

# An Investigation into Instructional Methods and Techniques in an EMI Context in Turkish Higher Education: A Case Study

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## Abstract

This study aims a) to investigate EMI lecturers' instructional methods and techniques in two departments with distinct EMI regimes (100% English and 30% English), investigate influencing factors underlying their choices and their revision and review policies, and b) to compare lecturers' choices and students' opinions regarding the instructional method and techniques between the two program types. In the case study approach, an explanatory sequential mixed-methods design was utilized where the data were gathered from six EMI lecturers and 81 EMI students from the Molecular Biology and Genetics (MBG) (100% EMI) and Biology (30% EMI) departments at a state university in Türkiye through questionnaires. Then, semi-structured interviews were conducted with six EMI lecturers. The questionnaire results show that the EMI lecturers frequently choose to implement individual and interaction-centered methods and techniques. Contrarily, in the semi-structured interviews, the majority of them mentioned teacher-centered methods and techniques. The analysis of questionnaire and interview data reveals that these choices are influenced by several factors with EMI being one of them. The EMI lecturers generally do not have a systematic practice of exchanging ideas with their colleagues and students to review and revise their methods and techniques. Regarding the students' questionnaire findings, the majority reported that the EMI lecturers use teacher-centered methods together with either individual-centered or interaction-centered methods and techniques. In terms of instructional methods and techniques, the lecturers' choices remain consistent across different departments. Similarly, students' opinions indicate similarities in chosen methods and techniques in both departments. Finally, the findings have a number of implications for the use of instructional methods and techniques in the EMI context.

**Keywords:** English as a medium of instruction, EMI, instructional methods and techniques, higher education.

**Türk Yükseköğretiminde Eğitim Dili İngilizce Bağlamında Öğretim Yöntemleri ve Tekniklerinin İncelenmesi: Bir Vaka Çalışması**

## Özet

Bu çalışma, a) tamamen İngilizce (%100 EMI) ve kısmen İngilizce (%30 EMI) eğitim veren iki farklı bölümde Eğitim Dili İngilizce (EDİ) öğretim üyeleri tarafından kullanılan öğretim yöntem ve tekniklerini incelemeyi, bu tercihlerin altında yatan faktörleri ve öğretim üyelerinin nasıl gözden geçirip revize ettiklerini b) farklı program türleri arasındaki öğretim üyelerinin öğretim yöntemi ve teknikleri tercihlerini ve öğrenci görüşlerini karşılaştırmayı amaçlamaktadır. Bu amaç doğrultusunda, vaka çalışması yaklaşımı çerçevesinde açıklayıcı sıralı karma yöntem deseni kullanılmıştır. Veriler, bir devlet üniversitesinin Moleküler Biyoloji ve Genetik (MBG) (%100 EMI) ile Biyoloji (%30 EMI) bölümlerinde görev yapan altı EDİ öğretim üyelerinden ve 81 EDİ öğrencisinden anket yoluyla toplanmıştır. Daha sonra, altı EDİ eğitmeniyle yarı yapılandırılmış görüşmeler yapılmıştır. Anket sonuçları, EMI öğretim üyelerinin bireysel ve etkileşim odaklı yöntem ve teknikleri sıklıkla tercih ettiklerini göstermektedir. Buna karşın, yarı yapılandırılmış görüşmelerde çoğunluğu

öğretmen merkezli yöntem ve teknikleri kullandıklarını belirtmiştir. Anket ve görüşme verilerinin analizi, bu tercihlerin altında EDİ'nin de dahil olduğu bir dizi faktörün etkili olduğunu ortaya koymaktadır. EMI eğitmenlerinin, yöntem ve tekniklerini gözden geçirmek ve revize etmek için meslektaşları ve öğrencileriyle sistematik bir şekilde fikir alışverişinde bulunmadıkları görülmüştür. Öğrencilerin anket bulgularına göre, EMI öğretim üyeleri öğretmen merkezli yöntemleri bireysel veya etkileşim odaklı yöntem ve tekniklerle birlikte kullanmaktadır. Öğretim yöntem ve teknikleri bağlamında, öğretim üyelerinin tercihleri farklı bölümler arasında tutarlılık göstermektedir. Benzer şekilde, öğrencilerin görüşleri de her iki bölümde kullanılan yöntem ve tekniklerde benzerlikler olduğunu ifade etmektedir. Sonuç olarak, bulgulara bakarak EMI bağlamında öğretim yöntem ve tekniklerinin kullanımı için çeşitli çıkarımlar yapılabilir.

**Anahtar Sözcükler:** Eğitim dili İngilizce, EMI, EDİ, öğretim yöntem ve teknikleri, yükseköğretim

## 2. Introduction

English is widely recognized as an international language, a lingua franca, a global language, and a world language today (Caine, 2008). This prominent status of English has led to the rapid growth of English Medium Instruction (EMI) as a crucial strategy in higher education institutions worldwide (Wächter & Maiworm, 2014) since they increasingly prioritize enhancing graduates' employability by fostering their cross-cultural communication skills, internationalizing their programs, building prestige, attracting more international students, and bolstering their global reputation (Başıbek et al., 2014; Byun et al., 2011; Coleman, 2006; Cosgun & Hasırcı, 2017; Galloway et al., 2017). Likewise, many universities in Türkiye have placed a strong emphasis on delivering academic subjects in English (Kerestecioglu & Bayyurt, 2018; Kırkgöz, 2009).

When examining EMI policies in Turkish Higher Education, it becomes evident that there are three regulations pertaining to EMI education i.e. the Higher Education Act in 1984, 1996, and 2016. According to the latest standards announced by the Higher Education Council in Türkiye in 2016, higher education institutions that have adopted EMI policies are required to provide Preparatory Year Programs (PYP) for students with low English proficiency. These programs are designed to prepare students for their subject-specific courses at their respective faculties. However, it is important to note that these courses primarily focus on developing language skills and not on teaching subject-specific content (Macaro et al., 2016).

In terms of EMI lecturers' qualifications, the regulations mandate expertise in the field and sufficient linguistic knowledge. However, they do not provide specific guidance on how to convey content through EMI or the necessary pedagogical skills. Given that the language of instruction is not the first language for both lecturers and students, potentially leading to comprehension difficulties, lecturing in an EMI program necessitates a shift in pedagogy and methodology (Beltrán-Palanques, 2021).

To support students' understanding and cognitive processing, maintain their attention, foster meaningful communication in the second language (L2), and convey meaning effectively, lecturers should pay careful attention to the relationship between content and the target language (Beaumont, 2020; Yuan, 2019). EMI education requires EMI lecturers to develop pedagogical skills related to what to teach, how to teach, and how to present information that is tailored to students' language skills and their ability to comprehend the information (Dearden & Macaro, 2016). Therefore, the instructional methods and techniques employed by EMI lecturers in the EMI classroom gain significance in terms of delivering knowledge at a comprehensible level through the medium of English.

In Türkiye, there are 203 universities (Eke, 2021) including 129 state universities and 74 private universities. Currently, 49 state universities offer 420 EMI programs to their students so that they can respond to the needs of citizens, appeal to international students, become a prestigious university, and prepare their students for the global market (Eke, 2021; Macaro et al., 2016). As a result of the rising interest in EMI programs and faculties in Türkiye, several studies have been conducted on various aspects of EMI education including views and perceptions of EMI students and lecturers in terms of EMI education and its effectiveness (e.g. Başıbek et al., 2014; Kılıçkaya, 2006; Kırkgöz, 2009b; 2014), how EMI affects students' language abilities (e.g. Cosgun & Hasırcı, 2017), how proficiency levels affect the effectiveness of EMI (e.g. Collins, 2010; Ekoç, 2020), the challenges faced during the implementation process of EMI (Gökmenoğlu & Gelmez Burakgazi, 2013; Sert, 2008), students' motivation and perception of studying in an EMI university (e.g. Kırkgöz, 2005), EMI students' preferences of listening comprehension strategies and language learning strategies (e.g. Özkara, 2019; Soruç et al., 2018), and the collaborative practices between PYP

teachers and EMI lecturers to address linguistic and academic challenges, as well as the evolving perspectives of students across different stages of EMI education (e.g. Macaro et al., 2016). To our knowledge, no study has yet examined EMI lecturers' preferences for instructional methods and techniques. Thus, this study aims to fill this gap in the field by addressing 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 opinions of EMI students with regard to MBG and Biology EMI lecturers' choices of methods and techniques?  
 R.Q.3. Do EMI lecturers' choices of instructional methods and techniques and students' opinions regarding EMI lecturers' choices differ depending on whether the programs run fully in English (100% English) and partially in English (30% English)?

