başibek et al. (2014) also corroborates the finding of the current study. Başibek et al. (2014) reported that EMI lecturers with low English proficiency have less flexibility in choosing different types of instructional methods and techniques to convey the content, have long monologues without building rapport with students and lack of humor and interaction.

There is not any study found on the topic of students' feedback regarding EMI lecturers' use of instructional methods and techniques to compare the findings of this study. The majority of students said that they do not exchange their ideas about the use of instructional methods and techniques in the EMI classroom. Only two of the participants reported that they have difficulty understanding concepts since EMI lecturers only read slides. Yuan (2019) said that since EMI lecturers do not take any pedagogical and methodological training in the EMI context, they might overlook the relationship between the course content and the target language. Airey (2012) asserted that EMI lecturers might think that they are not even responsible for adjusting their language. Finally, in the current

study, students were asked whether they have alternative methods and techniques. They reported that they expect EMI lecturers to use either interaction or individual-centered methods and techniques instead of memorization of the concepts.

As for instructional materials, according to the EMI students, EMI lecturers use visual materials mostly. Since there is not any study to compare the findings of the current study in the EMI context, the findings are examined and explained with the use of materials in general settings depending on the literature review. Firstly, the majority of students reported that instructional materials, especially visual and audio-visual materials, help them to comprehend the topic better and keep the knowledge and skills that they learn in their long memory. Tan (2021) supported that finding by saying that one of the benefits of using instructional materials in the classroom is to increase the memorability level of what is taught by EMI lecturers or learned by EMI students. As for language development, according to Krashen (1985), exposure to the language in a meaningful way through written or spoken materials might improve learners' proficiency levels. In contrast to this hypothesis, twenty-two students reported that instructional materials do not affect their proficiency. One of them reported that there is not any relationship between these two variables. According to Krashen (1985), the input should be a bit beyond the current knowledge in order for learning to take place. Similarly, one of the participants said that the materials used in the classroom are not at the optimum level. They are too easy for them to improve their English. Finally, one of them reported that since they do not focus on the language itself, they do not learn anything. Yet, EMI provides an opportunity for learners to exposure to the language in a meaningful way and to learn the language naturally without focusing on especially the language skills.

Whether their participation is affected by the instructional materials is another question for the students. The majority of participants said that they, especially visuals and audio-visuals, affect their participation, interest, and motivation. According to Tan's list of benefits of instructional materials (2021), they appeal to students' attention and increase their motivation and participation and also they make even abstract topics more concrete, which means they make the topic more understandable. Finally, only seven of the participants exchange their ideas and offer alternative instructional materials such as online/web-based tools, apps, realias and models. Tan (2021) stated that these materials are helpful for students to visualize the concepts, understand abstract issues better, and observe the objects better.

As a whole, the analysis of the collected data from the students shows that most of the students think that their acquisition of knowledge, language development, and participation are affected by instructional methods, techniques, and instructional materials depending on their types. The findings in the present study are corroborated by those of the previous studies. According to the students, PYP education is one of the important factors affecting the appropriateness of the instructional methods, techniques, and materials for their language proficiency. The problems in relation to lecturers' proficiency levels are in line with the findings of the previous research. Students expect the EMI lecturers to implement interaction and individual-centered methods and techniques and use visuals or audio-visuals in the classroom. In the light of literature, they have benefits for students to understand, visualize, and practice what they have learned or are taught.

5.5. Discussion of RQ5. *Do EMI lecturers' choices of instructional methods, techniques, and materials and students' opinions regarding EMI lecturers' choices differ depending on programs run fully in English (100% English) and partially in English (30% English)?*

This research question aims to reveal whether EMI lecturers' choices and students' opinions about these choices of instructional methods, techniques, and materials change depending on programs, namely MBG (100% English) and Biology (30% English). In the literature, there is not any research found on this issue in the EMI context so that the researcher can discuss the results with those of the previous studies. Therefore, in this part, only the results are summarized and compared with one another.

The results show that in terms of instructional methods and techniques, the EMI lecturers' choices of them are nearly the same with slight changes in ranking. When they are examined depending on their categories, only four out of the first ten methods and techniques are teacher-centered whereas the rest of them are either individual or interaction-centered. This means that EMI lecturers from both departments want students to have active roles during the learning process. Since most of the instructional methods and techniques in the first ten methods and techniques are interaction or individual-centered, the level of students' engagement is high. As for qualitative data, in contrast to the quantitative data analysis, all MBG lecturers choose teacher-centered methods and more than half of them also prefer interaction-centered methods and

techniques. When it comes to the Biology department, only three methods and techniques are teacher-centered. The rest of their choices are either individual-centered or interaction-centered. However, only one of the lecturers reported that she chooses to use individual-centered methods and techniques. Qualitative data indicated that those from the Biology department prefer mostly teacher-centered and interaction-centered methods and techniques. When two departments are compared, their preferences do not differ dramatically.

In terms of instructional materials, when two departments are compared, two out of the first ten materials differ depending on the department. The overall results indicated that EMI lecturers regardless of the department generally prefer to use visual materials in their classes. Their choices are discussed in the light of the literature above. Qualitative data show that PowerPoints and videos are the most preferred by EMI lecturers. EMI lecturers confuse about what instructional methods and techniques are and what instructional materials are during the semi-structured interviews. This might be because of the lack of pedagogical and methodological knowledge since they do not take any training about how to teach in the EMI context (Beltrán-Palanques, 2021). Also, the findings show that the EMI lecturers do not use language-specific materials to support content teaching. This reveals that they do not take the dual responsibility of teaching content and language similar to the findings of Airey (2012).

As for students' opinions, eight out of ten methods and techniques are the same although their ranking in the list differs depending on the department. The majority of the students from both Biology and MBG said that the lecture method and question and answer method are used by the EMI lecturers. In the Biology department, out of the first ten methods and techniques, the five methods and techniques are teacher-centered, which places students in a passive role. When the lecturers' choices and students' opinions are compared, five of the first ten methods and materials match each other. Further investigation is needed to see the exact implementation of the EMI lecturers in the classroom. As for the MBG department, the EMI lecturers' choices and students' opinions in terms of instructional methods and techniques overlap with each other. Only two of the first ten methods and techniques differ between these two data sets. Finally, the majority of the students from both departments think that the acquisition of knowledge and skills and English language development are affected by the choices of instructional methods and techniques. As for participation, less than half of the participants in the Biology department

said that they do not affect their participation in the lesson. In contrast, those from the MBG department said the opposite. Most of the students reported that the methods and techniques are appropriate for their language proficiency and they do not exchange any ideas with the EMI lecturers. Besides, the majority of the participants in the Biology and MBG departments asserted that they do not expect the EMI lecturer to implement other methods and techniques in the classroom.