## 2. Literature Review

Numerous scholars have offered various definitions of EMI in the literature, including Dearden (2014), Hellekjaer (2010), and Macaro (2018). To put it simply, EMI can be defined as the delivery of academic subjects in English by lecturers whose native language differs from English (Dearden, 2014; Hellekjaer, 2010; Macaro, 2018). The adoption of EMI by countries has been driven by several reasons, such as the need to exchange information, compete on the global stage, attract students and academic staff, equip graduates with English language proficiency, content knowledge, and intercultural competence, and foster unity (Galloway et al., 2017). However, implementing an EMI approach comes with its share of challenges, one of which is the language barrier (Pérez-Guillot, 2020). This barrier can lead to issues for students, including difficulties in comprehending concepts and lectures, potentially resulting in prolonged course completion, withdrawal rates, reduced participation, and problems in expressing disciplinary content (Başibek et al., 2014; Cankaya, 2017; Ekoç, 2020; Galloway et al., 2017; Kılıçkaya, 2006). Additionally, lecturers may face limitations in conveying content through EMI due to insufficient language proficiency or training. However, the effectiveness of EMI also significantly depends on the instructional practices, methods, and techniques, as well as how lecturers use these practices, which can play a significant role in facilitating and enhancing the learning process for students. For example, Vu and Burns (2014) identified instructional methods as one of the key challenges in the Vietnamese EMI context, and similar findings were reported by Başibek et al. (2014) in Türkiye. Therefore, studying the instructional methods and techniques used by EMI lecturers and understanding how students perceive these practices can offer valuable insights into improving teaching and learning in EMI settings.

### 2.1. Instructional Methods and Techniques

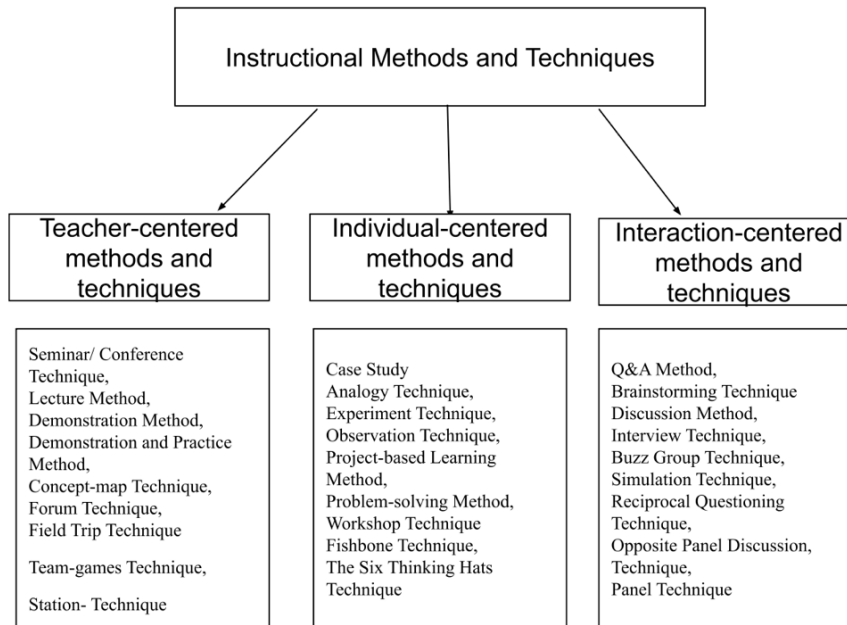
The informed decisions made by lecturers regarding the selection of instructional models, strategies, methods, and techniques have a profound impact on the quality of the teaching and learning process. However, in the context of EMI, lecturers are typically not required to undergo specific training in instructional processes. As Dearden and Macaro (2016) also emphasize, in addition to proficiency and expertise in the academic field, EMI lecturers should develop pedagogical skills, including what to teach, how to plan lectures, and how to present information in English and the language of science. This ensures that the information presented is suitable for students' language skills and their ability to comprehend it.

Given the fact that there is a scarcity of comprehensive guidelines about EMI-specific pedagogies targeting content lecturers, some potential issues such as a deficiency in methodological and pedagogical knowledge may occur. This, in turn, can affect the support provided to students, particularly those with lower proficiency levels, as well as the ability to maintain students' attention and aid their cognitive processing.

In this context, the choice of instructional methods and techniques employed by EMI lecturers becomes crucial for delivering information in a comprehensible manner through English. Macaro et al. (2016) emphasize the importance of selecting appropriate methods and techniques based on the teaching environment, to help students grasp concepts conveyed in English and achieve instructional and educational goals in the EMI classroom. In this regard, lecturers' choices may be influenced by several factors, including time constraints, cost considerations, class size, lecturers' familiarity with specific methods and techniques, instructional goals, physical facilities, and arrangement, and the

availability of materials, tools, and equipment. These factors lead to the adoption of a variety of methods and techniques by lecturers.

As seen in Figure 1, instructional methods can be classified as teacher-centered, individual-centered, and interaction-centered (Fer, 2011). Some methods are categorized as techniques due to the close relationship between the two terms in the literature. Teacher-centered methods include lectures and demonstrations, individual-centered methods encompass problem-solving, project-based learning, and experimental techniques (examined as instructional techniques in this study), and interaction-centered methods involve question and answer, discussion, role-playing, case studies, active learning, brainstorming (also considered an instructional technique in this study) and learning through games.



**Figure 1.** *Classification of Instructional Methods and Techniques*

In the literature, instructional techniques can be classified based on various criteria such as the learning environment, class size, learning skills, and instructional methods. In this study, Gündüz's (2016) classification, which is based on instructional methods, is employed to illustrate the relationship between instructional methods and techniques. This classification includes five categories: techniques used with the lecture method (e.g., conferences/seminars, forums, and concept maps), techniques used with the problem-solving method (e.g., brainstorming, analogies, and problem-solving workshops), techniques used with the demonstration and practice method (e.g., demonstrations, experiments, and educational team games), techniques used with the discussion method (e.g., group discussions, panels, and class discussions), and techniques used with the dramatization method (e.g., simulations and role-playing).

**2.2. Teaching Competencies of EMI Lecturers**

The decision to implement EMI may be made directly by the government, a faculty, or a department at a university at a macro-level, without taking into account EMI lecturers' preferences, methodological and pedagogical knowledge, or proficiency levels (TAEC, 2019). However, it is essential to recognize that adopting EMI goes beyond simply conveying academic content in English; it necessitates a deep understanding of pedagogical and methodological principles (Beltrán-Palanques, 2021). At the micro-level, EMI lecturers play a pivotal role in the successful implementation of EMI, making them key stakeholders (Beltrán-Palanques, 2021). High language proficiency levels alone do not guarantee that EMI lecturers are well-equipped to effectively teach through EMI. Even though students with lower proficiency levels are typically required to attend PYP before enrolling in EMI courses at their respective faculties, the focus of PYP courses is generally on developing general language skills, rather than specific subject terminology or academic studies (Dearden et al., 2016). This suggests that PYP programs may not adequately prepare

students for EMI courses (Kırkgöz, 2009a), potentially resulting in comprehension difficulties. Therefore, the use of interactive methodologies by EMI lecturers, instead of teacher-centered methods and techniques, becomes increasingly important in EMI programs (Beaumont, 2020).

### 2.3. Previous Studies in EMI

As a consequence of the growing trend of internationalization in higher education institutions and the dominance of English as an academic lingua franca, the number of EMI programs surged by 239% between 2007 and 2014 (Galloway et al., 2017; Wächter & Maiworm, 2014). This rapid growth has been likened to an “unstoppable train” (Macaro, 2015, p.7), highlighting the urgency of research on EMI practices and policies.