As for materials, when the data are compared, even though their ranking differs, nine out of the first ten materials used by the EMI lecturers in both departments are compatible with each other according to the students. EMI lecturers' and students' opinions in the Department of Biology show that they have a one-to-one match with each other. When the data sets of students' and lecturers' choices from the Department of MBG are compared, only two of the materials in the list do not match the lecturers' choices. On the other hand, although one of the students said in open-ended questions that online/web tools should be used more by the EMI lecturers in the classroom and EMI lecturers from both MBG and Biology departments reported that these tools are one of the most frequent ones in the list, EMI lecturers do not explain how they use them in the questionnaire or mention them in the interviews. According to Tan (2021), the acquired behaviors might be supported and reinforced by these web tools. They might provide opportunities for reviewing the lesson outside the classroom, and practicing what is learned. Since these tools require individual-centered or interaction-centered methods and techniques, they might help lecturers to reduce the personal differences of the students and provide a platform for them to learn by doing (Tan, 2021). Finally, the majority of the students from both departments reported that instructional materials affect their acquisition of knowledge and skills and English language development. Yet, in terms of participation, half of the students from the MBG and Biology departments said that the materials affect their participation. More than half of the EMI students from both departments asserted that instructional materials are appropriate to their language proficiency. Most of the students do not exchange their ideas with the EMI lecturers regarding the choice of instructional materials. They do not want the EMI lecturers to use any other materials.

In conclusion, there are slight differences between MBG (100% English) and Biology (30%) departments in terms of the choices of instructional methods and techniques. Their choices are roughly the same. In terms of instructional materials, similar to instructional methods and techniques, their choices are nearly the same as each other.

When students' opinions and lecturers' choices of instructional methods and techniques from the Biology department are compared, they do not support each other whereas the MBG department is the exact opposite of this finding. As for the materials, in terms of students' opinions, both departments' data sets are compatible with each other. Yet, students' and lecturers' choices from the MBG department have two differences with each other whereas those from the Biology department are a one-one match.

5.6. Conclusion

This study aims to find out the choices of EMI lecturers' choices of instructional methods, techniques, and materials in the department of MBG (100% English) and Biology (30% English) at the Faculty of Art and Science in Canakkale Onsekiz Mart University, the factors affecting these choices, how they review and revise them, the criteria that they think of while designing, selecting and using the instructional methods. Besides, the students' opinions regarding EMI lecturers' choices and whether the students' opinions and lecturers' choices differ depending on the departments are investigated to fill the gap in the literature.

In the present study, a mixed methods explanatory sequential design was followed. There are seven EMI lecturers and 81 EMI students who voluntarily attended the study. Yet, one of the EMI lecturers did not fill out the questionnaire whereas the other one did not want to attend the semi-structured interview. Firstly, the quantitative data were gathered through the questionnaires from the six EMI lecturers and 81 students. Following that process, semi-structured interviews were conducted with six EMI lecturers. The results were examined through both SPSS 22.0 and content analysis.

With the quantitative and qualitative data analyses of this study, the conclusions of the study are as follows:

- The overall findings of the first research question reveal that the first choices of EMI lecturers are individual and interaction-centered methods and techniques. Yet, they also prefer to use teacher-centered methods and techniques in the EMI context according to the qualitative data even if their ranking in the quantitative data is not high.

- There are many factors affecting the choices of EMI and these factors can be clustered under the hyper-categories of positive factors and negative factors. Some of the factors such as EMI are only subject-specific to the topic of the present study.
- According to the EMI lecturers' explanations, they do not follow a systematic way to consult their colleagues and students. They do the summative evaluation, which means that they continue if the implementation of instructional methods and techniques goes successfully or they avoid using them if something does not go properly.
- It can be said that the most preferred materials are visual materials and audio-visual materials such as PowerPoints and videos.
- There are many factors affecting the design, selection and use of instructional materials in the EMI context. These factors can be examined under-three hyper categories, namely positive and negative factors. EMI is mentioned both as one of the positive and negative factors by the EMI lecturers.
- When it comes to reviewing and revising the instructional materials, the majority of the EMI lecturers focus on the outcomes of the materials. They abandon or continue using these materials depending on these outcomes.
- There are several criteria reported by the EMI lecturers. These criteria can be clustered under three hyper-categories, namely credibility of the resources, facilitation of the students' learning, and features of the resources. Only one of the participants reported that language in relation to EMI is an important criterion for him.
- The EMI lecturers confuse about what instructional methods and techniques refer to and what instructional materials refer to during the interviews. This might be because of the lack of pedagogical and methodological knowledge.
- The majority of the EMI students reported that the lecture method, question and answer method, case study method, brainstorming technique, discussion method, and demonstration technique are employed by the EMI lecturers in the EMI context. Except for the lecture method and demonstration method, all the instructional methods and techniques that they select are either individual-centered or interaction-centered methods and techniques

- As for instructional materials, according to the EMI students, EMI lecturers use visual materials mostly. However, videos, as audio-visual materials, are among the most chosen ones.
- Most students think that instructional methods, techniques, and instructional materials affect their acquisition of knowledge and skills, English language development and their participation in the lesson depending on different factors and the type of methods and techniques used in the classroom.
- Students exchange ideas with lecturers about how to plan lessons. They prefer lecturers to use interaction-centered or individual-centered methods and techniques. In terms of instructional materials, they prefer visuals to be used by the EMI lecturers since they make the topic understandable, attract their attention and practice the language.
- Overall findings show that there is a two-way relationship between instructional methods, techniques and materials.
- There are slight differences between MBG (100% English) and Biology (30%) departments in terms of the choices of instructional methods and techniques. Their choices are roughly the same.
- In terms of instructional materials, their choices are nearly the same as each other even though their ranking in the list changes depending on the department.
- When students' opinions regarding lecturers' choices and lecturers' choices of instructional methods and techniques from the Biology department are compared, half of the first ten methods and techniques differ depending on the data sets whereas more than half of the first methods and techniques in the MBG department are the same in two data sets.
- As for the materials, in terms of students' opinions, both departments' data sets are compatible with each other. In addition, students' and lecturers' choices both from the MBG department and from the Biology department are compatible with each other.

5.7. Implications

In line with the results of this study, the following suggestions are developed:

5.7.1. Implications for the Implementation of Instructional Methods and Techniques in the EMI programs

The findings of the present study have significant suggestions for the departments where EMI is adopted. For this purpose, the following recommendations can be made:

- There should be a nationwide foreign language policy and practical implementations. Since EMI lecturers are one of the key stakeholders, their pedagogical, methodological, and linguistic skills should be increased.
- Higher education institutions where EMI programs are going to be adopted need a certain training program based on pedagogical and methodological knowledge and how this knowledge can be used together with language skills and academic subject matter for the lecturers who can teach through EMI.
- Depending on the reports of the lecturers, they need to give a heavy load of information in a short time. Even if they reported that they use online/web tools at a moderate level in the questionnaire, they need to learn how to conduct flipped classroom where the lesson content is introduced to the students at home and then discussed and practised in the classroom under the supervision of the lecturers.
- There is a need for EFL and EMI lecturers to work collaboratively to support the EMI students' language development. Students should continue taking EAP and ESP courses after enrolling on their department.
- To be able to increase students' interaction, motivation and interest in the classroom, EMI lecturers should choose interaction or individual-centered methods and techniques in the classroom.
- Several EMI lecturers reported that students' language proficiency levels hinder their implementation of interaction or individual-centered methods. Therefore, they need to be informed how the implementation of these methods and techniques might be helpful for them to check the meaning and facilitate conveying meaning and constructing meaningful communication in L2.
- The EMI lecturers do not plan a formal lesson plan. They just prepare a general curriculum for the lesson. Yet, preparing a lesson plan is a need for them to think systematically about the content and language and to match the language input with students' capabilities. If they do not plan a lesson plan, they might not be aware of the difference between not understanding the content being conveyed and not

understanding the language used to convey the contents. Therefore, by planning, they might have a deeper understanding of language issues that the students face during the learning process.

- The EMI lecturers should take in-service training on how to review and revise instructional methods and techniques. In doing so, they might increase the quality and effectiveness of their teaching process. Also, they might realize the students' linguistic needs.
- Also, for EMI lecturers, Professional Learning Communities should be planned to make lecturers come together and work collaboratively so that they can improve their teaching skills and students' academic performance. They might share their academic expertise.
- Even if in the findings, there are slight differences between programs run fully and run partially in terms of instructional methods and techniques, in the program run partially, students might need more support from EMI lecturers because they only have one-hour two or three lessons in English and then the others are in Turkish. They need to know the subjects both in Turkish and English since these lessons actually support each other. Therefore, the lecturers of these lessons should also work together to support students' comprehension, language skills, and content knowledge and skills.

5.7.2. Implications for the Design, Selection and Use of Instructional Materials in the EMI programs

- As for instructional materials, the EMI lecturers reported that the only material that they prepare is PowerPoints. However, for the EMI context, simply translating or using foreign resources is not enough to strengthen the comprehension of the students. They need to take in-service training to design, select and use materials, which support students' language skills and acquisition of subject-matter knowledge and skills.
- EMI lecturers should also take training on how to design, select and use discipline-specific materials in the EMI context.
- The EMI lecturers generally focus on the content of instructional materials, but not the appropriateness of the language to their students' language proficiency levels.

However, awareness of EMI lecturers should be raised that when students are exposed to comprehensible input which is a bit beyond the students' current knowledge, the materials might improve students' language abilities.

- Visual materials and audio-visual materials are mostly preferred materials by EMI lecturers. Even if online/web-based instructional tools, which are one of the visual materials, are chosen in qualitative data, what they use or how they use them are not mentioned in qualitative data. To be able to involve students actively in the learning process, increase their motivation and engagement and provide them with a platform to practice what they have learned outside of the classroom, online/web-based instructional tools might be introduced to the EMI lecturers.
- As it is seen in the findings of the current study, EMI lecturers do not consult formally with the students, and colleagues (content experts and PYP lecturers) about the instructional materials that they are going to use in the classroom. To realize the difficulties that the students face in terms of content and language and increase the effectiveness of these materials, they need to review and revise the materials.
- Even if in the findings, there are slight differences between programs run fully and run partially in terms of instructional materials, in the program run partially, students might need more support from EMI lecturers because they are exposed to Turkish and English materials at the same time. These lessons and materials are in connection and follow one another. They need to know both Turkish and English equivalences of the subject matter. Therefore, the lecturers of these lessons should also work together to support students' comprehension, language skills, and content knowledge and skills.

5.8. Suggestions for Further Research

In the related literature, there is not any research found on the issue of the implementation of instructional methods, techniques, and materials in the EMI context. Thus, since this study is a descriptive one, a study can be conducted with classroom observations to see the implementation of EMI lecturers in terms of instructional methods, techniques, and materials.

Besides, an intervention study might be conducted with EMI lecturerers. A training based on what EMI is, how EMI should be implemented, and what EMI lecturers' role is in EMI context might be given to EMI lecturers.

Also, according to the findings of the current study, there is a two-way interaction between instructional methods, techniques, and materials. However, in the current study, how they develop materials are not investigated. To be able to see the interaction between instructional methods, techniques, and instructional materials, a study can be conducted with a material development protocol and semi-structured interviews.

In addition, the current study was conducted with micro-level implementers. Further research is required to see the voices of universities/ faculties and policymakers.

Lastly, an empirical study, which is based on the topic of collaborative work of English language teachers and content experts, might be conducted to see how the collaboration might support students' proficiency levels and lecturers' decisions regarding instructional methods and techniques.

5.9. Chapter Summary

In this chapter, the discussion of each research question, conclusion, implications and suggestions for further studies are presented. All of the findings in relation to the research questions were discussed in the light of related literature. Following that, conclusions emerged as a result of this discussion. In relation to these conclusions, implications for the implementation of instructional methods and techniques in the EMI programs and for the design, selection, and use of instructional materials in the EMI programs were reached. Lastly, recommendations for further research were proposed in order to address the gaps in the present study.

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APPENDIX 1

EMI LECTURERS' QUESTIONNAIRE ON INSTRUCTIONAL METHODS, TECHNIQUES, AND MATERIALS

Dear Lecturer,

This questionnaire was developed for a thesis which is carried out in the department of English Language Teaching Master Degree program at Çanakkale Onsekiz Mart University with the aim of investigating instructional methods and techniques and instructional materials used in an undergraduate face to face education environment (except laboratory courses) where English Medium of Instruction is adopted.

This questionnaire consists of two main parts. The first part is prepared to learn about personal information whereas the second part is prepared to learn about the instructional methods and techniques and instructional materials used in the classroom.

The information that you will share will only be used for academic purposes and will not be shared with third parties.

If you have any questions or comments about the study, you can contact us at the e-mail addresses below.

Thank you for your time and support.

Sibel Can ACAR

Çanakkale Onsekiz Mart
University, Master Degree
Student

Prof. Dr. Ece ZEHİR
TOPKAYA (Thesis Advisor)

Çanakkale Onsekiz Mart
University

PART I

A. Personal Information

1. Age:
2. Gender: Female () Male ()
3. What is your department? You can choose more than one.

Biology () Molecular Biology and Genetics ()

4. Have you ever studied as a student at an educational institution where EMI policy is adopted? Yes () No ()

If your answer is YES, please mark which level or levels you have studied below. You can choose more than one.