There have been numerous studies on EMI, both in Türkiye and abroad. Some of them investigated EMI in terms of its effectiveness (Başibek et al., 2014; Byun et al., 2011; Collins, 2010; Ekoç, 2020; Kırkgöz, 2009b), its impact on students' language abilities (Cosgun & Hasırcı, 2017; Kırkgöz, 2005), the challenges that graduate students face (Tajik et al., 2022), EMI lecturers' and students' perceptions and attitudes (Aguilar, 2015; Dearden & Macaro, 2016; Kılıçkaya, 2016), the implementation of EMI programs (Dearden, 2014; Galloway et al., 2017; Macaro et al., 2016; Macaro et al., 2019; Rahmanova & Yangın Ekşi, 2023), students' use of learning strategies to overcome language barriers (Özkara, 2019; Soruç et al., 2018), and language use, oral English language proficiency, and a sense of efficacy (Balderson, 2018). As previously mentioned, there are no studies directly investigating EMI lecturers' preferences for instructional methods and techniques. However, several studies' findings imply that it is crucial to focus on these aspects because the challenges faced by both students and lecturers in EMI programs are closely related to their choice of instructional methods and techniques. Undoubtedly, addressing these preferences is essential for improving the effectiveness of EMI programs and enhancing both teaching and learning experiences.

Several studies conducted on the topic of EMI focused on the effect of language proficiency levels on students' learning and EMI lecturers' teaching process. Başibek et al. (2014) reported in their study that EMI is an effective way for students to access resources in English. However, they also revealed that students' proficiency levels influence the efficiency of the EMI program. Similarly, the results of Byun et al.'s study (2011) conducted in Korea showed that since EMI was adopted compulsorily at the university where the study was conducted, students' and lecturers' language proficiency was taken for granted. In both studies, lecturers reported that they had concerns about students' acquisition of academic subject matter. Since students might have comprehension difficulty due to their language proficiency, the active use of instructional methods and techniques to keep students' attention, to help them process information cognitively gains importance in the EMI context. Collins (2010), Ekoç (2020), and Kırkgöz (2009b) also conducted studies on the effectiveness of EMI programs, the results of which are in line with the results of the studies by Başibek et al. (2014) and Byun et al. (2011). In all the studies, it is reported that the Preparatory Year Program (PYP) is not enough for students to understand, speak, and write in English. Moreover, the findings revealed that lecturers' language proficiency affects the effectiveness of the learning and teaching process in the EMI program. It can be said that since EMI lecturers are one of the stakeholders in implementing an EMI program, their proficiency and how they use their English to teach an academic subject are key points in an EMI context. As for the impact of EMI on the language abilities of students (Cosgun & Hasırcı, 2017), the findings indicated that students' receptive skills improved but productive skills did not change significantly. Tajik et al. (2022) conducted a study in Kazakhstan with 10 public and private universities. The findings indicated that students face problems in EMI universities due to their inadequate English comprehension. Therefore, pedagogical support for the students and instructional methods and techniques EMI lecturers employ might help them to understand academic subjects better and effectively use productive skills.

The results of the following studies showed that there is a need for training on EMI for EMI lecturers to overcome the obstacles that they and their students face during the process. Dearden and Macaro (2016) conducted a study with EMI lecturers from three countries, which are Italy, Poland, and Austria. The universities, where these lecturers worked at the time, did not support them in EMI pedagogy. They commented that the EMI program necessitates not only English and content knowledge but also pedagogical skills. In Kılıçkaya's study (2006), the findings showed that the lecturers favored Turkish instruction due to the language barrier between the students and lecturers. The reason behind favoring Turkish might be the result of their lack of knowledge about how to convey the content through English medium and how it might affect the quality of instruction. In another study, Balderson (2018) revealed that depending on lecturers' language proficiency levels, their self-efficacy either increases or decreases. The results

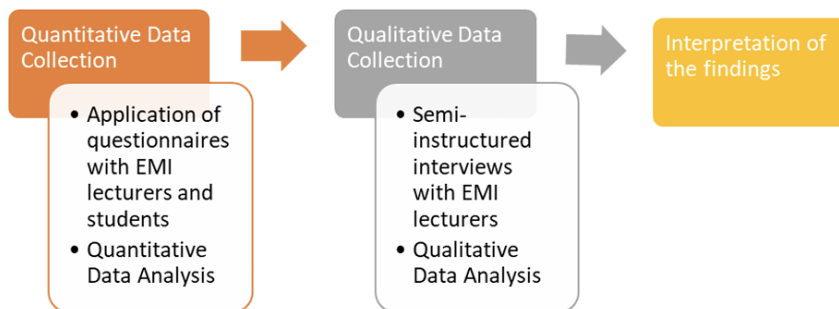
showed that those, who did not have a high sense of efficacy, had no training in how to teach a subject through English. They had concerns such as giving lectures and summarizing information.

In the following studies, the researchers focused on training opportunities for EMI lecturers and the guidelines that are offered to them. The research of Dearden (2014) indicated that there are few pedagogical or organizational guidelines about the teaching and learning processes for EMI lecturers teaching different disciplines through EMI in 55 countries where the British Council staff conducted the study. These countries offer few, or no EMI training programs for teacher education programs or developmental courses. In another study, Galloway et al. (2017) reported that lecturers were willing to collaborate with English language teachers since students experienced language-related challenges such as understanding the content. In Macaro et al.'s study (2016), EMI lecturers collaboratively worked with language teachers. They realized that students experienced language problems and to support their students, they needed to have a better understanding of the language barrier in the teaching and learning process. Macaro et al. (2019) showed that managers were aware of the fact that teaching through English was different from teaching through the official language, but they did not offer the necessary training due to budget constraints. In another study conducted by Rahmanova and Yangın Ekşi (2023), it was revealed that there are challenges in applying EMI programs such as attracting native instructors to give training on EMI to EMI lecturers and signing agreements with other universities to develop EMI lecturers' ability to teach in English. These findings shed light on the fact that EMI is a new mode of teaching and EMI lecturers, who have professional knowledge and enough proficiency level in English, still need to have training on how to convey their professional knowledge through the English medium, which is not their first language.

The studies on students' learning process through EMI highlighted students' efforts to cope with the challenges of understanding lectures, effective communication with instructors, and performing well in exams. The results of Özkara's study (2019) based on EMI students' use of language learning strategies showed that they preferred to use metacognitive strategies at most. They had concerns such as understanding lessons conveyed through English by the lecturers, communicating with lecturers, and exam questions. Soruç et al. (2018) reported that students used several listening comprehension skills including taking notes and coming to class prepared. Considering all the results and implications of all these studies, it is evident that EMI students face several challenges during the education process, and the way EMI lecturers convey academic subjects may help them overcome them. Therefore, examining the way they plan their lessons and what instructional methods and techniques they prefer to use gain importance as this information can inform the content of pedagogical training to be offered to EMI lecturers.

### 3. Methodology

To be able to address the research questions, a mixed methods case study research was conducted. The current study is a descriptive case study, which "presents a complete description of a phenomenon within its context." (Yin, 1993, p. 5). It allows the researchers to examine holistically what instructional methods and techniques are employed by EMI lecturers and why and how they use them.



**Figure 2.** Explanatory Sequential Mixed Methods

Moreover, multiple data sources were used to increase the validity and reliability of the findings. As illustrated in Figure 2, an explanatory sequential mixed methods design was applied to gather the data, explain, and expand upon

the results. Firstly, data collection started with quantitative data collection and analysis followed by qualitative data collection and analysis to explain the results in detail (Creswell, 2014).

### 3.1. Research Setting

The participants of this study were from the departments of MBG and Biology in the Faculty of Arts and Sciences at a state university in the northwest of Türkiye. These departments were purposefully selected due to their relevance to the aims of this study and the researchers' affiliation with the university, which ensured access and collaboration. Both departments adopted the EMI policy in the academic year of 2013-2014. The Self Evaluation Report of the departments (2020) indicates that the primary goal of implementing an EMI policy is to enhance students' ability to access information, stay updated with scientific and technological advancements, and develop self-improvement skills. Additionally, the report highlights that one of the key objectives of these programs is to educate students who value learning foreign languages alongside their main subjects. To achieve this, the programs include both mandatory and elective courses taught in English. The study was conducted in the 2020-2021 spring and 2021-2022 fall academic years. The MBG department offers a 100% EMI program whereas the Biology department offers a 30% EMI program where 30% of the courses are taught in English.

The total number of participants was 88. They were chosen via convenience sampling, which means that every lecturer who teaches EMI courses at either MBG or Biology departments and students who study at them were tried to be reached. As shown in Table 1, two EMI lecturers from the Biology department and five EMI lecturers from the MBG department accepted to participate in the current study voluntarily. Two of the participants chose to participate in either the questionnaire (PG only filled out the questionnaire) or the interview phase (PG only attended the interview). The rest participated in two phases. The participants were coded to preserve their anonymity. The average length of teaching experience in the EMI context was 10 years. Only two of the EMI lecturers participated in EMI training. Out of seven EMI lecturers, three participants had training related to instructional methods and techniques.