Bachelor Degree () Master's Degree () PhD ()

5. The duration of your job experience:
6. Please specify your job experience and its duration in the EMI context.

Education Level	EMI Experience (Year / Month)
Bachelor Degree ()	
Master's Degree ()	
PhD ()	

7. What is the educational level of the students whom you teach in the EMI context? You can choose more than once.

Bachelor's degree () Master's degree () PhD ()

8. Do you have any international students in the EMI context?

Yes () No ()

9. If you don't graduate from the faculty of education, do you have a pedagogical formation certificate?

Yes () No ()

10. If you don't graduate from the faculty of education, have you ever attended in an training (e.g. webinar, seminar, workshop etc.) related to instructional methods and techniques or/and material development?

Yes () No ()

If YES, please fill in the table below.

The name of the training that you have attended.	The content of the training that you have attended.	The year when you have attended in the training	The your role in this training or these trainings	If there is/ are, the contribution/s of these/this training/s to your teaching process.

11. Have you ever attended training on EMI policy?

Yes () No ()

If your answer is YES:

The name of the training that you have attended.	The content of the training that you have attended.	The year when you have attended in the training	The your role in this training or these trainings	If there is/ are, the contribution/s of these/this training/s to your teaching process.

PART II

A. INSTRUCTIONAL METHODS AND TECHNIQUES USED IN THE EMI CONTEXT

Below, there is a part which aims to find out the instructional methods and techniques you use in the undergraduate EMI learning environment except for laboratory courses. By means of explaining, the definitions/ descriptions of instructional methods and techniques are given. Please read carefully. If you use them, please mark the instructional methods and techniques and the frequency of your use.

Instructional Methods and Techniques	Mark the Frequency of the Use				
	Never	Rarely	Sometimes	Often	Always
<i>Lecture</i> : It is a traditional method where lecturers convey autocratically the content to the learners who sit and listen to the lecturers passively (Küçükahmet, 2000). Example: https://tinyurl.com/nczd8b9					
<i>Question-Answer</i> : Questions that are formed by lecturers beforehand are asked to learners verbally and are expected to be answered by learners in the process. Example: https://tinyurl.com/2rrxaz78					
<i>Demonstration-Practice</i> : In this method, the target skills are demonstrated and explained by lecturers. Then, learners are asked to do the same procedure as lecturers demonstrate them (Tan, 2011). Example: https://tinyurl.com/tprcf6mz					
<i>Demonstration</i> : It is a method where lecturers show how to use a tool or explain the related principle of a tool.					
<i>Case Study</i> : This method is the analysis of real or imaginary problems in the classroom. Example: https://tinyurl.com/8w3vjm5c					
<i>Discussion</i> : The meaning of discussion is to exchange ideas and opinions in a group or individually to be able to reach the intended goals of a lesson (Akdeniz, 2016).					
<i>Problem Solving</i> : It has five phases: identifying the problem, formalizing the hypothesis, gathering, organizing, evaluating and explaining the data, reaching to results and testing the results. Example: https://tinyurl.com/4xzs7npa					
<i>Field Trip</i> : To attain educational goals, learners take a trip and observe what they are supposed to learn in the real world instead of a closed-classroom environment (Küçükahmet, 2000).					

Project-based learning: It is to make a project related to a topic. Example: https://tinyurl.com/c2b6je7e					
<i>Experiment Technique</i> : In this technique, lecturers or learners try to prove or demonstrate a scientific fact (Tan, 2011).					
<i>Observation Technique</i> : It is a technique that learners monitor and examine indications of objects, cases or facts in a planned manner by means of eyes or visual tools step by step (Binbaşıoğlu 1983 cited in Yıldızlar 2013).					
<i>Brainstorming Technique</i> : It is a technique in which learners share new ideas without differing on what is wrong and right regarding a given topic.Example: https://tinyurl.com/2escuvs5					
<i>Concept-Map Technique</i> : It is a technique where the related concepts in a subject are extracted and the relationship between these concepts is shown in a two-dimensional way. Example: https://tinyurl.com/37k2emp8					
<i>Fishbone Technique</i> : It is the technique in which a problem related to a topic is identified and tried to be solved by making cause and effect relations. Example: https://tinyurl.com/sews5axh					
<i>Analogy Technique</i> : It is a decision making process about one's unknown features with reference to one's known features by comparing two phenomenons, incidents or objects. (Example, human brain and computer functioning system). Example: https://tinyurl.com/7nd5dbzc					
<i>Seminar or Conference Technique</i> : It is the presentation of a topic in front of audiences by expert speakers (Küçükahmet, 2000). Example: https://tinyurl.com/s25fehkd					
<i>Forum Technique</i> : It is the technique where a group of experts give information about the different sides of a specific topic and audiences ask questions at the end. Example: https://tinyurl.com/yphypuzt					
<i>Panel Technique</i> : Example: https://tinyurl.com/yynaanak					
<i>Opposite Panel Discussion</i> :It is a discussion type of a subject by dividing the class into groups: a question group and an answer group (Tan, 2011). Example: https://tinyurl.com/v33zmcen					
Workshop: Example: https://tinyurl.com/enbkasmj					
<i>Buzz Groups Technique</i> : These groups are formed by dividing large groups into small groups. Groups are divided into groups depending on the duration of the speech. They report what they have discussed at the end.(For example, If there are 4 people in the					

group, each member will make a speech for 4 min.). Example: https://tinyurl.com/53bynvnb					
<i>Reciprocal Questioning Technique:</i> It is the technique where after the lecturer presents a subject, the class is divided into small groups and these groups prepare open-ended questions related to the subject. Each group asks these questions to each other.					
<i>Interview Technique:</i> It is meeting with experts on a subject and collecting data.					
<i>Simulation Technique:</i> It is a hypothetical and artificial experience where learners can engage with an activity that reflects real life. Example: https://tinyurl.com/3sczwm75					
<i>Station Technique:</i> In this technique, learning stations where a subject is repeated and discussed by means of different activities are created (Tan, 2011). Example: https://tinyurl.com/5288rzc5					
<i>The Six Thinking Hats Technique:</i> It is a technique where learners discuss a topic by looking from different perspectives (objective, emotional, pessimistic, creative, evaluation). Example: https://tinyurl.com/5aybddfm					
<i>Team Games Technique</i>					

Please write below the instructional methods and techniques that you use in your classes but are not written on the table and add the frequency of the use.

Instructional Methods and Techniques	Mark the Frequency of the Use				
	Never	Rarely	Sometimes	Often	Always

1. What are the factors that affect your choice of instructional methods and techniques that you mark on the table?

- a. Content
- b. Time
- c. Physical conditions
- d. Instructional technologies
- e. Learners' language skills
- f. The size of the class
- g. Instructional goals of the lesson
- h. Lecturers' familiarity with the method
- i. Economical resources
- j. Other: Please mention below

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i. Please explain briefly how these factors affect your choice of instructional methods and techniques.

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2. Does EMI policy have an impact on your choice of instructional methods and techniques?

YES () NO ()

i. If **YES**, please explain briefly how EMI affects.

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3. Do you think there is any similarity or difference between the programmes which are run fully in English (%100 English) and run partially in English (%30 English) in terms of the use and the choice of instructional methods and techniques?

YES () NO ()

i. If **YES**, please explain briefly the similarity or the difference.

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ii. Why do you think this similarity or difference emerges?

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4. Do you evaluate the instructional methods and techniques that you use?

YES () NO ()

i. If **YES**, what is your method of evaluation?

- 1. Self-reflection
- 2. Expert evaluation
- 3. Learner evaluation
- 4. Other: Please mention below

a.

5. Please explain briefly what you do after your evaluation process.

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B. INSTRUCTIONAL MATERIALS PRODUCED AND USED IN THE EMI CONTEXT

Below, there is a part which aims to find out the instructional materials you use or/ and produce in the undergraduate EMI learning environment except for laboratory courses. If you use them, please mark the instructional materials and the frequency of your use.

Instructional Materials	Please mark the frequency of the use				
	Never	Rarely	Sometimes	Often	Always
Written resources (articles, periodical publications, resource books)					
Books					
Handouts					
Slides					
Worksheet					
Online/ Web-based instructional materials					
Videos					
Realias and models					
Posters					
Graphics					
Tables(Anlam Çözümleme Tabloları vs.)					
Photos					
Drawings					
Audio records					

Please write below the instructional materials that you use in your classes but not written on the table and add the frequency of the use.

Instructional Materials	Please mark the frequency of the use.				
	Never	Rarely	Sometim es	Often	Always

- 1. What are the factors that you take into consideration while you are using, producing or selecting the instructional materials?**

- a. Content
- b. Time
- c. Physical conditions
- d. Instructional technologies
- e. Learners' language skills
- f. The size of the class
- g. Instructional goals of the lesson
- h. Lecturers' familiarity with the method
- i. Economical resources
- j. Other: Please mention below

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i. Please explain briefly how these factors affect your process of production, selection and use of instructional materials.

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2. Are there any criteria that you take into consideration while you are producing or/and selecting?

YES () NO ()

i. If YES, please explain briefly what the criteria is and how they affect.

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3. Do you think there is any similarity or difference between the programmes which are run fully in English (%100 English) and run partially in English (%30 English) in terms of the use, production and the choice of instructional materials?

YES () NO ()

i. If YES, please explain briefly the similarity or the difference.

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ii. Why do you think this similarity or difference emerges?

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4. Do you evaluate the instructional materials that you use?

YES () NO ()

iii. If **YES**, what is your method of evaluation?

1. Self-reflection
2. Expert evaluation
3. Learner evaluation
4. Other: Please mention below

a.

i. Please explain briefly what you do after your evaluation process.

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If you have any suggestions and opinions regarding the survey and the study itself, please write your comment below.

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The survey has finished. Thank you for your support and participation.

APPENDIX 2

EMI STUDENTS' QUESTIONNAIRE ON THE USE OF INSTRUCTIONAL METHODS, TECHNIQUES, AND MATERIALS IN THE EMI CONTEXT

Dear Students,

This questionnaire was developed for a thesis which is carried out in the department of English Language Teaching Master Degree program at Çanakkale Onsekiz Mart University with the aim of investigating instructional methods and techniques and instructional materials used by EMI lecturers in an undergraduate face to face education environment (except laboratory courses) where English Medium of Instruction is adopted.

This questionnaire consists of two main parts. The first part is prepared to learn about personal information whereas the second part is prepared to learn about the instructional methods and techniques and instructional materials used in the classroom.

The information that you will share will only be used for academic purposes and will not be shared with third parties.

If you have any questions or comments about the study, you can contact us at the e-mail addresses below.

Thank you for your time and support.

Sibel Can ACAR

Çanakkale Onsekiz Mart
University, Master Degree
Student

Prof. Dr. Ece ZEHİR
TOPKAYA (Thesis Advisor)

Çanakkale Onsekiz Mart
University

PART I

A. Personal Information

1. Age:
2. Gender: Female () Male () Belirtmek istemiyorum ()
3. Department: Biology () Molecular Biology and Genetics ()
4. Grade: 2nd Grade () 3rd Grade () 4th Grade ()
5. Did you attend in Preparatory Year Program? YES () NO ()

IF YES, do you think the prep-year program prepare you for your department?

- i. YES () PARTIALLY() NO ()
- ii. Please explain the reason behind your answer briefly.

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BÖLÜM II

A. INSTRUCTIONAL METHODS AND TECHNIQUES USED IN AN EMI CONTEXT

Below, there is a part which aims to find out the instructional methods and techniques the EMI lecturers use in the undergraduate EMI learning environment except for laboratory courses. By means of explaining, the definitions/ descriptions of instructional methods and techniques are given. Please read carefully. Please mark the instructional methods and techniques that are used by EMI lecturers in the lessons you take.

Instructional Methods and Techniques	Mark the instructional methods and techniques used by the EMI lecturers
<i>Lecture</i> : It is a traditional method where lecturers convey autocratically the content to the learners who sit and listen to the lecturers passively (Küçükahmet, 2000). Example: https://tinyurl.com/nczd8b9	
<i>Question-Answer</i> : Questions that are formed by lecturers beforehand are asked to learners verbally and are expected to be answered by learners in the process. Example: https://tinyurl.com/2rrxaz78	
<i>Demonstration-Practice</i> : In this method, the target skills are demonstrated and explained by lecturers. Then, learners are asked to do the same procedure as lecturers demonstrate them (Tan, 2011). Example: https://tinyurl.com/tprcf6mz	
<i>Demonstration</i> : It is a method where lecturers show how to use a tool or explain the related principle of a tool.	