**Table 1.**  
*Demographic Information about EMI Lecturers*

Participants	Departments	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	MBG	Male	27 years	11 years	BA, MA, Ph.D	Local and International Students	Ph.D	-	-	-
Participant B	Biology	Female	35 years	10 years	BA, MA, Ph.D	Local and International Students	-	Graduated from Education Faculty	Participated	Participated
Participant C	Biology	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	MBG	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	MBG	Male	6 years	6 years	BA and MA	Local Students	BA and Ph.D	-	-	-
Participant F	MBG	Male	2 years	2 years	-	-	-	-	-	-
Participant G	MBG	Female	9 years	8 years	BA and MA	Local and International Students	-	-	-	-

Regarding the student participants, there were a total number of 81 individuals including 50 students (61.7%) from the MBG department and 31 students (38.3%) from the Biology department. An equal number of students from each grade filled out the questionnaire. The students who were freshmen at the time were not included since they could not experience face-to-face learning because of Covid-19 restrictions. Sixty-nine students attended the PYP education before enrolling in the departmental courses. The academic year spans ten months and includes two terms. At its start, students take a proficiency exam given by the School of Foreign Languages. Those scoring 70 or above out of 100

can begin their departmental education, while those scoring below must join the General English Preparatory Program to improve their English. Students are expected to have B1 or B1+ English proficiency (CEFR) before starting departmental courses, with those completing the PYP needing at least 80 out of 100. The PYP focuses on general language skills rather than subject-specific terminology or academic studies (Macaro et al., 2016).

**Table 2.**  
*Demographic Information about EMI Students*

Variables		<i>f</i>	%
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
Gender	Female	65	80.2
	Male	13	16
	Not stated	3	3.7
PYP participation	Yes	69	85.2
	No	12	14.8

### 3.2. Data Collection Tools and Procedure

Before starting data collection, ethical approval was obtained from the Ethics Committee of Çanakkale Onsekiz Mart University, School of Graduate Studies (2021- YÖNP-0242) in April 2021. Two questionnaires were utilized to collect the data in the quantitative phase via an online survey tool Google Forms. For lecturers, the EMI Lecturers' Questionnaire on Instructional Methods and Techniques was conducted whereas for students, the EMI Students' Questionnaire on the Use of Instructional Methods and Techniques was utilized. The purpose of using EMI Lecturers' Questionnaire is to gather information from the lecturers' perspective on the instructional methods and techniques they use in EMI. The students' questionnaire is designed to capture the students' experiences, perceptions, and responses to the instructional methods and techniques used by the EMI lecturers. This provides insight into how students perceive the effectiveness and appropriateness of the instructional methods. Each questionnaire is tailored to the specific group it targets. They were developed by the researchers in alignment with the research questions and four phases suggested by Büyüköztürk (2005) were followed while developing the questionnaires. These phases are "problem description, writing questionnaire items, receiving content experts' opinions, conducting a pilot study" (Büyüköztürk, 2005, "Anket Geliştirme Süreci" Section).

The lecturers' questionnaire consists of three parts. The first part consists of nine factual inquiries aimed at gathering demographic data and background details about the participants. The subsequent part comprises two sections: firstly, participants rate their frequency of utilizing 27 specified methods and techniques on a five-point scale from 'never' to 'always'. Of the listed methods and techniques, eight are methods whereas 19 are techniques. This is followed by four open-ended queries seeking elaboration on their choices of instructional methods. Similar to the lecturers' questionnaire, in the students' questionnaire, there are three parts. The initial part is designed to collect demographic and background information about EMI students. Mirroring the structure of the lecturer questionnaire, the second part is divided into two sections as well. In the first section, participants indicate which instructional methods and techniques are employed by EMI lecturers in their courses. They are then prompted to rank these methods on a three-point scale from 'effective' to 'not effective', offering insights into the impact of lecturers' choices on student learning. Additionally, three open-ended questions aim to elicit further opinions on EMI lecturers' instructional practices.

The development of the questionnaires in this study followed several phases. Initially, a review of relevant literature using specific keywords was conducted to identify variables related to instructional methods, and techniques, thus shaping the scope of the questionnaires. Subsequently, the researchers determined the types of items, including close-ended questions and open-ended inquiries, based on the identified purposes and research questions. In the third phase, the initial versions of the questionnaires were validated by sending them to content experts, who provided feedback on aspects such as the relevance of the questions to the research purpose, clarity, wording, and item sequence.



Adjustments were made accordingly, including additions of explanations and edits to enhance comprehensibility. A pilot study was then conducted during the fall term of the 2019-2020 academic year, wherein the EMI Students' Questionnaire was distributed to 11 students from various academic backgrounds via Google Forms. Analysis of the collected data revealed difficulties in understanding and interpreting open-ended questions, prompting the researcher to conduct respondent debriefings to gather feedback and make necessary modifications, such as simplifying vocabulary and providing examples. Besides, for each instructional method and technique in the list, the definition and an example use of the methods and techniques were added to ensure that the students can understand them clearly and consciously identify the methods and techniques. Similarly, the EMI Lecturers' Questionnaire underwent pilot testing with two lecturers, resulting in minor adjustments, such as adding an option to the Likert scale. These refinements aimed to improve the clarity and usability of the data collection tools for both students and lecturers.

Following the administration of the questionnaires, the interviews were scheduled with the EMI lecturers during the fall and spring terms of 2021-2022 academic year. The timing for these interviews was established in advance using common online platforms like Google Calendar or Gmail. To ensure participant comfort and facilitate better expression, all interviews were conducted in Turkish. Depending on the preferences of the participants, interviews were conducted either in person or through online communication applications such as Zoom. Prior to the interviews, the participants provided consent, and the sessions were audio-recorded to facilitate detailed analysis of their responses. The interview questions were developed by the researchers by following the steps mentioned in the interview protocol refinement (IPR) by Castillo-Montoya (2016). These steps are “ensuring interview questions align with research questions, constructing an inquiry-based conversation, receiving feedback on interview protocols, piloting the interview protocol” (Castillo-Montoya, 2016, p.812). The interviews were conducted in Turkish so that the participants could feel comfortable and express themselves better.

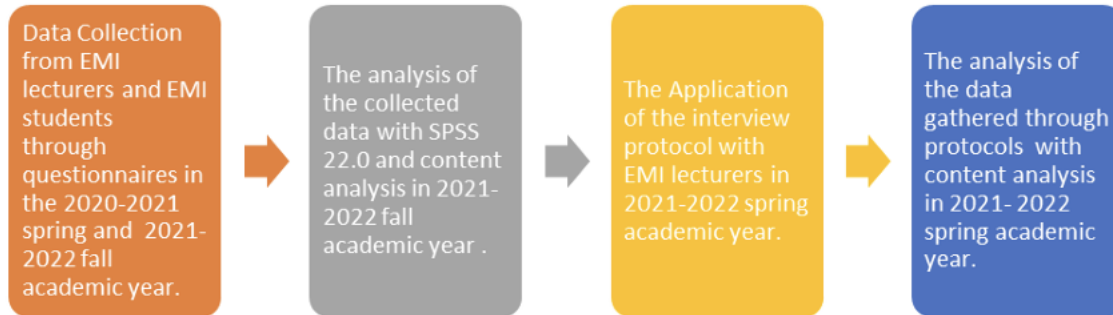
The researchers crafted the interview questions based on the relevant literature, ensuring alignment with the research goals, and validated them through a matrix comparison in Phase 1. In Phase 2, attention was given to word choice and question structure to enhance participant understanding and engagement, avoiding technical language while maintaining a structured approach with introductory, transition, key, and closing questions, along with follow-ups. Phase 3 involved soliciting feedback from two content experts via Google Mail to improve question reliability, with responses indicating alignment with research objectives and ease of comprehension. A pilot study was then conducted in the fall term of 2020-2021 academic year with an EMI lecturer from the Molecular Biology and Genetics department at Çanakkale Onsekiz Mart University using Zoom. Lasting one hour and ten minutes, the pilot study confirmed the effectiveness of the interview protocol, with no significant issues identified and assurance of question clarity and participant responsiveness.

### **3.3. Data Analysis Procedure**

The closed-ended items in the questionnaire were analyzed through the Statistical Package for the Social Sciences (SPSS) 22.0 program by utilizing descriptive and frequency statistics. The open-ended items were translated into English and analyzed through content analysis to categorize the responses and identify the patterns.