<i>Case Study:</i> This method is the analysis of real or imaginary problems in the classroom. Example: https://tinyurl.com/8w3vjm5c	
<i>Discussion:</i> The meaning of discussion is to exchange ideas and opinions in a group or individually to be able to reach the intended goals of a lesson (Akdeniz, 2016).	
<i>Problem Solving:</i> It has five phases: identifying the problem, formalizing the hypothesis, gathering, organizing, evaluating and explaining the data, reaching to results and testing the results. Example: https://tinyurl.com/4xzs7npa	
<i>Field Trip:</i> To attain educational goals, learners take a trip and observe what they are supposed to learn in the real world instead of a closed-classroom environment (Küçükahmet, 2000).	
Project-based learning: It is to make a project related to a topic. Example: https://tinyurl.com/c2b6je7e	
<i>Experiment Technique:</i> In this technique, lecturers or learners try to prove or demonstrate a scientific fact (Tan, 2011).	
<i>Observation Technique:</i> It is a technique that learners monitor and examine indications of objects, cases or facts in a planned manner by means of eyes or visual tools step by step (Binbaşıoğlu 1983 cited in Yıldızlar 2013).	
<i>Brainstorming Technique:</i> It is a technique in which learners share new ideas without differing on what is wrong and right regarding a given topic. Example: https://tinyurl.com/2escuvs5	
<i>Concept-Map Technique:</i> It is a technique where the related concepts in a subject are extracted and the relationship between these concepts is shown in a two-dimensional way. Example: https://tinyurl.com/37k2emp8	
<i>Fishbone Technique:</i> It is the technique in which a problem related to a topic is identified and tried to be solved by making cause and effect relations. Example: https://tinyurl.com/sews5axh	
<i>Analogy Technique:</i> It is a decision making process about one's unknown features with reference to one's known features by comparing two phenomenons, incidents or objects. (Example, human brain and computer functioning system). Example: https://tinyurl.com/7nd5dbzc	
<i>Seminar or Conference Technique:</i> It is the presentation of a topic in front of audiences by expert speakers (Küçükahmet, 2000). Example: https://tinyurl.com/s25fehkd	
<i>Forum Technique:</i> It is the technique where a group of experts give information about the different sides of a specific topic and audiences ask questions at the end. Example: https://tinyurl.com/yphypuzt	
<i>Panel Technique:</i> Example: https://tinyurl.com/yynaanak	
<i>Opposite Panel Discussion:</i> It is a discussion type of a subject by dividing the class into groups: a question group and an answer group (Tan, 2011). Example: https://tinyurl.com/v33zmcen	
Workshop: Example: https://tinyurl.com/enbkasmj	
<i>Buzz Groups Technique:</i> These groups are formed by dividing large groups into small groups. Groups are divided into groups depending on the duration of the speech. They report what they have discussed at the end. (For example, If there are 4 people in the group, each member will make a speech for 4 min.). Example: https://tinyurl.com/53bynvvb	
<i>Reciprocal Questioning Technique:</i> It is the technique where after the lecturer presents a subject, the class is divided into small groups and these groups prepare open-ended questions related to the subject. Each group asks these questions to each other.	
<i>Interview Technique:</i> It is meeting with experts on a subject and collecting data.	

<i>Simulation Technique:</i> It is a hypothetical and artificial experience where learners can engage with an activity that reflects real life. Example: https://tinyurl.com/3sczwm75	
<i>Station Technique:</i> In this technique, learning stations where a subject is repeated and discussed by means of different activities are created (Tan, 2011). Example: https://tinyurl.com/5288rzc5	
<i>The Six Thinking Hats Technique:</i> It is a technique where learners discuss a topic by looking from different perspectives (objective, emotional, pessimistic, creative, evaluation). Example: https://tinyurl.com/5aybddfm	
<i>Team Games Technique</i>	
Please write/describe below the instructional methods and techniques that are used in your classes but are not written on the table.	
I. Opinions regarding Instructional Methods and Techniques	
Do you think the instructional methods and techniques used by EMI lecturers in the EMI context (e.g. Lecture, Q&A, Demonstration and Practice etc.) affect your acquisition of knowledge and skills related to the academic subject matter (e.g. learning the knowledge, skills, understanding and attitude related to your job)?	EFFECTIVE() PARTIALLY EFFECTIVE () NO EFFECTIVE()
If your answer to the question above is EFFECTIVE or PARTIALLY EFFECTIVE, please explain briefly how it affects.	
Do you think the instructional methods and techniques used in the EMI context (e.g. Lecture, Q&A, Demonstration and Practice etc.) affect your English language development (e.g. listening, reading, speaking, writing, grammar and vocabulary)?	EFFECTIVE() PARTIALLY EFFECTIVE () NO EFFECTIVE()
If your answer to the question above is EFFECTIVE or PARTIALLY EFFECTIVE, please explain briefly how it affects.	
If your answer to the question above is NO EFFECTIVE, please explain briefly why you think it does not affect.	
Do you think the instructional methods and techniques used in the EMI context (e.g. Lecture, Q&A, Demonstration and Practice etc.) affect your participation in the lesson?	EFFECTIVE() PARTIALLY EFFECTIVE () NO EFFECTIVE()

If your answer to the question above is **EFFECTIVE** or **PARTIALLY EFFECTIVE**, please explain briefly how it affects.

Do you think the instructional methods and techniques used by EMI lecturers in the EMI context (e.g. Lecture, Q&A, Demonstration and Practice etc.) are appropriate for your English language level (e.g. your proficiency level in terms of listening, reading, speaking, writing, grammar and vocabulary)? YES () NO()

i. If YES, please explain briefly why you think it is appropriate for your level.

ii. If NO, please explain briefly why you think it is not appropriate for your level.

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Have you ever exchanged your ideas with EMI lecturers about the instructional methods and techniques (e.g. Lecture, Q&A, Demonstration and Practice etc.) used in the EMI context? (the issues about what the instructional methods and techniques are appropriate for you, how they can be developed or which methods and techniques can contribute to your development)

YES () NO()

i. IF YES, in terms of what did you exchange your ideas? Please explain briefly how it affected.

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Except for the instructional methods and techniques that you have marked above, are there any instructional methods and techniques that you want to be implemented by EMI lecturers in the EMI context? YES () NO ()

i. If YES, please write/ describe briefly instructional methods and techniques.

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- ii. How do you think these instructional methods and techniques affect your English language development and the knowledge and skills of academic subject matter in the EMI context?

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B. INSTRUCTIONAL MATERIALS USED IN AN EMI CONTEXT

Below, there is a part which aims to find out the instructional materials EMI lecturers use in the undergraduate EMI learning environment except for laboratory courses. Please mark the instructional materials that are used in the EMI context.

Instructional Materials	Mark the Instructional Materials used by EMI lecturers in the classes
A. Instructional Materials used in the classes	
Written resources (articles, periodical publications, resource books)	
Books	
Handouts	
Slides	
Worksheet	
Online/ Web-based instructional materials	
Videos	
Realias and models	
Posters	
Graphics	
Tables(Anlam Çözümleme Tabloları vs.)	
Photos	
Drawings	
Audio records	
<p>Please write/ describe below the instructional materials that are used in your classes but not written on the table and add the frequency of the use.</p> 	
I. Opinions regarding Instructional Materials	
<p>Do you think the instructional materials used in the EMI context (e.g. written resources, worksheets, handouts, tables etc.) affect your English language development (e.g. listening, reading, speaking, writing, grammar and vocabulary)?</p>	<p>EFFECTIVE() PARTIALLY EFFECTIVE () NO EFFECTIVE()</p>

<p>If your answer to the question above is EFFECTIVE or PARTIALLY EFFECTIVE, please explain briefly how it affects..</p>	
<p>Do you think the instructional materials used in the EMI context (e.g. written resources, worksheets, handouts, tables etc.) affect your English language development (e.g. listening, reading, speaking, writing, grammar and vocabulary)?</p>	
<p>If your answer to the question above is EFFECTIVE or PARTIALLY EFFECTIVE, please explain briefly how it affects.</p>	
<p>If your answer to the question above is NO EFFECTIVE, please explain briefly why you think it does not affect.</p>	
<p>Do you think the instructional materials used in the EMI context (e.g. written resources, worksheets, handouts, tables etc.) affect your participation in the lesson?</p>	<p>EFFECTIVE() PARTIALLY EFFECTIVE () NO EFFECTIVE()</p>
<p>If your answer to the question above is EFFECTIVE or PARTIALLY EFFECTIVE, please explain briefly how it affects..</p>	

Do you think the instructional materials used by EMI lecturers in the EMI context (e.g. written resources, worksheets, handouts, tables etc.) are appropriate for your English language level (e.g. your proficiency level in terms of listening, reading, speaking, writing, grammar and vocabulary)? YES () NO()

i. If YES, please explain briefly why you think it is appropriate for your level.

ii. If NO, please explain briefly why you think it is not appropriate for your level.

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Have you ever exchanged your ideas with EMI lecturers about the instructional materials (e.g. written resources, worksheets, handouts, tables etc.) used in the EMI context? (the issues about what the instructional methods and techniques are

appropriate for you, how they can be developed or which methods and techniques can contribute to your development)

YES () NO()

i. **IF YES**, in terms of what did you exchange your ideas? Please explain briefly how it affected.

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Except for the instructional materials that you have marked above, are there any instructional materials that you want to be implemented by EMI lecturers in the EMI context? YES () NO ()

iii. **If YES**, please write/ describe briefly instructional materials.

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iv. How do you think these instructional materials affect your English language development and the knowledge and skills of academic subject matter in the EMI context?

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If you have any suggestions and opinions regarding the survey and the study itself, please write your comment below.

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The survey has finished. Thank you for your support and participation.

APPENDIX 3
A CASE STUDY ON INSTRUCTIONAL METHODS, TECHNIQUES, AND
INSTRUCTIONAL MATERIALS USED IN THE ENGLISH MEDIUM
INSTRUCTION (EMI) CONTEXT: INTERVIEW PROTOCOL

Dear Lecturer,

This interview protocol was developed for a thesis which is carried out in the department of English Language Teaching Master Degree program at Çanakkale Onsekiz Mart University with the aim of investigating instructional methods and techniques and instructional materials used in an undergraduate face to face education environment (except laboratory courses) where English Medium of Instruction is adopted.

For this purpose, this interview prepared to learn about the instructional methods and techniques and instructional materials used in the classroom, the factors affecting EMI lecturers' choice of instructional methods, techniques and materials, how they review and revise them, the criteria considered by EMI lecturers while designing and selecting the materials.

Dear lecturer, before starting the interview, do you allow me to record the interview?

YES () NO ()

Thank you.

If there is something you do not want me to record, please ask me to stop recording.

If there is anything you want to ask or clarify, I am happy to answer your questions.

Thank you for your time and support.

Sibel Can ACAR

Çanakkale Onsekiz Mart
University, Master Degree
Student

Prof. Dr. Ece ZEHİR
TOPKAYA (Thesis Advisor)

Çanakkale Onsekiz Mart
University

INTERVIEW (EMI LECTURERS)

A. Background Knowledge

1. Gender: Female () Male ()
2. The duration of your job experience:
3. The duration of your job experience in the EMI context:
4. How many years do you work for this department?:
5. Have you ever had experience in EMI as a student?
 - a. If yes, can you tell me about your experiences?
6. Have you ever attended any training related to EMI?
 - a. If yes, what is the content of the training?
7. Have you ever attended any training on Education Pedagogy?
 - a. If yes, can you tell me about the content of the training, the duration and your position in the training?
 - b. Does this training contribute to your teaching process?
 - i. How?

B. Transition Questions

1. How can you define instructional methods?
2. How can you define instructional techniques?
3. How can you define instructional materials?

C. Main Questions

a. Instructional Methods and Techniques in an EMI Context

1. What are the instructional methods and techniques you prefer to use in your classes?
 - a. Why do you prefer to use these methods and techniques?
2. Can you give an example of how you use instructional methods and techniques while teaching a topic or/and skills in the EMI context?
 - a. What is the role of the students while you are implementing these instructional methods and techniques?
3. Does working in the EMI context influence your choice of instructional methods and techniques??
 - a. If it influences, why and how does it influence?
 - b. If it does not influence, why do you think it does not influence?
4. Have you ever taught in the Turkish Medium Instruction context?
 - i. If you have taught, when you compare it with the EMI context, do the instructional methods and techniques you prefer to use change?
 1. If they change, what are the factors that lead you to this change?
 2. If they do not change, why do you think they do not change?
5. Are there any similarities or differences between the 30% EMI program and the 100% EMI program in terms of the choices and the use of instructional methods and techniques?
 - a. If there are, what are these similarities and differences?
 - i. Why do you think these similarities and differences emerge?

6. Do your choices of instructional methods and techniques in the EMI context change during the process?
 - a. If yes, how does it change?
7. Do the instructional methods and techniques you use influence the use of Turkish or English?
 - i. If they influence, why do you think they influence?
8. Do the instructional methods and techniques you use in the EMI context influence the students' language development?
 - a. If yes, how does it influence?
9. Do you exchange ideas with the lecturers in your department or/and English Language Teacher or/ and the respective people in terms of instructional methods and techniques?
 - a. If yes, how and in terms of what do you exchange ideas?
 - i. How does it influence your choices?
10. Do you face problems while implementing instructional methods and techniques?
 - a. If you do, what are these problems?
 - b. What are the reasons behind these problems?
 - c. Do these problems influence your following choices?
 - i. If they influence; how do they influence your choices?
 - d. If you do not face any problems while implementing, what are the good parts of the implementation?
 - i. How do these good parts influence the following choices?
11. Do you evaluate the instructional methods and techniques that you use?
 - i. If **YES**, what is your method of evaluation?
 1. Self-reflection
 2. Expert evaluation
 3. Learner evaluation
 4. Other: Please mention below
 - a.
 - b. In terms of what do you evaluate them?
 - c. What do you do after you evaluate them?
12. Are there any instructional methods and techniques you want to try in the EMI context?
 - a. If yes, what are these methods and techniques?
13. Do you want to attend any training on instructional methods and techniques?
 - a. If yes, how do you want the content of the training to be?
 - b. By whom is the training given?
 - c. How do you think this training might contribute to your teaching process?

b. b. Instructional Materials in an EMI Context

1. What instructional materials do you prefer to use in your lesson/s?
 - a. Why do you prefer these instructional materials?