As for the interview data, the recordings were transcribed verbatim and translated into English for further examination, and the data was analyzed through content analysis. To be able to analyze the open-ended questions, six steps stated by Creswell (2014) were followed in the study. Firstly, the gathered data were transcribed and organized. The data were read and coded. Following that, the coded data were divided into themes, and descriptions were generated. They were combined. Finally, meanings were interpreted out of themes. To be able to ensure the validity and reliability of the data analysis, inter-coder reliability was assessed, and an expert researcher also coded the data. These two data analysis sets were compared through the Cohen's Kappa statistics. The inter-coder reliability for the coders was found ( $\kappa$ )= 0.81, indicating that the coders were in almost perfect agreement.

For the first research question, the qualitative data were analyzed deductively by following Fer's categorization of instructional methods and techniques. Yet, while finding out the factors influencing their choices of instructional methods and techniques, the data were analyzed inductively. Figure 3 provides the comprehensive process of data collection and data analysis utilized in this study.



**Figure 3.** *Data Collection and Data Analysis Procedure*

#### 4. Findings

In the following section, the instructional methods and techniques used by six EMI lecturers and 81 EMI students' opinions regarding lecturers' choices are presented 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?*

The first research question aimed to find out the EMI lecturers' preferences of instructional methods and techniques in the departments of MBG (100% English) and Biology (30% English). The items regarding methods and techniques were designed using a 5-point Likert Scale (e.g. never, rarely, sometimes, often, and always). However, due to the low number of EMI lecturers, the results were presented on a 3-point Likert Scale (never-rarely, sometimes, and often-always) to reach meaningful results.

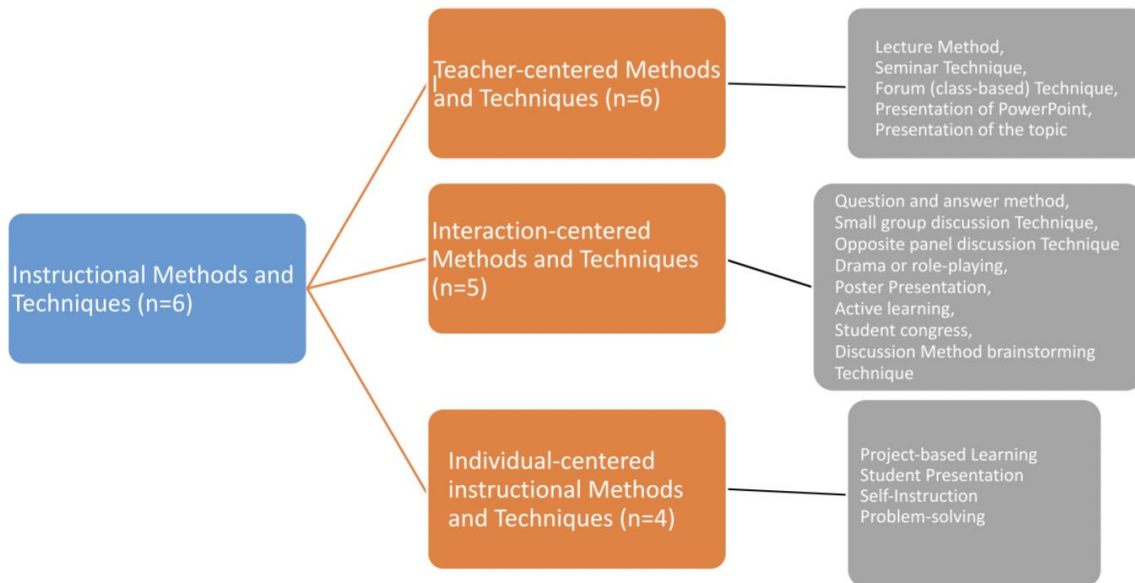
In the questionnaire, there is a list of instructional methods and techniques. There are eight methods, which are case study method, question and answer method, demonstration method, lecture method, problem-solving method, discussion method, project-based learning method, demonstration and practice method. The other on the list are instructional techniques.

As seen in Table 3, the findings show that there are two methods (e.g. case study and question and answer methods) and one technique (e.g. brainstorming technique) that are used frequently by the EMI lecturers in the EMI classroom. According to Fer's categorization of instructional methods and techniques (2011), the question-and-answer and brainstorming techniques are interaction-centered whereas the case study method is individual-centered. The result might imply that the EMI lecturers aim to make EMI learners active by investigating a problem in depth, asking questions, and sharing their opinions about the problem. By doing so, they might increase students' engagement in the learning process. The never or rarely used ones are the techniques such as the fishbone technique, the six thinking hats technique, the team games technique, and the station technique. The first two of them are individual-centered whereas the latter ones are teacher-centered techniques. Finally, 20 methods and techniques are sometimes used by the EMI lecturers and their categories differ from individual-centered to interaction-centered.

**Table 3.**  
*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 analysis of the interview data gathered revealed one main theme, namely instructional methods, and techniques, under which there are three categories: *teacher-centered instructional methods and techniques, individual-centered instructional methods and techniques, and interaction-centered instructional methods and techniques.*

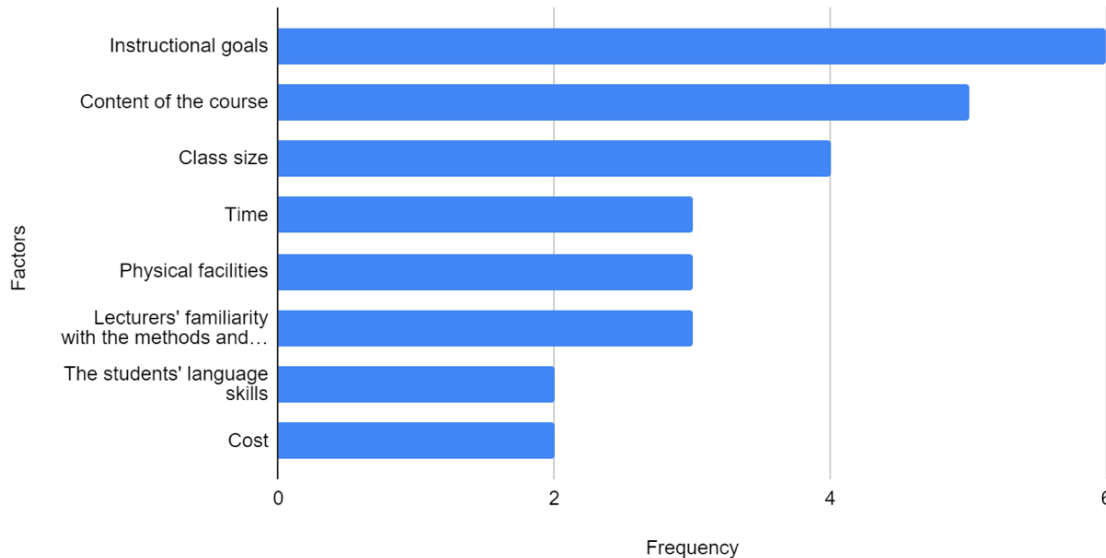


**Figure 4.** *EMI Lecturers' Choices of Instructional Methods and Techniques (n = 6)*

As seen in Figure 4, the EMI lecturers prefer to use different kinds of instructional methods and techniques. Consequently, the results of the first research question reveal that all participants (n=6) prefer to use one of the teacher-centered methods and techniques. Even if the frequency of teacher-centered methods in the quantitative data is low, the qualitative data analysis indicates that lecture and PowerPoint presentations are among the most preferred ones. Nearly all of the EMI lecturers choose to implement one of the interaction-centered methods and techniques. In contrast to the findings of the quantitative data, the case study method, which is reported to be used frequently in the classroom, is not mentioned in the interviews. The question-and-answer method is one of the most frequently used ones according to both quantitative and qualitative data. Individual-centered methods and techniques are the least mentioned ones in the interview although their frequency is not that low in the quantitative data analysis.

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

In the scope of the second research question, the EMI lecturers were asked to choose what factors affect their preferences for instructional methods and techniques from a given list of factors in the questionnaire and to add if there is any factor that affects their choices which are not given in the list. Figure 5 illustrates the frequency of the factors affecting the EMI lecturers' choices.



**Figure 5.** *Frequency of Factors Affecting the Choices of Instructional Methods and Techniques (n=6)*

As shown in Figure 5, the major reasons affecting the selection of instructional methods and techniques are instructional goals (n=6, 100%), followed by the course content (n=5, 83.3%). Class size is the next factor (n=4, 66.7%). Additionally, time, physical facilities, and the lecturers' familiarity are important factors (n=3, 50%). Lastly, students' language skills and cost also influence their preferences (n=2, 33.3%).

Additionally, the EMI lecturers were asked whether teaching in the EMI context affects their choices of instructional methods and techniques. Only Participant G reported that EMI is another factor that affects her selection. Yet, she does not think that students' language abilities are one of the factors. As illustrated in Figure 5, 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. However, the same participants reported that EMI is not one of the factors affecting their selection. Therefore, it can be said that these two factors are viewed as independent factors.

Related to the same question, the content analysis of the semi-structured interviews indicated that there are several factors affecting the EMI lecturers' preferences for instructional methods and techniques in the EMI context, which are categorized under two categories, namely *positive factors* and *negative factors*. Table 4 provides information about the positive factors mentioned in the interviews. As seen in Table 4, the analysis reveals several positive factors influencing the EMI lecturers' choices of instructional methods and techniques. Three themes emerged as a result of the analysis: the desire to enhance students' engagement, students' qualities, and teachers' informed decisions.

**Table 4.**
*Positive Factors Affecting the EMI Lecturers' Choices of Instructional Methods and Techniques*

<b>Themes</b>	<b>Codes</b>	<b>Participant Codes</b>
Desire to enhance students' engagement	Creation of an 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
	Age	PB
Teachers' informed decisions	Lecturers' experience	PB, PF
	On- the-spot decision-making	PB

As seen in Table 4, a prominent theme is the desire to enhance students' engagement, highlighted by Participant A, who cited factors like creating an open classroom environment, increasing competitiveness among students, promoting equal opportunities, boosting confidence, and addressing students' low proficiency. For instance, he stated, "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". Students' qualities also play a significant role, with Participant B pointing to students' previous knowledge, level, readiness, and capability, while Participant E emphasized students' interest. Demographic features, such as age, were mentioned by Participant B as an influential factor. Additionally, teachers' informed decisions emerged as a key theme, with two of the six participants (PB and PF) noting that lecturers' experience and on-the-spot decision-making impact their instructional choices. Participant F said, "Maybe because of my own experience. I try to implement the things that I see effective during my education...". Overall, the data suggest that lecturers are guided by their aims to engage students, respond to student characteristics, and leverage their own teaching experiences and insights. Under the *negative factors* influencing the lecturers' choice of instructional methods and techniques, six themes are clustered under this category, namely EMI-centric factors, instructional resources, the features of the content, lecturer-centered factors, students' qualities, and EMI lecturers' informed decisions.

**Table 5.**
*Negative Factors Affecting the EMI Lecturers' Choices of Instructional Methods and Techniques*

<b>Themes</b>	<b>Codes</b>	<b>Participant Codes</b>
EMI- centric factors	Students' low English proficiency levels	PB, PC, PD, PE
	EMI program type	PC, PD, PE
	Time-consuming	PC
	Language Barrier	PF
Institutional resources	Physical facilities and arrangement	PA, PB
	Large class size	PA
Features of the content	Nature of the academic content	PA, PC
	The content barrier	PA, PF
Lecturer-centered factors	Lecture as faculty members' responsibility	PA
	Lecturers' motivation	PB
	Lecturers' professional experience	PB
	EMI lecturers' proficiency levels	PB
Students' qualities	Students' capability and interest	PB, PE
	Level of students	PB

		Readiness of the students	PB
		Previous knowledge	PB
		Age	PB
EMI lecturers' decisions	informed	Lecturers' experience	PB, PF
		On-the-spot decision-making	PB

As Table 5 indicates, the most prominent theme is EMI centric factors including especially students' low language proficiency levels and EMI program type. Both of these factors are directly concerning the EMI program itself. For instance, PB stated, *"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...". PD said, "I mean... Do the students understand? Don't they? What are their levels? The biggest problem in the second and third-year levels is language. Language for us... I mean the level of understanding of what they learn is the problem. I can see that the second grades do not understand. Prep-school is not enough"*.

As for the EMI program type, three EMI lecturers made comments on how adopting a 100% EMI program and a 30% EMI program might affect their preferences of instructional methods and techniques. PC stated, *"The other lesson after my lesson they take in Turkish. But I need to provide them with background knowledge for those lessons. They need to know both so that they can gather them together. I think 30% has its disadvantages"*. PD explained this factor as follows, *"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 in Turkish even if it is said it is English"*. PE reported, *"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"*.

Moreover, issues related to institutional resources were prominent, with inadequate physical facilities and arrangements (PA, PB) and large class sizes (PA) posing barriers to the successful implementation of EMI. The nature of the academic content (PA, PC) and the complexity of the material, referred to as the "content barrier" (PA, PF), were additional challenges that lecturers faced in effectively conveying subject matter in an EMI context. Lecturers acknowledged that their professional experiences (PB) and proficiency levels (PB) significantly impacted their teaching approaches. Furthermore, their motivation (PB) and the responsibility of delivering lectures as faculty members (PA) influenced their instructional choices. Surprisingly, the last two themes, namely students' qualities, and teachers' informed decisions, appeared within both positive factors and negative factors since EMI lecturers did not mention whether these factors affected the process of teaching and learning negatively or positively.

Consequently, lecturers consider different factors while they are choosing the appropriate instructional methods and techniques. These factors might be about themselves, the environment, conditions, and students. To be able to make informed decisions and make the teaching and learning process effective, they cannot ignore these factors.

**4.3. 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 that they use in the classroom. The majority of the participants (66.7%) reported that they evaluated the methods and techniques. Through the open-ended questions in the questionnaire, Participants A, C, and G said that they asked for students' opinions and evaluations. Participants A and G also added that students' feedback helps them to update the methods and techniques they use. Participants E and G reported that they employ self-reflection to see the impact of the methods and techniques on students.

To be able to gain insights into this research question, in the semi-structured interview, the EMI lecturers were also asked whether they evaluate the methods and techniques they use or not. The analysis of the data revealed four main themes: expert evaluation, students' feedback, lecturers' senses, and exam as an evaluation tool (see Table 6).

**Table 6.**  
*Review and Revision of Instructional Methods and Techniques*

Themes	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

As can be understood from Table 6, except for Participants E and G, all the EMI lecturers use some particular approaches to review and revise their instructional methods and techniques; however, they do not follow any systematic way of evaluation. They do not collect, analyze, and present the results of the evaluation. They talk casually about methods and techniques with colleagues and students or depending on their experience, they continue implementing or abandoning them. The content analysis of the interviews indicates that half of the EMI lecturers exchange ideas with colleagues. For instance, PA stated, *"I definitely exchange ideas with the colleagues in my department, and I sometimes exchange ideas with lecturers working at the Faculty of Education"*. PF explained, *"Colleagues in my department, yes. Since I am new relatively, I am talking with lecturers who gave the course before me. How can I give handouts, etc.?"*

**4.4. Findings of RQ2.** *What are the opinions of EMI students with regard to MBG and Biology EMI lecturers' choices of methods and techniques and instructional materials?*

This research question sought to reveal students' opinions regarding the instructional methods and techniques used by the EMI lecturers. Eighty-one EMI students ( $n_{biology} = 31$ ,  $n_{MBG} = 50$ ) studying at the MBG (100% English Program) and Biology (30% English Program) volunteered to participate in the present study. The students were asked to mark the listed methods and techniques employed in the EMI classroom.

The analysis revealed that the EMI lecturers employ mostly the lecture method ( $n=67$ , 83.75%), question and answer method ( $n=67$ , 83.75%), case study method ( $n=56$ , 70%), brainstorming technique ( $n=48$ , 59.3%), discussion method ( $n=43$ , 59.3%), and demonstration method ( $n=42$ , 52.5%). Except for the demonstration and lecture methods, the first four methods and techniques are interaction-centered ones. It can be said that the students are expected to be active and share their opinions during the course.

The EMI students were also asked to answer six open-ended questions related to the methods and techniques used by the EMI lecturers. These questions are related to their acquisition of knowledge, language development, participation, appropriateness of instructional methods and techniques to students' language level, whether they exchange their ideas about methods and techniques with their EMI lecturers. Table 7 illustrates the key findings regarding the questions. While most students reported positive effects on their knowledge acquisition and language skills, challenges such as low English proficiency and self-confidence continue to limit their active involvement in the classroom.

**Table 7.**  
*EMI Students' Opinions on The Methods and Techniques used by The EMI Lecturers*

Open Ended Questions	Frequency/ Percentages	Key Findings
Do you think the instructional methods and techniques used by the EMI lecturers in the EMI context affect your acquisition of knowledge and skills related to the academic subject matter?	$n_{yes} = 57$ (70%) $n_{partially-yes} = 16$ (19,8%)	The use of individual and interaction-centered methods and techniques encourages engagement, practice, and long-term memory retention. The use of methods and techniques aids

		comprehension and retention (without specific methods mentioned)
Do you think the instructional methods and techniques used in the EMI context affect your English language development?	$n_{positive} = 54$ (66.7%)	Interaction centered instructional methods and techniques develop listening and speaking skills via interaction and participation.
	$n_{partial-impact} = 14$ (17.3%)	Partial effect due to limited classroom interaction or low exposure to English
	$n_{no-effect} = 13$ (16%)	Low classroom interaction or insufficient exposure (e.g., English daily used only in one hour course)
Do you think the instructional methods and techniques used in the EMI context affect your participation in the lesson?	$n_{yes} = 52$ (64.2%)	Active participation encouraged by interaction-centered methods (e.g., brainstorming, Q&A)
	$n_{partial-impact} = 13$ (16%)	Students' insufficient English proficiency and low self-confidence hinder their active participation in lessons, even when interaction and individual-centered methods are employed.
Do you think the instructional methods and techniques used by the EMI lecturers in the EMI context are appropriate for your English language level?	$n_{yes} = 57$ (70.4%)	Appropriate to the students' level
	$n_{no} = 24$ (29.6%)	PYP insufficient preparation; lecturers' low English proficiency
Have you ever exchanged your ideas with the EMI lecturers about the instructional methods and techniques used in the EMI context?	$n_{no} = 67$ (82.7%)	Majority do not share opinions
	$n_{yes} = 14$ (17.3%)	Provide input to lesson planning; suggest interaction-centered methods

Finally, students were asked if there are any methods and techniques they want EMI lecturers to implement. Out of 81 participants, 61 EMI students (76.3%) said no. Twenty students (25%) expressed a preference for more interaction-centered and individual-centered methods, such as experiments, panels, and brainstorming, instead of memorization. One student (1.3%) mentioned that the heavy course load should be reduced to apply the desired methods and techniques.

**4.5. Findings of RQ3.** *Do EMI lecturers' choices of instructional methods, techniques 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 there is any difference between the EMI program types which are adopted by two different departments regarding instructional methods and techniques and students' opinions. The results were obtained from the questionnaire which was filled out by the five MBG EMI lecturers and two Biology EMI lecturers and students. The findings show that the MBG EMI lecturers prefer to use frequently the question-and-answer method, seminar/conference technique, experiment technique, case study method, demonstration and practice method, brainstorming technique, and lecture method. According to the reports of Biology EMI lecturers, they frequently use the analogy technique and case study followed by the brainstorming technique and the question-and-



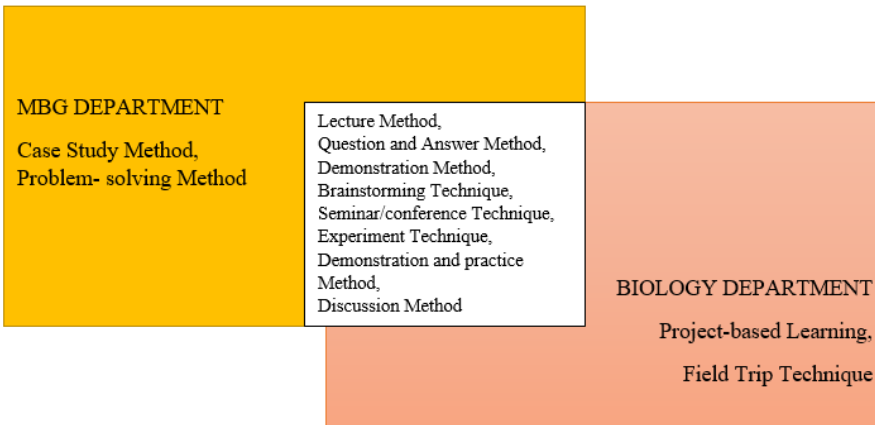
answer method. The results obtained from the interviews show that MBG EMI lecturers choose to use different kinds of methods and techniques in the EMI classroom such as teacher-centered methods and techniques, namely lecture method, seminar technique, etc., individual-centered methods and techniques, namely project-based learning method, student presentation, and problem-solving method, and interaction-centered, namely the question-and-answer method, small group discussion, etc. As for the reports of the Biology EMI lecturers, they use various types of instructional methods and techniques such as teacher-centered ones, namely lecture method, forum technique, etc., individual-centered ones, namely self-instruction and student presentation, or interaction-centered methods and techniques, namely question and answer method, opposite panel discussion, etc.



**Figure 6.** Comparison of Lecturers' Opinions about Instructional Methods and Techniques by Both Departments

As indicated in Figure 6, when the two data sets obtained from two departments are compared, seven out of the first ten methods and techniques employed in the EMI classroom by the MBG and Biology departments' EMI lecturers are the same although their ranking in the list changes. In terms of categories, it can be seen that in the MBG department, only four of the methods and techniques are teacher-centered while the rest is either individual or interaction-centered. The qualitative data analysis indicates that most of the MBG lecturers use teacher-centered methods and techniques and half of them employ interaction-centered ones. In 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 prefer 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. This research question also seeks to answer whether students' opinions change depending on the department they study. From the department of MBG (100% English), 50 EMI students participated in the current study. Considering the reports of the students, it can be said that the most frequently used ones by MBG EMI lecturers are the lecture method, the question-and-answer method, the case study method, the discussion method, and the brainstorming method, respectively. From the Biology department, there are 31 students who voluntarily participated in the present study. According to more than half of the students, the most frequently used ones are the lecture method, question and answer method, and the case study (see Figure 6).

As seen in Figure 7, 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 the departments. The participants from both departments reported that the lecture method and question and answer method are the most used instructional methods in the EMI context. The five of these first ten methods and techniques implemented by the Biology EMI lecturers are teacher-centered ones such as the lecture method, the demonstration method, the seminar technique, the field trip technique, and the demonstration and practice method. When the Biology EMI lecturers' preferences of 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.



**Figure 7.** Comparison of Students' Opinions about Instructional Methods and Techniques by Both Departments

As for the MBG department, it can be said that according to the students' opinions, the EMI lecturers apply individual and interaction-centered methods and techniques as much as they apply teacher-centered ones. This means that the MBG 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 concluded that these two data sets are compatible with each other.

Finally, the answers that the 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 the 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.

#### 4. Conclusion and Discussion

This study was guided by three research questions in order to reveal the instructional methods and techniques employed by the MBG and Biology, the factors influencing their choices (R.Q.1 and R.Q.1.1), how these methods and techniques are reviewed and revised (R.Q.1.2), students' opinions regarding these choices (R.Q.2), and whether the choices and students' opinions differ based on whether the programs are conducted fully in English (100% English) or partially in English (30% English) (R.Q.3). However, given the limited number of participants, generalizations regarding the use of methods and techniques across both departments should be approached with caution. The tentative findings are presented as follows. Analysis of the questionnaire data revealed that the EMI lecturers frequently employ the case study method, question-and-answer method, and brainstorming technique. Conversely, methods such as the team games technique, six thinking hats technique, fishbone technique, and station technique were among the least utilized. When evaluated through the lens of Fer's categorization (2011), it was observed that the most preferred approaches are interaction-centered methods and techniques, such as the question-and-answer method and brainstorming technique. These findings indicate that the EMI lecturers aim to encourage student activity and foster greater engagement in the EMI classroom.

In relation to the qualitative data obtained through semi-structured interviews, the analysis revealed that, all participants indicated that they employ at least one teacher-centered method or technique, such as the lecture method, seminar/conference technique, or PowerPoint presentations, in their classrooms. Furthermore, with the exception of

one participant, five EMI lecturers reported incorporating at least one interaction-centered method or technique (e.g., question-and-answer method) into their teaching. This choice aligns with the broader goals of promoting student engagement and facilitating deeper understanding of the content (Beaumont, 2020) because such methods are effective in checking students' understanding, decreasing their comprehension difficulties, and might support their cognitive process of acquisition of knowledge and skills (Beaumont, 2020; Beltrán-Palanques, 2021). Therefore, this finding suggests a commitment by the EMI lecturers to choose pedagogical strategies that are conducive to student learning.

However, the content analysis of the semi-structured interviews also indicates that despite this preference, the EMI lecturers employ teacher-centered methods and techniques, although less frequently. This may suggest that while they aim to use more engaging methods and techniques, practical constraints such as time, cost, class size, lecturers' familiarity with the method, instructional goals, and the feature of the content, physical facilities and arrangement may still necessitate the occasional use of teacher-centered techniques (Küçükahmet, 2000; Ocak, 2015). Overall, this finding is not in line with the previous studies' findings by Başıbek et al., 2014 and Galloway et al. 2017, who report that the language abilities of the EMI lecturers and students might cause less flexibility, which leads to avoidance of asking and answering questions and the use of teacher-centered methods and techniques where long monologues without including rapport with students occur.

The findings show that the EMI lecturers' choices of instructional methods and techniques might be affected by many factors (R.Q.1.1). These factors are clustered under two categories as positive and negative. Positive factors influencing the EMI lecturers' instructional choices are linked to fostering students' internal motivation and engagement in EMI courses. One participant highlighted the use of interaction- and individual-centered methods to encourage students to actively participate, share opinions, and engage in discussions regardless of their proficiency levels. This approach promotes an open classroom environment, offering equal opportunities for all students. Peer support, facilitated by working with friends, helps students feel more comfortable expressing themselves in English. Vygotsky's socio-cultural theory (n.d.) emphasizes that peer support and scaffolding—where a more knowledgeable peer supports others—enhance learning, increase motivation and interest, and reduce anxiety. Similarly, Goodenow (1993) and Wentzel (1994) found that emotional support from teachers and peers lowers students' speaking anxiety and encourages greater classroom participation. Therefore, individual- and interaction-centered methods, aimed at making students active participants, can help reduce anxiety and create a supportive learning environment in EMI classrooms, making these methods valuable for EMI lecturers. As for the negative factors, EMI-centric factors, instructional resources, the features of the content, lecturer-centered factors, students' qualities, demographic features, and EMI lecturers' informed decisions emerged as the primary ones affecting their choices. Of these, EMI is a predominant one. The analysis shows that the EMI lecturers often assume that EMI and language proficiency are independent factors. However, several studies have indicated that students' lack of language proficiency can result in decreased participation, reduced ability to understand concepts, lessons, and lecturers, and even withdrawal from the program (Cankaya, 2017; Galloway et al., 2017; Kılıçkaya, 2006; Macaro, 2018; Yeh, 2014). Therefore, it is clear that EMI and students' language abilities are closely interrelated. Similarly, Kerestecioğlu 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 lessons and share their thoughts comfortably. Another most mentioned negative factor under the theme of EMI is the EMI program type. In the research setting of the current study, in the MGB department, all the courses offered are instructed in English 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 students are exposed to meaningful language, the more language abilities develop. Since the EMI students 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 content better.

The results of the next research question (R.Q.1.2) indicate that the EMI lecturers do not follow a systematic way to consult their colleagues and students. According to their explanations, they prefer doing the summative evaluation, which means that their use of methods and techniques depends on how successful their choices are in the EMI classroom. If they are not successful, they avoid using them. The findings of Macaro et al. (2016) also show that none of the EMI lecturers wrote down a detailed lecture or a lesson plan and did post-instruction reflection on the teaching process, which is also the case for the present study. As a result, they may have problems detecting the exact limitations and strengths of their implementation.

The reports of the students (R.Q.2) indicate that the EMI lecturers apply the lecture method, question and answer method, case study method, brainstorming technique, discussion method, and demonstration technique. 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. 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. Similarly, Byun et al. (2011) reported in their study that there is a concern about the students' acquisition of subject matter. Also, the findings of Başibek et al.'s study (2014) reveal that it is a growing concern in the higher education institutions in Türkiye. The right choices of instructional methods and techniques increase the memorability of the content (Tan, 2021) and decrease the negative effect of EMI on the learning and teaching process. As for English language development, the interaction and individual-centered methods and techniques naturally might lead them to produce the language without paying attention to the correct output and negative feedback for the output, which helps them to improve their language. The students' reports in the present study also confirm that they need to expose to and practice the language in the classroom where these types of methods and techniques are used.

When students were asked about their participation, methods and techniques such as the discussion method, the question-and-answer method, and the brainstorming technique lead them to take an active role in the classroom. However, two participants said that their proficiency levels are not enough for them to participate even if these methods and techniques are employed, which is compatible with the findings of the studies of Başibek et al. (2014), Cankaya (2017), Ekoç, (2020), Galloway et al. (2017), Kılıçkaya (2006). As for appropriates of the instructional methods and techniques employed in the EMI classroom, most students think that they are appropriate. The students, who think that they are not appropriate, reported that the PYP program did not prepare them for the academic courses. Similarly, Collins (2010) also reported that students have difficulty studying in English. On the other hand, in the current study, students said that EMI lecturers' proficiency levels are a problem because 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.

The majority of the 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 the 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, the last question (R.Q.3) aims to reveal whether the choices of instructional methods and techniques change depending on the departments. To our knowledge, there is not any research found on this issue in the EMI context so the researcher can discuss the results with those of the previous studies. Therefore, only the results are summarized below. The findings show that in both departments, lecturers' first choices of methods and techniques are roughly the same even though their ranking on the top ten list differs. Having considered Biology EMI students' opinions regarding lecturers' choices and Biology EMI lecturers' choices of methods and techniques, it can be said that half of the first ten methods and techniques are the same. As for the MBG department, more than half of students' choices and lecturers' choices are the same.

## 5. Implications

The present study's findings have significant implications for departments where EMI is adopted. To enhance the pedagogical, methodological, and linguistic skills of EMI lecturers a nationwide as well as institution-based EMI policies must be put in place with clear standards to provide targeted professional opportunities for EMI faculty members. Such policies would not only support lecturers in improving their language proficiency but also in adopting more effective instructional methods and techniques tailored to the needs of students. Furthermore, fostering quality in EMI programs can be achieved through regular evaluations, feedback mechanisms, and collaboration between language and content experts, ensuring that teaching practices align with both academic and linguistic goals. This

approach would ultimately contribute to higher student engagement, better learning outcomes, and overall program success.

Moreover, given that EMI lecturers often use a blend of individual, interaction-centered, and teacher-centered methods, there is a need for structured training that helps lecturers balance these approaches effectively while managing constraints such as class size and physical resources. Ensuring that lecturers receive training in systematic evaluation methods will enable them to better assess and refine their instructional practices, thus fostering a more dynamic and responsive learning environment.

In the context of EMI, EFL and EMI lecturers should work collaboratively to support EMI students' language development. After enrolling the department, ESP and EAP courses should continue. EMI lecturers should be informed about how using interaction or individual-centered methods and techniques might be helpful for students to check the meaning, facilitate understanding, and construct meaningful communication in L2. Since they do not prepare a lesson plan, which might help them to match the language input with students' capabilities in a systematic way, 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. Finally, 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. Besides, departments should promote regular feedback mechanisms where both students and lecturers can provide input on instructional methods and materials. This feedback will be crucial for continuous improvement and aligning teaching practices with students' needs and expectations. Addressing these aspects will contribute to the overall quality of EMI programs, improving both teaching effectiveness and student learning outcomes. In EMI programs run partially, lecturers who teach in Turkish and those who teach in English should work together to support their students' comprehension, language skills, and content knowledge and skills.

## 6. Limitations

The limited number of participants hinders the generalizability of the findings. While the current study provides valuable insights, the small sample size prevents the results from being representative of broader EMI contexts or higher education institutions. The study primarily focuses on micro-level implementers (EMI lecturers and students) without incorporating perspectives from macro-level stakeholders, such as policymakers or university administrators. This could limit the understanding of systemic factors influencing instructional practices. Furthermore, the present study relies on self-reported data from questionnaires and interviews, which may not accurately reflect actual classroom practices. Observational data would provide a more comprehensive understanding of how instructional methods and techniques are implemented.

## Note on Ethical Issues

The author(s) confirm(s) that ethical approval was obtained from the Ethics Committee of Çanakkale Onsekiz Mart University, School of Graduate Studies (2021- YÖNP-0242) in April 2021. (Approval Date: 08.04.2021)

## Conflict of interest

The authors have no conflicts of interest to declare.

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