- b. Can you give an example of how you use these instructional materials?
 2. Do you produce instructional materials by yourself?
 - a. If yes, can you give an example of the instructional materials you produce?
 3. What are the factors that you take into account while producing, choosing and using the instructional materials?
 - i. Content: ()
 - ii. Instructional technologists: ()
 - iii. EMI: ()
 - iv. Learners' language skills: ()
 - v. The size of the class: ()
 - vi. Instructional goals of the lesson: ()
 - vii. Time: ()
 - viii. Physical conditions: ()
 - ix. Economical resources()
 - x. Other: Please mention below
 - b. Why do you think these factors influence your production, choices and use of instructional materials?
4. Are there any criteria that you take into consideration while you are producing or/and selecting?
 - a. If yes, what are these criteria?
 - b. What are the conditions that influence you to constitute these criteria?
 - c. Does EMI have any effect on these criteria?
 - i. If it does, how does it affect? Why?
 - ii. If it does not, why do you think it does not affect?
5. Do you exchange ideas with the lecturers in your department or/and English Language Teacher or/ and the respective people in terms of instructional materials?
 - a. If yes, how and in terms of what do you exchange ideas?
 - i. How does it influence your choices?
6. Do you suggest to your students any Turkish instructional materials in the EMI context?
 - a. If yes, why?
 - b. How do you think these materials influence the teaching process?
7. Are there any similarities or differences between the 30% EMI program and the 100% EMI program in terms of the choices and the use of instructional materials?
 - b. If there are, what are these similarities and differences?
 - i. Why do you think these similarities and differences emerge?
8. Do the instructional materials you use in the EMI context influence the students' language development?
 - a. If yes, how does it influence?

- b. How do you make sure that these instructional materials support your students' language development?
- 9. Do you face problems during the process of production, the choice and the use of instructional materials?
 - a. If you face, what are these problems?
 - b. What are the reasons behind these problems?
 - i. Does EMI have any effect on these difficulties?
 - 1. If yes, what are they?
 - c. Do these problems influence your following choices?
 - i. If they do; how do they influence the choices?
 - d. What are the good parts of the implementation, if you do not face any problems during implementation?
 - i. How do these good parts influence your following choices?
- 10. Do you evaluate the instructional materials that you use?
 - i. If YES, what is your method of evaluation?
 - 1. Self-reflection
 - 2. Expert evaluation
 - 3. Learner evaluation
 - 4. Other: Please mention below
 - a.
- 11. In terms of what do you evaluate?
 - a. What do you do after the evaluation process?
 - b. How do you understand whether the instructional materials realize effectively your aim of using them?
 - i. If they realize or do not realize it, how does this situation influence your following choices of instructional materials?
- 12. Do you want to attend any training on instructional materials?
 - a. If yes, how do you want the content of the training to be?
 - b. By whom is the training given?
 - c. How do you think this training might contribute to your teaching process?

D. Closing Question

- 1. Before finishing the interview, do you want to add something about instructional methods and techniques and instructional materials?

Our meeting ended here. Thank you for your participation and contribution. If there is anything you want to ask, you can ask now or you can contact me later by e-mail.

Thank you for your time and participation.

APPENDIX 4

Table 1. Interview Protocol Matrix

	Background Information	RQ1: Choices of instructional methods and techniques	RQ1.1: Factors affecting these choices	RQ1.2: Review and revise instructional methods and techniques	RQ2: The instructional materials designed, selected and used	RQ2.1: Factors considered by EMI lecturers while designing, selecting and using instructional materials	RQ2.2: Criteria considered by EMI lecturers while designing, selecting and using instructional materials	RQ2.3: Review and revise instructional materials	RQ5: Whether EMI lecturers' choices and students opinions differ depending on the department
I. Transition Questions									
Interview Question 1	X								
Interview Question 2	X								
Interview Question 3	X								
II. Main Questions: Instructional Methods and Techniques									
Interview Question 1		X							
Interview Question 2		X							

Interview Question 3			X						
Interview Question 4			X						
Interview Question 5			X						X
Interview Question 6			X						
Interview Question 7			X						
	Background Information	RQ1: Choices of instructional methods and techniques	RQ1.1: Factors affecting these choices	RQ1.2: Review and revise instructional methods and techniques	RQ2: The instructional materials designed, selected and used	RQ2.1: Factors considered by EMI lecturers while designing, selecting and using instructional materials	RQ2.2: Criteria considered by EMI lecturers while designing, selecting and using instructional materials	RQ2.3: Review and revise instructional materials	RQ5: Whether EMI lecturers' choices and students opinions differ depending on the department
Interview Question 8			X						
Interview Question 9				X					
Interview Question 10				X					
Interview Question 11				X					
Interview Question 12				X					

Interview Question 13				X					
Main Questions: Instructional Materials									
Interview Question 1					X				
Interview Question 2					X				
Interview Question 3						X			
Interview Question 4							X		
Interview Question 5								X	
Interview Question 6						X			
Interview Question 7									X
Interview Question 8						X			
Interview Question 9								X	
Interview Question 10								X	
Interview Question 11								X	

APPENDIX 5



T.C.
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ REKTÖRLÜĞÜ
Lisansüstü Eğitim Enstitüsü
Lisansüstü Eğitim Enstitüsü Etik Kurulu



Sayı : E-84026528-050.01.04-2100058558
Konu : Başvuru İncelenmesi

15.04.2021

Sayın Sibel Can ACAR

Yürütücülüğünüzü yapmış olduğunuz 2021- YÖNP-0242 nolu Projeniz ile ilgili Bilimsel Araştırmalar Etik Kurulu'nun almış olduğu 08.04.2021 tarih ve 07/19 sayılı kararı aşağıdadır.
Bilgilerinize rica ederim.

KARAR:19- Sibel Can ACAR'ın sorumlu yürütücülüğünü yaptığı "Exploring Instructional Strategies and Teaching Materials in an EMI context: A Case Study" başlıklı araştırmasının Bilimsel Araştırma Etik Kurul ilkelerine **uygun olduğuna** oy birliği ile karar verilmiştir.

Prof. Dr. Salih Zeki GENÇ
Kurul Başkanı

Belge Doğrulama Kodu: FHDCHPH

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Belge Takip Adresi: dogrulama.comu.edu.tr

Adres: Onsekiz Mart Üniversitesi Terzioğlu Yerleşkesi Çanakkale

Telefon No: (0 286) 2180018

e-Posta:

Kep Adresi: comu@hs01.kep.tr

Faks No:

İnternet Adresi: <https://www.comu.edu.tr>

Bilgi için :

Halime Karadağ
Fen Bilimleri Enstitüsü Etik
Kurulü Memur

Telefon No:

